

**EFFECTS OF NATIONAL TELEVISION IMMUNIZATION
CAMPAIGNS ON CHANGING MOTHERS' ATTITUDE AND
BEHAVIOUR IN EGYPT**

Mohsen Mohamed Noeman

A thesis submitted in fulfilment of the requirements for the degree of Doctor of
Philosophy

Department of Education and International Development
University of London
Institute of Education

June 1996

1



ABSTRACT

Eradication of polio outbreaks and tetanus neonatorum mortality, as well as lowering Egyptian infant mortality to less than 50 per 1000 live births, were specific goals to be achieved by the year 2000. National television immunization campaigns were launched to persuade mothers to change their attitude and vaccinate their children against the killer diseases. This study investigates the effects of these campaigns on mothers' knowledge, attitude, and behaviour regarding immunization in Egypt.

A comparative study was conducted among three groups of mothers who have a child three to twelve months of age. A total of 158 mothers were selected, by systematic random sample technique (1:2), from the part of Kolosna village, in Upper Egypt, which is supplied with electricity, to constitute the viewer group. From the other part of the same village, which is not yet supplied with electricity, all mothers (98) were selected, representing the non viewer group. Another 76 mothers were selected from two prestigious social clubs in Cairo, to represent a second control group of known social class and educational level. Through comparing mothers' knowledge, attitude, and behaviour between the viewer and the non viewer groups, the effect of television immunization messages can be illustrated. Similarly, comparing the village viewer with the Cairo viewer group determines the effects of some intervening factors such as educational level, health professionals, or experience

With a structured interview, mothers in the viewer group showed a significant positive and stable attitude and behaviour towards immunization, as well as more correct knowledge when compared with the non viewer group, demonstrating the positive role of television in child health promotion. Television enhances mothers' efficiency to use the available health services and promotes their perceived control over children's health. Health professionals, experience, and social support can potentiate the television's positive role. Educational level, occupation, baby's sex, or mothers' age are insignificant factors in changing mothers' attitude and behaviour.

DEDICATION

To my Mother ...

To my Father.

ACKNOWLEDGMENT

It has been a privilege to have had this thesis supervised by two competent people, Dr Elwyn Thomas and Mr Bob Ferguson. I am profoundly grateful to them. I wish to record my thanks to both Mr Derek May for his valuable advice in analysis of the research data and Professor M. Jarvelline for her kind help in the statistical treatment of the results. I am also grateful for the especial kindness of Mr Mamdoh Fahmy and Dr Mohamed Nageeb, without whose help and support the collection of data would not have been completed. I am particularly profoundly grateful to my uncle and aunt for their help in preparation for the study and to my wife for her proof-reading and continuous encouragement and support.

I must take this opportunity to offer my thanks to Dr Nabila Abdel Aziz, who enlightened and supported me from the start and provided me with this invaluable opportunity to complete the research. Finally, I would like to thank all the mothers who participated in the study and sacrificed some of their time in the name of science.

CONTENTS

| | Page |
|-----------------------------|-------------|
| ABSTRACT | 2 |
| DEDICATION | 3 |
| ACKNOWLEDGMENT | 4 |
| CONTENTS | 5 |
| LIST OF TABLES | 9 |
| LIST OF MODELS | 14 |
| LIST OF FIGURES | 14 |
| LIST OF ABBREVIATIONS | 14 |

Part One: Strategy for Change

| | |
|---|-------|
| CHAPTER ONE: INTRODUCTION | 15-19 |
| CHAPTER TWO: ATTITUDE CHANGE FOR BEHAVIOUR CHANGE .. | 20-37 |
| 1:2:1 Introduction | 20 |
| 1:2:2 Attitude's dimensions | 20 |
| 1:2:3 Attitude change | 24 |
| 1:2:4 Attitude-behaviour relationship | 30 |
| 1:2:5 Summary | 34 |
| 1:2:6 Conclusion | 36 |
| CHAPTER THREE: HEALTH EDUCATION FOR BEHAVIOUR CHANGE | 38-57 |
| 1:3:1 Introduction | 38 |
| 1:3:2 Concept of health | 39 |
| 1:3:3 Notions and trends of health education | 40 |
| 1:3:4 Goals of health education | 41 |
| 1:3:5 Process of health education | 45 |
| 1:3:6 Summary | 54 |
| 1:3:7 Conclusion | 57 |
| CHAPTER FOUR: PERSUASIVE IMMUNIZATION CAMPAIGNS | 58-83 |
| 1:4:1 Introduction | 58 |
| 1:4:2 Immunization campaigns' objectives | 59 |
| 1:4:3 National campaign strategy | 60 |
| 1:4:4 Immunization campaigns principles | 63 |
| 1:4:5 Summary and conclusion | 80 |

Part Two: Empirical Investigation

| | |
|--|--------|
| CHAPTER FIVE: RESEARCH METHODOLOGY | 84-108 |
| 2:5:1 Introduction | 84 |

| | | |
|----------|--|-----|
| 2:5:2 | Statement of the research problem | 86 |
| 2:5:3 | The working hypothesis of the research | 86 |
| 2:5:4 | Statement of the research questions | 86 |
| 2:5:5 | The operational hypotheses of the research | 87 |
| 2:5:6 | The statistical hypotheses of the research | 87 |
| 2:5:7 | The research variables | 88 |
| 2:5:8 | Location of the study | 88 |
| 2:5:9 | Research design | 92 |
| 2:5:10 | Sampling process | 96 |
| 2:5:10:1 | Population sample | 96 |
| 2:5:10:2 | Sampling frame | 96 |
| 2:5:10:3 | Sample size | 97 |
| 2:5:10:4 | Sampling technique | 99 |
| 2:5:11 | Generalization | 99 |
| 2:5:12 | The research instrument (MIS) | 100 |
| 2:5:13 | Data processing | 102 |
| 2:5:14 | Validity of the research method | 104 |
| 2:5:15 | Summary | 106 |

CHAPTER SIX: THE PILOT STUDY 109-133

| | | |
|---------|-------------------------------------|-----|
| 2:6:1 | Introduction | 109 |
| 2:6:2 | Objectives of the study | 109 |
| 2:6:3 | Aims of the pilot study | 110 |
| 2:6:4 | Location of the study | 110 |
| 2:6:5 | Preparing the study | 110 |
| 2:6:6 | Sampling process | 111 |
| 2:6:6:1 | Pilot study population | 111 |
| 2:6:6:2 | Sampling design | 112 |
| 2:6:6:3 | Sample size | 112 |
| 2:6:6:4 | Sampling technique | 112 |
| 2:6:7 | Developing the research methodology | 114 |
| 2:6:7:1 | Method of data collection | 114 |
| 2:6:7:2 | The research instrument (MIS) | 119 |
| 2:6:8 | Data trends | 124 |
| 2:6:8:1 | Health unit | 124 |
| 2:6:8:2 | Mothers' knowledge | 125 |
| 2:6:8:3 | Mothers' attitude and behaviour | 128 |
| 2:6:8:4 | Source of health information | 122 |
| 2:6:8:5 | Summary of the data trends | 133 |

Part Three: Data Analysis

CHAPTER SEVEN: MOTHERS' KNOWLEDGE 134-177

| | | |
|---------|---------------------------------------|-----|
| 3:7:1 | Introduction | 134 |
| 3:7:2 | Mothers' source of health information | 135 |
| 3:7:2:1 | Mothers' usage of the mass media | 136 |
| 3:7:2:2 | General health information | 137 |
| 3:7:2:3 | Information regarding immunization | 140 |

| | | |
|---|--|----------------|
| 3:7:3 | Mothers' knowledge regarding each of the target diseases | 141 |
| 3:7:3:1 | Mothers' awareness | 141 |
| 3:7:3:2 | Mothers' knowledge of a characteristic sign or symptom of each of the target diseases | 147 |
| 3:7:4 | Mothers' knowledge of the vaccination schedule | 154 |
| 3:7:5 | Mothers' knowledge of a method of protection from each of the target disease | 164 |
| 3:7:6 | Summary of mothers' knowledge | 170 |
| 3:7:6:1 | Knowledge of each of the recommended vaccines | 170 |
| 3:7:6:2 | Knowledge of the target diseases | 174 |
| 3:7:7 | Conclusion | 175 |
| CHAPTER EIGHT: MOTHERS' ATTITUDE | | 178-228 |
| 3:8:1 | Introduction | 178 |
| 3:8:2 | Mothers' affective attitudes | 179 |
| 3:8:2:1 | The target diseases | 179 |
| 3:8:2:2 | Importance of each vaccine | 186 |
| 3:8:2:3 | Vaccination's side-effects | 193 |
| 3:8:3 | Mothers' cognitive attitude | 194 |
| 3:8:3:1 | Vaccine's function | 195 |
| 3:8:3:2 | Effectiveness of each vaccine | 198 |
| 3:8:3:3 | Vaccination's side-effects | 205 |
| 3:8:4 | Mothers' conative attitude | 210 |
| 3:8:4:1 | The behavioural component | 210 |
| 3:8:4:2 | The affective component | 211 |
| 3:8:5 | Summary of mothers' attitude | 213 |
| 3:8:5:1 | Attitude towards each vaccine | 213 |
| 3:8:5:2 | Attitude towards immunization | 218 |
| 3:8:6 | Stability of the mothers' attitude | 220 |
| 3:8:6:1 | Distance to the vaccination point | 220 |
| 3:8:6:2 | The quality of the health services | 221 |
| 3:8:6:3 | Facing other competing priorities | 223 |
| 3:8:6:4 | Family dynamics | 224 |
| 3:8:7 | Conclusion | 227 |
| CHAPTER NINE: MOTHERS' BEHAVIOUR | | 229-284 |
| 3:9:1 | Introduction | 229 |
| 3:9:2 | General immunization behaviour | 229 |
| 3:9:3 | Past immunization behaviour | 232 |
| 3:9:4 | Specific immunization behaviour | 236 |
| 3:9:5 | Role of intervening factors on mothers' immunization behaviour | 241 |
| 3:9:6 | Mothers' absorption of the immunization messages | 256 |
| 3:9:7 | Television immunization campaigns | 262 |
| 3:9:7:1 | Mothers' viewing behaviour | 262 |
| 3:9:7:2 | Mothers' awareness of immunization campaigns . | 264 |
| 3:9:7:3 | Mothers' evaluative beliefs | 267 |
| 3:9:8 | Factors that may affect immunization behaviour | 269 |
| 3:9:8:1 | Social norms | 269 |

| | | |
|---|--|---------|
| 3:9:8:2 | Health delivery system | 271 |
| 3:9:8:3 | Beliefs for the schedule | 274 |
| 3:9:9 | Summary of mothers' behaviour | 278 |
| 3:9:10 | Conclusion | 282 |
| CHAPTER TEN: CONCLUSION AND RECOMMENDATIONS | | 285-293 |
| 3:10:1 | Introduction | 285 |
| 3:10:2 | Conclusion | 286 |
| 3:10:3 | Recommendations | 289 |
| 3:10:4 | Limitations of the study | 291 |
| 3:10:5 | Looking ahead | 292 |
| BIBLIOGRAPHY | | 294-309 |
| APPENDICES | | 310-347 |
| Appendix (1) | The preventable diseases and their vaccines | 310 |
| Appendix (2) | Theories of attitude change | 318 |
| Appendix (3) | Mothers' Interviewing Schedule (MIS) | 321 |
| | The Coding sheet | 332 |
| | Mothers' Interviewing Schedule (pilot study) | 339 |

LIST OF TABLES

| | | Page |
|------|---|-------------|
| 4:1 | Health programmes broadcast on television (April1993/March 1994) . . . | 73 |
| 4:2 | Daily average television hours by channel and year | 74 |
| 4:3 | Daily average transmission hours by type of programme and year | 74 |
| 5:1 | Stages of evaluation and their objectives | 85 |
| 6:1 | Sample size of the pilot study | 113 |
| 7:1 | Frequency table showing mothers' ranking of the available mass media in the Cairo viewer group | 135 |
| 7:2 | Frequency table showing mothers' ranking of the available mass media in the village viewer group | 136 |
| 7:3 | Frequency table showing mothers' ranking of the available mass media in the village non viewer group | 137 |
| 7:4 | Frequency table showing mothers' ranking for two sources of general health information | 138 |
| 7:5 | Frequency table showing mothers' ranking for three sources of information regarding immunization | 139 |
| 7:6 | Chi-square critical value and level of significance for the difference in mothers' awareness level of each disease between each two groups . . . | 145 |
| 7:7 | Frequency table (in percentages) showing mothers' awareness of the target diseases | 146 |
| 7:8 | Frequency table showing mothers' knowledge of the symptoms or signs of each of the target diseases | 149 |
| 7:9 | Chi-square critical value and level of significance for the difference in mothers' knowledge level of each disease sign or symptoms between each two groups | 151 |
| 7:10 | Frequency table showing mothers' knowledge of the vaccination schedule: Knowledge of the type of each vaccine | 157 |
| 7:11 | Frequency table showing mothers' knowledge of the vaccination schedule: Knowledge of the date of each vaccine | 158 |
| 7:12 | Frequency table showing mothers' knowledge of the vaccination schedule: Knowledge of the target disease for each vaccine | 159 |
| 7:13 | Chi-square critical value and level of significance for the difference in mothers' level of knowledge of each vaccine type and the date of vaccination between each two groups | 163 |
| 7:14 | Frequency table showing mothers' knowledge of the method of protection against each of the target diseases | 167 |
| 7:15 | Chi-square critical value and level of significance for the difference in mothers' knowledge level regarding the method of protection against each disease between each two group | 169 |
| 7:16 | Frequency table showing mothers' general knowledge of each of the | |

| | | |
|------|---|-----|
| | recommended vaccine | 173 |
| 7:17 | Frequency table showing mothers' knowledge of vaccination | 175 |
| 8:1 | Frequency table showing mothers' affective attitude towards each of the target diseases | 182 |
| 8:2 | Chi-square critical value and level of significance for the difference in mothers' affective attitude level towards the seriousness of each disease between each two groups | 184 |
| 8:3 | Frequency table showing mothers' affective attitude towards the importance of each vaccine | 191 |
| 8:4 | Chi-square critical value and level of significance for the difference in mothers' affective attitude level towards the importance of each vaccination between each two groups | 192 |
| 8:5 | Frequency table showing mothers' affective attitude (evaluative beliefs) towards the vaccination's side-effects | 194 |
| 8:6 | Chi-square critical value and level of significance for the difference in mothers' affective attitude level towards the vaccination's side-effects between each two groups | 194 |
| 8:7 | Frequency table showing mothers' cognitive attitude towards immunization's function | 195 |
| 8:8 | Frequency table showing mothers' beliefs in means of diseases prevention if not immunization | 197 |
| 8:9 | Frequency table showing mothers' cognitive attitude towards each vaccine's effectiveness | 200 |
| 8:10 | Chi-square critical value and level of significance for the difference in mothers' cognitive attitude level towards the effectiveness of each vaccine between each two groups | 204 |
| 8:11 | Frequency table showing mothers' cognitive attitude towards the vaccination's side-effects | 207 |
| 8:12 | Chi-square critical value and level of significance for the difference in mothers' cognitive attitude level towards the vaccines' side-effects between each two groups | 208 |
| 8:13 | Frequency table showing mothers' beliefs regarding the vaccination's side-effects | 209 |
| 8:14 | Frequency table showing mothers' conative attitude (behavioural component) towards immunization | 210 |
| 8:15 | Chi-square critical value and level of significance for the difference in mothers' conative attitude level (behavioural component) towards immunization between each two groups | 211 |
| 8:16 | Frequency table showing mothers' conative attitude (affective component) towards immunization | 212 |
| 8:17 | Chi-square critical value and level of significance for the difference in mothers' conative attitude level (affective component) towards immunization between each two groups | 212 |
| 8:18 | Frequency table showing mothers' attitude towards each vaccine | 215 |
| 8:19 | Frequency table showing mothers' attitude towards immunization (in percentages) | 218 |
| 8:20 | Frequency table showing mothers' attitude towards immunization with distance | |

| | | |
|------|--|-----|
| | to the vaccination point as a competing factor | 221 |
| 8:21 | Chi-square critical value and level of significance of the difference in mothers' attitude towards immunization between each two groups with the distance to vaccination point as a competing factor | 221 |
| 8:22 | Frequency table showing mothers' attitude towards immunization competing with the health services quality | 222 |
| 8:23 | Chi-square critical value and the level of significance of the difference in mothers' attitude levels towards immunization between each two groups with the quality of health services as a competing factor | 223 |
| 8:24 | Frequency table showing mothers' attitude towards immunization faced with other priorities | 223 |
| 8:25 | Chi-square critical value and level of significance of the difference in mothers' attitude towards immunization between each two groups with other priorities as a competing factor | 224 |
| 8:26 | Frequency table showing mothers' attitude towards immunization with family dynamics as a competing factor | 225 |
| 8:27 | Chi-square critical value and level of significance for the difference in mothers' attitude levels towards immunization between each two groups with other family dynamic as a competing factor | 225 |
| 8:28 | Frequency table showing mothers' attitude with competing motives . . . | 226 |
| 9:1 | Frequency table showing mothers' general immunization behaviour . . . | 230 |
| 9:2 | Immunization coverage (%) in Egypt | 231 |
| 9:3 | Chi-square critical value and level of significance for the difference in mothers' current general immunization behaviour between each two groups | 232 |
| 9:4 | Frequency table showing mothers' past immunization behaviour | 233 |
| 9:5 | Frequency table showing mothers' reasoning for their past immunization behaviour | 234 |
| 9:6 | Frequency table showing sibling number | 235 |
| 9:7 | Chi-square critical value and level of significance for the difference in mothers' past behaviour between each two groups | 236 |
| 9:8 | Frequency table showing mothers' immunization behaviour regarding each disease | 239 |
| 9:9 | Chi-square critical value and level of significance for the difference in mothers' immunization behaviour for each disease between each two groups | 241 |
| 9:10 | Frequency table showing the effect of each health professional group on mothers' immunization decisions | 242 |
| 9:11 | Frequency table showing the effect of each mass media group on mothers' immunization decisions | 243 |
| 9:12 | Frequency table showing the degree of influence of each group on mothers' immunization decision | 245 |
| 9:13 | Frequency table showing the effect of each of the family members or friends on mothers' immunization decisions | 247 |
| 9:14 | Chi-square critical value and levels of significance for the difference in mothers' religion and the baby's sex between each two groups | 249 |
| 9:15 | Frequency table showing mothers' age band | 249 |

| | | |
|-------|---|-----|
| 9:16 | Frequency table showing parents' level of education | 250 |
| 9:17 | Frequency table showing parents' occupation | 251 |
| 9:18 | Frequency table showing the baby's sex | 252 |
| 9:19 | Frequency table showing mothers' religion | 252 |
| 9:20 | Frequency table showing mothers' absorption of message "1": Diseases like polio are a national health problem | 256 |
| 9:21 | Frequency table showing mothers' absorption of message "2": Immunization is important for the child in the first year of life | 257 |
| 9:22 | Frequency table showing mothers' reaction to a control message "3": It is important to immunize even a slightly sick child | 258 |
| 9:23 | Frequency table showing mothers' absorption of message "4": Immunization protects the child from dangerous diseases | 259 |
| 9:24 | Frequency table showing mothers' absorption of message "5": Immunization should be with a disposable plastic syringe | 259 |
| 9:25 | Frequency table showing mothers' absorption of message "6": Every pregnant woman should be vaccinated against tetanus | 260 |
| 9:26 | Chi-square critical value and level of significance for the difference in mothers' absorption of the broadcast immunization messages between each two groups | 261 |
| 9:27 | Frequency table showing mothers' television viewing behaviour | 263 |
| 9:28 | Frequency table showing mothers' viewing behaviour for the television health programmes | 263 |
| 9:29 | Frequency table showing mothers' favourite television health programmes | 263 |
| 9:30 | Frequency table showing mothers' awareness of the immunization campaigns | 264 |
| 9:31 | Frequency table showing two sources for awareness of the immunization campaigns | 266 |
| 9:32 | Frequency table showing mothers' reasoning for their beliefs towards the televised immunization campaigns | 268 |
| 9:33 | Frequency table showing mothers' evaluative beliefs of the televised immunization campaign: How useful was the campaign? | 269 |
| 9:34 | Frequency table showing social norms: child care responsibility | 270 |
| 9:35 | Frequency table showing the cost for each immunization visit | 272 |
| 9:36 | Frequency table showing mothers' awareness of the health unite | 273 |
| 9:37 | Frequency table showing mothers' attendance to the health unite | 273 |
| 9:38 | Frequency table showing the way to reach the local health unite | 274 |
| 9:39 | Frequency table showing mothers' immunization behaviour according to the recommended schedule | 274 |
| 9:40 | Chi-square critical value and level of significance for the difference in mothers' immunization behaviour according to the recommended schedule between each two groups | 275 |
| 9:41 | Frequency table showing mothers' reasoning for their immunization behaviour in relation to the recommended schedule | 275 |
| A:1:1 | Schedule of immunization of children in the first year of life | 314 |
| A:1:2 | Some vital statistics for Minya Governorate | 315 |

| | | |
|-------|---|-----|
| A:1:3 | The recorded number of births and vaccination in Minya Governorate (1987-June 1990) | 315 |
| A:1:4 | Type and number of health facilities providing vaccination in Minya Governorate | 316 |
| A:1:5 | Vaccination coverage (%) among children age 12-23 months by district in Minya Governorate | 317 |

LIST OF MODELS

| | Page |
|-----|--|
| 9:1 | Multivariate model: Dependent variable is immunized/not immunized . 253 |
| 9:2 | Multivariate model: Dependent variable is immunized/not immunized . 253 |
| 9:3 | Multivariate model: Dependent variable is immunized/not immunized . 254 |
| 9:4 | Bivariate model: Dependent variable is immunized/not immunized against diphtheria 255 |
| 9:5 | Multivariate model: Dependent variable is immunized/not immunized against diphtheria 255 |
| 9:6 | Multivariate model: Dependent variable is immunized/not immunized against polio 255 |
| 9:7 | Multivariate model: Dependent variable is immunized/not immunized against measles 255 |

LIST OF FIGURES

| | |
|-----|---|
| 5:1 | Map of Egypt 89 |
| 5:2 | Map of Minya Governorate 90 |
| 5:3 | Kolosna village and its sample size per each block 98 |
| 6:1 | Map of Samalout district, Kolosna village, and Itsa village 111 |

LIST OF ABBREVIATIONS

| | |
|--------|---|
| BCG | Bacillus Calmette-Guerin |
| CAPMAS | Central Agency for Public Mobilisation and Statistics |
| CV | Cairo Viewer |
| DF | Degree of Freedom |
| DPT | Triple vaccine (diphtheria, pertussis, and tetanus) |
| EPI | Expanded Programme of Immunization |
| ERTU | Egyptian Radio and Television Union |
| HBV | Hepatitis "B" Vaccine |
| IH | Infective hepatitis |
| MIS | Mothers Interviewing Schedule |
| MoH | Ministry of Health |
| ORT | Oral Rehydration Therapy |
| TB | Tuberculosis |
| TT | Tetanus Toxoid |
| UCI | Universal Child Immunization |
| VN | Village Non-viewer |
| VV | Village Viewer |
| WHO | World Health Organization |

CHAPTER ONE

INTRODUCTION

Throughout the world, there is a silent wave of demand by individuals to become architects of their destiny. With the expansion of medical technology, it becomes imperative that health professionals continually update their skills to be able to care effectively for their patients. This rarely has a major effect on the entire population's health. Consequently, effective public education for health turned out to be an essential component for achieving "Health for All" by the year 2000 (WHO, 1996).

Bilharziasis, dehydration, and short birth intervals are examples of health problems in rural Egypt. Such problems most commonly stem from a lack of appropriate knowledge on the public's side. For example, when the WHO announced the goal of Universal Child Immunization¹ by the end of 1990, 5 million children were dying each year from vaccine preventable diseases and another half a million were being crippled by polio. This was all the more tragic, not because the services were unavailable, but because mothers did not know they were there, or were ignorant of the vaccination's importance. This poses a serious challenge for educating mothers about child health, which promotes more ambitious global development.

Educating mothers for immunization is a participatory process through which mothers develop an understanding of the surrounding child health problems and how health can be safeguarded instead of laying that duty in the hands of medical elites.

¹ The goal was to reach 80% of the developing world's children before their first birthday.

Consequently, recent medical findings, of mothers' interest, must be channelled effectively to achieve the desired behaviour change. Hence, it is essential that effective channels of communication with mothers should be explored to persuade them to accept more direct responsibility for their own family's health and well-being.

Television, as a prominent feature of modern life, has become a major medium for communication, manifested by its steady increase in number and the creative quality of its programmes. It is estimated that in the 1920s, the average adult in the USA spent three to four hours per day using the media, but with the advent of television, the time spent on media increased by 40% (Schramm and Porter, 1982). Acknowledging the central role of television, in the daily life of most of their target population, health educators believe that, with its audio-visual capacities, television has the capability to persuade people to change or adopt new attitude or behaviour, and to convert them to their point of view². Television intervention is a relatively inexpensive method of exposing 58 million Egyptians to specific health messages, including those who cannot be reached by the printed word e.g. the illiterate, or by face-to-face communication e.g. the Western or the Eastern desert (Hall et al., 1988; Jason et al., 1993). Up to 94.5% of the sample surveyed in Egypt reported having seen the family planning programmes (ERTU³, 1993).

Moreover, the message itself can be sophisticated and potentially powerful in a manner not available to other types of intervention i.e. using different styles, colour, light, music, and so on, such as with the "Mama Karima" (Mother Karima) campaigns for ORT (Oral Rehydration Therapy). Furthermore, television can provide valuable information to the public about the options that are available beyond the confines of their experiences (Unesco, 1980). Hence the attempt to explore the potential of the television as a tool for health education. From this perspective, the working hypothesis of this research is:

² For most Americans, watching television is the single most time-consuming leisure activity (Kubey and Csikszentmihalyi, 1990), and it is the main medium from which they receive information related to their health (Dan, 1987).

³ Egyptian Radio and Television Union.

Television in Egypt plays a positive role in child health promotion.

In Egypt, there is growing concern about the value of television support for improving the flow of health information, particularly in rural areas. Despite the lack of reliable information, making health information on child health available for all mothers has been considered a great challenge for communication over the last decade in Egypt. Since the early 1980's, intensive use of a television campaign strategy has made it possible to alert all mothers to the crucial role of immunization in saving children's lives, and to mobilise a high level of political involvement. Between December 1986 and July 1987 a total of 720 minutes of secondary prime time space was filled with messages regarding immunization, while 192 minutes of both primary and secondary prime time were used for campaign spots (MoH/Unicef, 1990)⁴. Given these circumstances, the research problem is:

Mothers, especially in rural areas, who receive immunization messages through television should demonstrate positive change in attitude and behaviour towards immunization, as well as increasing their knowledge of better child health measures.

From this perspective, the framework of the research questions is as follows:

- What are the effects of such public television campaigns on mothers' knowledge, attitude, and behaviour as regards immunization?
- Did the campaigns result in any change?
- Was the change, if any, for the better?
- Were changes in mothers' attitudes towards immunization followed up by positive behaviour change?

⁴ In the words of appreciation from the general director of Unicef in the Middle East to the president of the Egyptian television station, "Egyptian television played an outstanding role in making the recent national child immunization campaign a great success. As a result of sustained and timely information on television regarding the importance of immunization, more than 3.5 million children were protected against measles in October 1986 and another 5.6 million against diphtheria, whooping cough, tetanus and poliomyelitis in July 1987. This allowed Egypt to take a leadership position in heading towards the global goal of full child immunization by 1990."

As health educationalists proceed to think about further extending and sustaining gains made thus far, it becomes increasingly important to focus attention on understanding the behaviour of the mothers whose children have not yet been fully immunized, and to move from the control objective to the eradication of killer diseases. Immunization is no longer seen as an automatic process, but a decision in which parents actively wish to choose what is best for their children. Many factors beyond mere information can influence how mothers behave. The behaviour which emerges from a mother is the behaviour which, at that moment, is the most strongly motivated. Public health educationalists have compelling reasons to examine and understand the determinants of change in human behaviour to achieve their ultimate aim.

There are many successful examples of television being used to educate people for health, raising public awareness, stimulating attitude change, and even changing behaviour (e.g. Theobald et al., 1991; Siska et al., 1992; Raiteri et al., 1994; Wright and Pearl, 1995). On the other hand, the role of television has often been referred to as complex, indirect and only contributory. Previously, health educationalists believed that the television's power operates in a more or less direct way for all people, irrespective of their social location, or their existing knowledge, attitude or behaviour. But it has gradually been recognized that the target population is far from behaving like "sitting ducks", waiting to be shot at by the health educator. A number of reviews of television health campaigns have pointed to disappointing attempts to attain the promised impact (e.g. Flay et al., 1995; DeJong and Atkin, 1995). The limited effects may have occurred partly because health education has too often given inadequate support for the broad implementation of the persuasive theories. It may also be a consequence of the lack of understanding of the nature of the television and how it can best contribute to public education. Schwartz and Capwell (1995) encourage the expansion of research efforts to translate theory into practice. Much can be learned by analysing failures. Improving understanding of the use of television, not only helps health educationalists to perform more effectively, but also enables the mothers to make more effective use of television.

For Egypt, evaluation of television health intervention is urgently required, not only

because poor health conditions continue to stifle national potential but also, imported strategies from the developed world may not be the ideal approach where there are many differences in tradition, culture, values, needs, resources, and so on. It is equally important that a high priority be placed on immunization for its tremendous lifesaving potential. It also breaks the cycle of malnutrition, infection, and ill-health which contribute to most infant deaths, especially in rural areas. Moreover, there is always a new generation of mothers who have the right to learn how to protect their young children. However, little attention has been given to evaluating immunization campaigns, particularly in developing world. Consequently, the aim of this research is:

To demonstrate the effects of television immunization campaigns' messages, designed for child health promotion in Egypt, on mothers' knowledge, attitude, and behaviour.

The subject of television health campaigns is in a state of flux. New ideas from mass media marketing in the private sector, and scientific studies of human sociology, psychology, and anthropology continue to enrich the field. This research brings the lessons and major findings of the extensive body of research in each of these topics together to fill the existing gap between the three fields of study: medicine, education, and the media. It also helps both media professionals and health educationalists to understand each other and to collaborate harmoniously and productively in designing activities and campaigns that can achieve a higher level of effectiveness.

In addition to the introduction chapter, the main bulk of the study is made up of three parts. Part one represents theoretical background to strategy for mothers behaviour change. It moves gradually from explaining the nature of attitude change, as a predictor for mothers behaviour change; to the process of education for health; and then description of the principles of the Egyptian persuasive television immunization campaigns. Part two represents the process of empirical investigation, leading to part three which deals with the analysis and discussion of results, with the final conclusion and recommendation.

CHAPTER TWO

ATTITUDE CHANGE FOR BEHAVIOUR CHANGE

1:2:1 INTRODUCTION:

Judd et al., (1991) viewed attitude as "*evaluations of various objects that are stored in memory*". Roediger et al., (1984) define attitude as: "*a relatively stable tendency to respond consistently to a particular object*". These definitions characterised attitude as being flexible to a certain degree and subjected to change and, by identifying peoples' attitude, it would be possible to predict their behaviour. However, this is not a straight-forward relation since it is only a tendency to respond consistently. Health educationalists view attitude as a major organiser for feelings, beliefs, and values into an enduring system. More important, it provides a clue to future behaviour. The aim of this chapter is to elucidate the concept of attitude as a predictor for behaviour. From this perspective, it is possible to comprehend the basis for building a strategy, whether educational or persuasive, to modify the target attitude as a precursor to a behaviour change.

1:2:2 ATTITUDE'S DIMENSIONS:

As McGuire (1985) reported, attitude has three dimensions as follows:

1) Cognitive dimension: Cognition refers to the process of thinking and mental evaluation of the object. It develops through understanding the object, e.g. immunization, its contraindications, function, and so on, and it may be based upon inaccurate information or may not have been acquired from experience (Breckler, 1984). Cognitive dimension can be a problem for health educators who concentrate their efforts on changing mothers' beliefs about a behaviour and its effect on health. On the other hand, mothers's beliefs about the susceptibility to a disease or the effectiveness of a certain intervention are so dogmatic that they cannot easily be changed. For example, some mothers believe immunization has no value on the basis of their own knowledge that there was no immunization a long time ago, yet their parents were healthy.

A mother's cognitive component regarding immunization is formed through understanding and recalling information related to immunization, and its application in a specific situation e.g. through understanding what measles is, the means of its prevention, the available health services, and recalling that information before making any decision regarding vaccination. The mother then splits the information into its simpler facts, and examines the relationship of each fact to what she knows about child health to reach a structure that was not existing before. For example, there are many diseases that can affect my child, measles is one of them. Some of these diseases are not dangerous but measles is a dangerous one. Although some diseases are inevitable, measles can be prevented by the ninth month injection, which is available, free of charge, at the nearby health unit. The mother then completes her cognitive attitude through qualitative judgment of immunization by using some personal standards regarding effectiveness e.g. it is not wise to immunize my child. These cognitive processes (current thoughts and memories) exert strong effects upon mother's emotional or affective state towards immunization (Schwarz et al., 1991).

2) Affective dimension: The affective component of a mother's attitude is concerned with her feeling about immunization. It describes the potential action towards immunization with regard only to the question whether the potential action will be

favourable or unfavourable e.g. if a mother's affective attitude towards immunization is negative, her potential behaviour regarding child immunization may be expected to be against. An affective dimension is related to goals and acquired through experience. If a mother agrees with the idea of immunization, she will feel pleased by this idea in accordance with her experience with immunization in general. She is also liable to develop a positive affection towards immunization if she realises that it helps her to reach the main goal of having a healthy child. This positive affection may also be extended to the health profession, local health unit, advances in medicine in general, or she may even wish that her baby will be a doctor in future. This component influences, as Fiske and Neuberg (1990) concluded, the perception and valuing of related social information. Having established an attitudinal position, a mother can interpret new information in ways that will be consistent with her new beliefs. It also exerts a strong influence upon memory (as Forgas, 1991 argues in his direct access strategy). If a mother has a positive view of immunization, she can apply her previous judgement directly and can conclude with little effort that she probably will like the new vaccine. At the same time, her preexisting goals lead to a valutive search for a use of information i.e. she seeks more information to reach a conclusion, and to maintain the positive affect.

Information regarding child immunization, which is also consistent with a mother's current mood, is easier to remember than information that is inconsistent with it. Baron et al., (1992) found that positive affect can widen the range of retained information within various memory categories. A mother with a positive affect towards immunization is ready to receive and remember more information regarding her child's health e.g. the immunization schedule. Affect not only influences a mother's process of social information but also her decision regarding related situations and the judgement she reaches (Schwarz et al., 1991). On the other hand, new information activates cognitive frameworks, containing strong affective components, which suggest what characteristics the new vaccine probably has. It may also tell how a mother interprets or appraises the information regarding the new vaccine, and how feelings are towards such vaccine (Zillmann, 1988). Affect also influences the expectations and their impact on reaction and judgements e.g. if a

mother expects that she will like the new vaccine, she will show visible signs of pleasure even before she gives it to her child (Wilson et al., 1989).

As with the cognitive dimension, the affective dimension is formed through receiving the stimulus (Biblarz et al., 1991) i.e. her recognition of the existence of measles in the village and that the injection for protection against measles is now available at the health unit. A mother's reaction to the received information may range from passive acceptance to expressing pleasure on receiving the stimulus or, at the other end of the spectrum, pain and refusal. A mother may value the information highly and accept it for development of health care e.g. acceptance of legalisation of immunization. Another may not only reject immunization, but also refuse the idea of interference in her child health. Her judgement depends on her personal standard in which more than one value competes and the inclusion of the new stimulus into her value system. A mother may perceive feelings not only about health but also about all other aspects of life e.g. family, job, beauty, and so on. A health educator's responsibilities here is to influence the mother to re-organise her value system so that those related to immunization are raised to a higher level e.g. more than domestic chores.

3) Conative dimension: This is the third dimension of attitude which is connected with how a mother tends to behave towards immunization. It includes all the behavioural readiness or intention associated with the attitude, but does not necessarily imply that the behaviour will actually be shown. For example, if a mother holds a positive attitude towards immunization, she will buy the vaccine or give a donation to the local health unit, or talk in favour of it. Nevertheless, the behavioural component does not always appear to be present. This would be the case of a mother who likes immunization but who never consults a paediatrician or reads about it¹.

¹ The concept of attitude as a system having three dimensions raises the question of the degree to which these dimensions are consistently related to one another. Kothandapani (1971) asked subjects to answer questions about their liking or disliking of contraception, their beliefs and then compared these measures with self-written reports of behaviour. He concluded that affect, cognition, and behaviour were interrelated, although still distinguishable from each other.

After depicting the concept of attitude, it may be important to understand the forces that lead the mothers to comply with or to resist the immunization messages. In the following section, the researcher reviews the most famous theories for the dynamics of attitude change and persuasion, on the basis of our previous understanding of the components of the target attitude and their significance in understanding the principles for designing television immunization campaigns.

1:2:3 ATTITUDE CHANGE:

Tyler and Schuller (1991) concluded that attitude is not rigid and can be changed in response to experiences over an entire lifespan. Praise and approval from friends or relatives can effectively mould attitude. A mother may change her attitude towards immunization by observing the behaviour of other mothers who express particular attitudes. This social learning and enforcement process is particularly important in villages where the behaviour of others can be easily watched (Rule et al., 1985). A mother may even imitate the others in absorbing the health messages presented on the television, e.g. immunization is good for child health, without having direct exposure to television, and as a result may form a positive attitude towards immunization. Attitude towards immunization may also change by acquiring new information about immunization or through direct experience with it (Deaux et al., 1993).

Imitating a television model can lead to a direct experience that produces new attitude towards immunization. Modelling can even strengthen the already positive attitude or weaken the inhibitions over behaviour that mothers have previously learned (Bandura, 1986). Taras et al., (1989) also concluded that television can create attitude and enforce that which already exists. Krosnick et al., (1992) reported that through a classic conditioning process, mothers attitudes towards immunization can pass on to other vaccines. Once an attitude is formed towards a vaccine, the mother will expect the same consequences upon exposure to new health messages and show the same

kind of reactions as to the first stimulus. This may further explain Oskamp's (1988) conclusion that television is a powerful source of attitude formation and change.

Campaign planners draw inspiration from human motivation, describing the mothers as consistency optimisers, or information refiners. On the other hand, the mother has numerous other complex needs, which may yield valid predictions in some circumstances and mislead in others where the aspect under investigation is overridden by other personal aspects. There are many theories developed by psychologists to explain the process of change and persuasion but all identify basic factors in the broad process of attitude change². It may be essential now to go through three of the major and related theories that could be helpful in understanding the mechanisms of mothers' attitude or behaviour change.

1:2:3:1 Consistency theory:

The basic assumption of consistency theory (Heider, 1946) is that a balanced state in a person's attitudes or attitudes and behaviour is the stable one that resists change³. Heider's concept is basically qualitative in character as it allows either a balanced or unbalanced (positive or negative) state in the way people view their relations with each other and with their environment. Any inconsistency or unbalanced state is assumed to be unstable and to call for a change. Therefore, when a mother perceives that some of her cognitive elements are contradicting, she will be in a state of cognitive imbalance, which is painful and produces tension. She will then be motivated to bring her cognitive system to a tension-free state by changing one or all of these opposed elements. This requires reorganization of the mother's thoughts, beliefs, attitude and, behaviour in a sensible way (Spellman et al., 1993). Sometimes

² See appendix "2" for the different theories of attitude change and their application in television health campaigns.

³ In Heider's words, there is always some movement towards this balanced state, that is, *in "a situation in which the relations among the entities fit together harmoniously, there is no stress toward change"* (Heider, 1958 P. 201).

the way that an individual achieves consistency in behaviour suffers from a lack of rationality e.g. a heavy smoker cannot accept evidence that relates cancer with smoking. Spears and Manstead (1990) extended Heider's theory and assumed that there is a tendency towards symmetry which will cause a mother to share with other mothers in the same village a common attitude towards immunization for example.

Consistency theory predicts the occurrence of attitude change or resistance to change. Yet it does not explain what predictions are to be made when attraction of both individuals towards an object exists but when the origin and nature of these attractions are different. In other words, suppose two mothers like immunization but for different reasons. One mother looks forward to protecting her child. The other mother wants to get outside the house and meet friends inside the health unit. It is also not clear what the consequences of consistency theory are in a case when the two mothers like immunization for the same reasons and in the same way.

1:2:3:2 Dissonance theory:

This theory is another prominent theory directed at understanding stability of attitudes and making predictions about exposure to attitude-relevant information⁴. It assumes that relevant cognitive elements exist either in a state of consonance or in a state of dissonance. If dissonance is sufficiently unpleasant, one of the cognitions should be changed to restore the pleasant consonance state. This theory helps health educators to understand a mother's behaviour in selective exposure, attention and comprehension of the presented message which may cause failure of the campaign. According to Festinger (1957), if a mother dislikes immunization, she will avoid information that explores the advantages of immunizing her child, such as protection from diseases. On the other hand, she may probably enjoy hearing that the people she admires (e.g. her husband) dislike immunization or she may approve the idea that immunization is a source of ill-health.

⁴ "Ever since the concept of cognitive dissonance was first developed in the 1950s, social psychologists have assumed inconsistency to be its most basic feature" (Baron and Byrne, 1994. Page 165).

Festinger theory assumes also that a change in behaviour leads to a change in attitude. According to Cooper and Fazio (1984), when a mother has a choice in making a decision regarding immunization and she is able to foresee the consequences of her decision, dissonance is unlikely to be aroused. Steel (1988) added a refinement to dissonance theory by assuming that attitude change occurs as a result of self endorsement responding to a threat to self-esteem by enhancing some facts of the self concept. When a mother feels that she is responsible for her child health, she is motivated to determine whether she is responsible for the harmful outcomes or, whether they perhaps stemmed from factors beyond her control. If she concluded that she was responsible for the outcome, dissonance is generated and efforts to decrease it then follow. Cooper and Scher (1992) believe that it is the acceptance of personal responsibility for the adverse outcomes that produce dissonance and attitude change.

In general, cognitive dissonance theory can be applied to any situation in which individuals commit themselves to a situation relevant to their self-concept. In fact, dissonance theory is a type of consistency theory, which is concerned with the relation between cognitive elements and the consequences when elements are inconsistent with each other. In daily life, however, dissonant information cannot often be easily avoided. Attitude exerts an influence on information processing by biasing the perception and the evaluation of the information (Blumoff, 1990). Festinger's assumption was also supported by Fazio and Williams (1986) who argue that people selectively process information about the qualities of attitude objects.

According to Festinger's assumption, there are three theoretical ways of reducing dissonance. Each may have several behavioural manifestations, as follows:

1. Changing the cognitive elements related to beliefs, attitude, or behaviour. Considering the dissonance between "I do not immunize my child" and "immunization protects my child". This dissonance can be reduced by a change in the behaviour associated with one of the dissonant elements, i.e. I should immunize my child.
2. Changing a cognitive element related to the environment. This could be a change in the physical environment (e.g. tetanus is not common in this area), or change the psychological environment by confirming that routine care is enough.

3. Adding new cognitive elements (a mother may look for information that natural infection gives permanent protection and immunization has its hazards). She may also agree with the idea that "whatever will be will be", and therefore think "why bother with this nonsense"?

1:2:3:3 Kelman's theory:

Kelman's theory (1958) implies that understanding how attitude was formed is the key to change it. A similar attitude may develop in different mothers through different processes. Therefore, different techniques can be followed by the health educators to change the same attitude. Three main mechanisms are proposed as follows:

a) Compliance: This refers to a situation where a mother is forced to behave in a manner which is contrary to her attitude as a result of either a promised reward for compliance or a threatened punishment for non compliance. If a mother who believes that traditional medicine is more convenient and more effective is forced to immunize her child (e.g. penalty for not obeying), a dissonance will be prominent. As long as she cannot refuse to immunize her child, changing her attitude towards immunization is the only option for her to reduce dissonance through believing that immunization, at least, is not harmful for the child. The amount of her attitude change towards immunization produced by compliance depends mainly on the degree of punishment by not complying. So, compliance in this situation can be a changing agent when it has the power of influencing the control of rewards or punishments and the mother's behaviour is observable by the influencing agent. Nevertheless, as Spruijt-Metz (1995) assumed, intrinsic meaning of behaviour represents the affective determinants more than extrinsic incentives e.g. immunization may represent a way of conformity, rewarding, or punishing oneself.

When a health issue meets with a high degree of resistance, it sometimes could be practical to use law to enforce the new behaviour, even if it is not accompanied by

attitudinal change⁵. The reason is very simple, the people have to comply with the new law (e.g. no smoking in public transportation). Health educationalists aim for the adoption of the target behaviour, even with the passage of a disliked law. This helps the health educationalist to gain new strength and to stimulate more radical solutions for the behavioural problem. Thus, when it comes to changing basic attitude, it may be effective to pass a law requiring behavioural conformity, which sets forces into motion that may accelerate the acceptance of new values (Low et al., 1992). However, passing a new law causes resistance and avoidance by the people, especially if they suffer from a lack of knowledge of the reason behind it. It creates resentment because of the indignity of being compelled to submit to a certain behaviour. It could be true that compulsion is a poor substitute for education and law cannot, and should not, replace persuasion and education (Dingman, 1994). Freedman et al. (1992), in their *inferred value theory*, suggested that people who engage in counter-attitudinal behaviour can change their attitudes more with less force i.e. a severe punishment may suggest that the counter-attitudinal behaviour is unpopular, while the lesser punishment suggests that this behaviour is easy or popular.

b) Identification: A mother may develop a positive attitude towards immunization because her husband believes in immunization and she wants to keep a satisfying relationship with him by saying what he says, doing what he does, believing what he believes in. She is primarily concerned with his expectations for her role. The degree of her attitude change in this situation depends mainly on the influence of her husband and his attractiveness rather than the behaviour itself. Identification differs from compliance in that the mother actually believes in the opinions and actions that she adopts. Her behaviour is accepted both in public and in private, and its maintenance does not depend on continuous policing by the influencing agent.

c) Internalization: In this situation, the mother develops a positive attitude towards immunization simply because she feels that it is a practical way to protect her child's health. Besides that, she may support the idea that immunization is the solution for

⁵ Great Britain (1991): Children and young persons (protection from tobacco) Act 1991: Chapter 23 London: HMSO, 1991.

the community health problems. The extent of her attitude change depends on the degree of relevance of the issue, regardless of any surveillance or salience.

The common goal of immunization or any other health campaigns is to bring changes in mothers' behaviour, and consequently, improvement in the health status of both the individual and the whole community. The main reason for studying attitude and attitude change is the expectation that an understanding of mothers's attitude towards certain health issues increases prediction of their health behaviour. However, to what extent are what a mother says, feels, and intends to do consistent with what she actually does? This is the problem of the attitude-behaviour relationship which has been demonstrated by studies that specifically attempt to relate attitude to observed behaviour. What people say and what they actually do can be surprisingly different. It is important then to detect conditions under which attitude has effects on behaviour.

1:2:4 ATTITUDE-BEHAVIOUR RELATIONSHIP:

The question here is do mothers' attitudes shape their behaviour? Evidence concerning the strength of the link between attitudes and behaviour is far from conclusive. There have been many surprising examples (e.g. LaPiere, 1934; Vargas et al., 1993; Laflin et al., 1994; Oakley, 1995) where measurement of the relation between people's behaviour and their verbally expressed attitude failed to correlate, or where correlations were found to be ambiguous with respect to the direction of causality. Only in a minority of studies was a close relationship found between verbally expressed attitudes and overt behaviour (e.g. Sutton, 1992; Kimura, 1993). Nevertheless, such results have generally failed to shake the conviction that attitude is an important predictor of behaviour.

One of the earliest classic studies was conducted by LaPiere (1934) who considered the relationship between attitude and behaviour as totally non-existent. LaPiere visited

many restaurants and hotels in the USA with a Chinese couple. In spite of the anti-Chinese feeling at that time, he was only refused once. Six months later, LaPiere sent letters to the places which he visited before, asking them if they were willing to accommodate Chinese guests. Over ninety percent of the replies indicated that they would not accommodate them. But it is still difficult to conclude from these results that there is a weak relation between attitude and behaviour. What can be understood is that attitude is situated on a causal chain between un-observable antecedent stimuli and observable subsequent responses. From the researcher point of view, there are some explanations for the reportedly low attitude behaviour relationships.

1) Methodological factors:

Unfortunately, there is no direct access to attitude in the sense of being able to know what is going on inside a person's head and to confirm what he/she is thinking about. It can be measured only on the basis of inference drawn from the individual's behaviour, or the verbal statements of belief, feeling, and intention to act towards the object. There are two problems related to this kind of indirect measurement. One is related to the process of defining or localising a specific action which can provide a description of attitude. The other problem is related to the process of conversion of abstract concept into numbers in order to compare different people's attitudes, or to describe the attitude of a single person in different contexts, or at different times.

Attitude measures are almost always based on self reports which are open to bias and distortion. Breckler (1984) argued that studies may have an exaggerated estimate of the relation between attitude and behaviour by relying on self-report measures, without the attitude object being physically present. This requires a response not to the object itself, but to its representation in memory, which might be influenced by the cognitive system while the behavioural and the imaginal systems tend to work independently, as Sherman et al., (1985) assumed. Measuring a general attitude towards a very

specific behaviour is another methodological problem⁶. For example, measuring attitude towards children's health, and predicting a behaviour towards sub-cutaneous injection for measles vaccine, at the age of nine months. This might be one of the misleading methodological problems in LaPiere's (1934) research. The hoteliers were being asked a very general question which revealed a very general attitudinal answer towards Chinese people. When the Chinese turned up at the hotel, the hotelier faced specific customers which represented a specific stimulus. It was this inappropriateness of the global stimulus, Ajzen (1988) argued, which led to the apparent inconsistency between attitudes and behaviour.

2) Behavioural factors:

Rokeach and Kliejunas (1972) demonstrate that a person's behaviour is a function not only of attitude towards the object, but also attitude towards the situation i.e. attitude towards immunization and towards going to the local health unit, presence of other people, norms, alternative behaviour available, specificity of attitude objects, expected consequences of various acts, and so forth. Personal factors, such as: other attitudes; competing motives; social abilities; activity levels; and so forth, should also be taken into consideration, and may be significantly important. This may indicate that the particular behaviour being studied may not be completely related to the attitude under examination. Perhaps researchers have been too optimistic in translating their expectations into hypotheses that attitude will be highly correlated with behaviour when behaviour, on the other hand, is determined by other variables besides attitude.

To restore confidence in the utility of attitude as a predictor of behaviour, Ajzen and Fishbein (1980) formed the *theory of reasoned action* which incorporates intention as a major mediator, with an improvement in the ability to predict how attitude influence behaviour. They suggested that intention intervenes between attitude towards a

⁶ Newcomb et al. (1992) concluded that specific attitudes (concerning nuclear war) were much better predictors of behaviours than more general attitudes (concerning war). This illustrates the greater power of specific than general attitudes to predict behaviour.

behaviour and the manifested behaviour, whereas intention is determined by attitude towards the behaviour, which is the evaluative set of beliefs about the consequences of performing such behaviour, and subjective norms, which is the person's evaluation of the possibilities of what other people think he/she should do and the motivation to comply with these expectations. Ajzen and Madden (1986) placed perceived control over the expected behaviour as a determinant of behavioural intention⁷.

This theory may find an answer to the behaviour in question if people tend to perform an action for the sake of what they personally will get out of it, or if it is performed mainly because people are mindful of other's approval or disapproval. A mother will agree to immunize her child when she believes that immunization has a strong likelihood of preventing the negative consequences of diseases e.g. being handicapped by polio; or when her husband, for example, expects her to immunize their child and she is ready to comply with this expectation. It is also effective in predicting behaviour when one takes into account attitude towards not performing the behaviour. A mother who immunizes her child should have both a positive attitude towards immunization and a negative attitude towards her child being ill (Jaccard et al., 1989).

Ajzen (1987) extended Fishbein's theory and developed the *theory of planned behaviour* which assumes that behaviours are performed for the reason that people think about the consequences of their actions and make decisions to achieve some outcomes and avoid others. Behaviour, according to Ajzen, is the product of beliefs about the effects of that specific behaviour and evaluation of the possible outcomes. A mother may value the prevention of diseases but may view vaccinations as an interference with supernatural willpower. It appears, then, that the attitude-behaviour relationship is not a direct one, it is almost a mediated relation. To measure this relation accurately, all these significant factors should be taken into consideration.

⁷ Pagel and Davidson (1984) found that inclusion of a personal norms measure (e.g. I feel a moral obligation to do/not to do) improved prediction of intention concerning contraceptive use. However, Budd and Spencer (1985) argued that personal norms should be seen mainly as an indicator of ideal behavioural intention.

3) Attitudinal factors:

As discussed before, attitude is composed of three components. If one finds an apparent discrepancy between verbal attitude and overt behaviour, this may be because of dealing with a distinct component, rather than measures of all dimensions. Breckler (1984) noted that correlations between measures of a single component were higher than the correlations between measures of the three different components by a single method. However, when the components are inconsistent, one of them can be more related to overt behaviour than the other and can be the best predictor of behaviour.

Fazio et al., (1982) concluded that attitude which is acquired through direct experience is more stable and hence it is a stronger predictor of behaviour than attitude which is based on indirect experience. It may be possible to assume that in the early stage of direct experience, attitude can be a better predictor of behaviour. With increasing experience, however, attitude structure becomes more and more complex and finally cannot be sufficiently integrated into one single affective response.

It seems that the unsophisticated conceptualization of attitude and behaviour have led the researchers to expect more consistency than what is either observed or reasonable to observe. As Himmelweit et al., (1981) concluded, there is clearly a great need for more studies of the essential link between attitudes and behaviour, as well as their relation with the process of persuasive communication.

1:2:5 SUMMARY:

This research defines attitude as *an evaluative idea which predicts certain action towards an object*. Evaluation of the idea can be changed as a result of acquiring new information, whether directly through personal experience or indirectly through a social learning process, with a consequent change in the predicted behaviour. This

concept motivates health educationalists to direct their efforts to change mothers' attitude in favour of child immunization. They commonly use new information related to child health and immunization as a changing agent, drawing their aspirations from human motivation towards better child health care.

On the other hand, a mother usually has a complex set of needs, values, attitudes, and beliefs. Any inconsistency within this system is unstable and produces psychological tension. The generated tension stimulates the mother to reject or change the disputed elements to return her cognitive system to a tension free state. Consequently, she either accepts the new information and changes her attitude or rejects it and resists any change. This forms the basis of consistency theory, which assumes that consistency in a person's cognition is a stable and pleasurable state.

At the same time, to avoid cognitive dissonance, a mother is usually motivated to accept consonant information and reject exposure to dissonant information. This assumption of the balance theory acknowledges mothers' selectivity of exposure and processing of information. It also acknowledges that dissonance among a mother's cognitive elements produces pressure to eliminate the dissonance. The greater the dissonance, the greater the pressure will be. To release such pressure, she may change a cognitive element related to her attitude, beliefs, behaviour, and so on, or a cognitive element related to her surrounding environment, or she may accept new cognitive elements to neutralize the dissonant element.

When the mother is forced to immunize her child either for a promised reward or a fear of punishment, changing her attitude can be an alternative to return consistency between attitude and behaviour. Also, she may change her attitude to establish a satisfying relation with other persons regardless of the nature of the adopted attitude or behaviour. This identification process depends on the attractiveness and the likeability of the influencing agent. Internalization, as a third process of attitude formation, is where adopting a new attitude is intrinsically rewarding and congruent with the mother's value system. The degree of attitude change depends mainly on the nature and relevance of the new information or the adopted behaviour.

Nevertheless, changing attitude does not always lead to a change in behaviour. There is much research which failed to establish a direct relation between attitude and related behaviour. Our argument for the reported controversy between people's attitude and their observed behaviour depends mainly on three dimensions which call for more research for a better understanding of the relation between attitude and behaviour and its efficiency as a predictor of ultimate behaviour.

1) Measurements of attitude are always indirect and general, but measurements of behaviour are always direct and more specific. This may be responsible for the reportedly weak power of attitude as a predictor for such a specific behaviour.

2) Attitude towards an object is considered as a single item within a complex set of determining factors for a certain behaviour. If one predicts behaviour, one must take into consideration all other factors that may influence the assumed relationship. Ajzen and Fishbein (1980) assumed in their theory of reasoned action that intention can be a major factor which intervenes between attitude towards an object and the actual behaviour. Social norms can also influence behaviour. These significant factors should be counted in determining the relation between attitude and behaviour.

3) Attitude is a compound concept which can be identified as having three interrelated components, the cognitive component (mental evaluation of the object), affective component (feeling towards the object), and conative component (intention to act). A measure of attitude can be considered inaccurate as long as it depends on a single component rather than the three components together.

1:2:6 CONCLUSION:

Attitude is acquired mainly through social learning or experience. Although it is stable by its nature, attitude can be changed when the circumstances are conducive to such a change. Before planning to change their target population's attitude towards immunization, health educationalists have to examine all circumstances that provide attitude its stability and resistance to change, as well as the basis of its formation.

Through television, ideal models can be presented to mothers, and new information

can be transmitted to the target population to help them to think and feel positively towards child health and related immunization. It also enforces those positive attitudes which already exist. This can create new forces, generated by the evolved dissonant and unbalanced state among a mother's cognitive elements, which stimulates new behaviour to regain the balanced state. With its audio-visual power, health educationalists can use both educational and persuasive techniques to reach mothers' minds, and change the basis on which their attitudes are formulated. This may also create similar attitudes among mothers in a community which means that each mother's attitude will be in a balanced state with the surrounding environment. In the next two chapters, both the educational as well as the persuasive techniques to change attitude as a step for changing behaviour towards positive health will be discussed.

For accurate measurement of attitude and its relation with behaviour, the attitude object should be well identified and specific to the observed behaviour e.g. measuring a mother's attitude towards immunization with BCG and observing its scar on the baby's left shoulder. Both attitudes towards the object (e.g. attitude towards oral polio drops) and towards the situation (e.g. attitude towards the health unit, quality of the health services, other priorities, social norms, and so on) should be measured for better prediction of behaviour. Also, because each attitude has three dimensions, attitude measurement should include all the three components rather than depending on the easiest affective component alone. As Stacy et al., (1994) suggested, traditional attitude construct might be replaced or complemented by alternative affective or cognitive construct in areas of health behaviour research. In this research, all these critical points are considered to develop a valid research tool.

CHAPTER THREE

HEALTH EDUCATION FOR BEHAVIOUR CHANGE

1:3:1 INTRODUCTION:

In the twentieth century, the dramatic increase in human life expectancy can be largely attributed to the advancement in disease diagnosis, and treatment. Most of the remaining health problems are behaviourally based. In that case, preventive medicine is the optimum choice, especially with the growing cost of medical services, along with their shortcomings. Health education, as an essential component of preventive medicine, with its concentrated efforts to change health-related attitude and behaviour, can play a vital role in stimulating the public to understand and to accept their responsibilities regarding health.

In the previous chapter, the theoretical process of mothers' attitude change was discussed with reflections on primary planning for behaviour change in favour of child health promotion. Stemming from this theoretical background, a further step towards behaviour change utilizing the educational approach takes place in this chapter.

1:3:2 CONCEPT OF HEALTH:

For a long time, an increase in the length of life was accepted as synonymous with an increase in the level of health. However, mothers would prefer their children to enjoy health as a means of living a full, productive life rather than just a longer life. The WHO (1947) adopted health as *"a state of complete physical, mental and social well being and not merely the absence of disease or infirmity"*. Associating health with quality of life ended the emphasis on lifespan as the only criterion of health. Willgoose (1985) broadened the concept of health more as he analyzed health as multidimensional anthropological, biological, psychological, economic, and even political. Thus all human relationships between a community and its environment are somehow health related. In this spirit, the WHO (1986, Page 73) defines health as: *"The extent to which an individual or group is able, on the one hand, to realise aspirations and satisfy needs; and, on the other hand, to change or cope with the environment. Health is therefore seen as a reservoir for everyday life, not the objective of living; it is a positive concept emphasising social and personal resources, as well as physical capacities"*.

It seems that there are no set boundaries for health. Social stress, unemployment and political instability are significant in terms of well-being in conditions such as coronary thrombosis, night blindness, or advanced psychosis. It may then be possible to argue that being dynamic in quality rather than a static process, it is difficult to think of an individual as being healthy or unhealthy. Health can be identified, from the researcher point of view, as *a subjective sense of well being* which makes possible a high quality of competent living. This ranks health as a personal matter which makes intervention to achieve health more difficult and means a health educator's role is to increase the person's abilities to address health and adopt a healthy lifestyle. If, however, health is thought of as the interrelatedness of physical, emotional, social, spiritual, mental, and cultural dimensions, educating the mothers for health should reflect this broad notion of health.

1:3:3 NOTIONS AND TRENDS OF HEALTH EDUCATION:

a) Notions: Educating the mothers for child health can be seen as the transmission of what is known about child health to them by means of the educational processes. This is merely through creating a feeling of responsibility for their children's health and maybe also for the health of those in their circle of friends, relatives, and so on. In 1959, a Technical Discussion on Health Education was held in connection with the Annual World Health Assembly at the WHO Headquarters in Geneva, Switzerland. The participants defined health education as all activities that influence beliefs, attitudes, and behaviour with respect to health. It includes processes and efforts to produce changes when necessary for health advancement. This concept of health education recognizes the impact of all experiences, whether positive or negative, on what a mother thinks, feels and does regarding health. It is not limited to only those situations in which health activities are pre-planned i.e. a mother may learn about immunization from a friend, a doctor, the media, or in any other way.

b) Trends: Because health education is dynamic in nature, to be effective, it requires interaction between the mothers and the community to increase the ability to make informed decisions. Traditionally, it has mainly been concerned with giving advice about physical health, such as hygiene, nutrition, childcare problems, and so on. But, increasingly, it has covered advice about mental health and such sensitive topics as sex education, family and social problems, marriage guidance, and so on (e.g. Drakshayani and Venkata, 1994). Health education can help in four directions, as follows:

1- Advice about specific preventive action e.g. vaccination against measles. This requires mothers' cooperation for a short time. Each mother must comprehend the advice and then take specific action based on it (Zimicki et al., 1994; Gordon, 1995). It involves a certain cost i.e. in terms of time, distance, effort, expenses, and so on. A health educator should make the mother's decision as easy as possible to carry out the proposed action e.g. by providing free vaccine at each contact with a health facility (Malfait et al., 1994).

2- Inculcation of habits and attitudes which foster health and prevent disease e.g. refraining from drinking alcohol during pregnancy (Casiro et al., 1994).

3- Education to understand the needs of the community and health measures required (Swaddiwudhipong et al., 1992) and to make optimal use of the available health services (Schulz et al., 1995).

4- Education to seek advice at an early stage of the disease. This involves making a distinction between bothering the doctor unnecessarily and a genuine need to seek advice early. Some knowledge about the disease, such as its early symptoms for example, is essential before this distinction can be made (Hooi, 1994).

1:3:4 GOALS OF HEALTH EDUCATION:

a) Education for the mother: The traditional aim of immunization campaigns is to stimulate awareness of immunization that it is hoped will result in the mother adopting a more health-oriented approach to life. This also includes the adoption of healthy public policies through raising public awareness of immunization and through easier access to services (Hawthorne, 1994). Tones (1995) has defined the aims of health education as empowering and supporting an individual health choices e.g. using health services properly and cooperating with medical advice, as well as the heightening of public awareness, and concern over inequities and provision of communities and individuals with means to translate their positive attitude into practice.

Providing knowledge of immunization must go hand in hand with educating the mother about the general and specific child healthcare. This indeed is the main goal of mothers' education. It helps the mothers to achieve higher standards of health by their own action. An informed mother may have knowledge about the consequences of measles infection. She may also be aware of what is the appropriate health practice and what is the inappropriate one. Despite that, she may not immunize her child (Sbarbaro and Sbarbaro, 1994). This is contrary to a mother who has been educated

about health, and equipped with the appropriate skills and attitudes to solve her own, or her community's, health problems, who uses knowledge in daily life. In other words, an educated mother knows how to make her own valuable contribution (Swaddiwudhipong et al., 1992). This seemed to be related to Primary Health Care in which health education encourages individuals to: want to be healthy; know how to be healthy; do what is healthy; and seek medical advice when needed.

b) Social education: Even if it is known that immunization is safe, a mother's feeling about it will influence the decision to adopt such behaviour or not. The more positive the feeling about immunization, the more it is valued, the greater the likelihood the behaviour will be established. Through social education, needs for alternatives will be at the top of the political agenda (e.g. a well-equipped health unit in the village) and it will be socially unacceptable for the mother to rebel.

Although most of the personal health practices are established during primary socialization under parental influence (Rodriguez et al., 1994), human beings are not static organisms, they can acquire new skills at any stage of their life e.g. from the presentation of a positive role model in the media (Suarez et al., 1993). If the behaviour is continuously reinforced over a long period of time, it will become a routine behaviour or a *habit* e.g. washing hands after visiting the toilet. Habit then substitutes the feeling that may originally motivate it. A mother must learn what immunization is and get into the habit of immunizing her children automatically without anybody being around to enforce this behaviour. In this respect, we can argue that immunization campaigns aim to modify negative childcare habits and the accumulated errors of misbelief that are otherwise destructive, as well as encouraging social patterns that will enhance the level of a child's wellbeing (Hyler et al., 1991).

C) Problems: The effectiveness of health education efforts can be shown when parents are aware of a disease that might affect their children's health, and the means of preventing it (which cannot be fully controlled by routine parent care). This concept is commonly enhanced by the concept that mothers are primarily highly motivated so far as their child's health is concerned. This means that a mother will

behave appropriately as long as she receives the appropriate information regarding her child's health. Nevertheless, education for health has become a far more complex process than what might have been realized formerly. Paik et al., (1994) showed that with a relatively low level of accurate knowledge, almost all respondents reported positive behaviour. On the other hand, Oakley et al., (1995) showed that despite possessing considerable knowledge, many of the respondents adopted less healthy lifestyles. The problem with which health education is concerned arises from the very complicated ways humans behave. This leads to a second problem regarding identification of the most effective methods and resources to overcome mothers' neglect of preventive health care.

To a certain degree, fewer health education campaigns were systematically evaluated as regards their effects on behaviour. A critical review of the contemporary health education literature suggests that the progression has not widely adopted the sophisticated research methods necessary for answering difficult questions. Health education research requires consolidation of complicated professional skills, substantial funding and great technical capabilities, as well as a reasonable period of time. Moreover, education, by its very nature, acts mostly by its latent effect and on a long-term basis e.g. a decrease in reported cases of polio after an intensive immunization campaign. Likewise, the urgency of the policy makers' needs prevents health professionals from performing adequate assessment before going into action. Health educationalists hope that growth in the social and behavioural sciences, as well as in applied research techniques, can provide the necessary methodology to promote the expansion of effective health education, at least in the near future (Steckler, et al., 1992; Suarez et al., 1993).

A related *social* problem is the situation of women's needs in Egypt. Most health education campaigns are aimed at mothers, who are normally the main providers of healthcare not only for their families but maybe also their neighbours and friends. Unfortunately, this forms an extra burden of work. Health educationalists should also direct their educational efforts towards parents in matters of family health, rather than assuming that these are necessarily the mothers' responsibility.

Health services are an effective ally of health education efforts. One factor that can constrain health education in rural areas is the lack of prestige and resources of a potentially effective health education unit. This is because health units are staffed with a few experts who are most commonly interested more in their private business which yields immediate mutual benefit rather than more intangible results and the barely rewarded long-term impact on the health status of the whole community. Also, the immeasurable success cannot be used to advocate an increase in the budget and support. This vicious circle (lack of prestige, lack of resources, inability to perform effectively, then even fewer resources and less prestige and so on) needs to be broken before designing effective health education (Cutts et al., 1991). Because each community processes its needs differently, Hawthorne (1994) recommended that each community should be considered by health services planners as unique.

Another related problem is the shortage of *foreign exchange*. Policy-makers usually request material goods and technology from external aid groups rather than requesting training and support from local health workers or developing local media. What is really required is a health education unit, with its own budget and a clear health education strategy, over a reasonable period of time, and directed at a specific group of the population. This may help to break the circle of low prestige and low funding. The success of the ORT project is the best example of this broken circle (BMJ, 1985).

Tradition often conflicts with advice about health and hygiene, which may appear to be unnecessary or even threatening. Female circumcision is one serious case which exemplifies this conflict, where health educationalists suffer continuous defeat. Health educationalists should make sure that mothers receive sufficient support. Nevertheless, they often undermine these factors and set themselves unrealistic objectives (e.g. Ajuwon et al., 1995).

1:3:5 PROCESS OF HEALTH EDUCATION:

An Illustrative example:

A mother who has a child at the age of immunization has to be aware that her child is susceptible to catch measles, which is a dangerous disease, and she ought to immunize her child against it. She has to understand the implications of not doing so. If interest in this new health idea is strong enough, the mother will seek information about it. If she behaves in a way which is consistent with the new information, i.e. contact the health unit, she will realize after a period of time that her child did not catch measles and she is less worried about her child's health than before. At the same time, she has to solve the problems which may arise from adoption of this new behaviour e.g. finding where she can immunize her children and its cost.

According to her own analysis and interpretation, the mother will assess her new belief based on her own experience. The mother may apply the new information to her routine childcare practices, analyze it, synthesise it, and then re-evaluate this new experience. She may decide that it is worth all the effort and adopt it into her ordinary pattern of behaviour. On the other hand, she may think in the opposite direction and find that the time and energy spent on immunization is far too costly in terms of personal comfort, time, pleasure, and so she may not immunize the child.

The mother may selectively expose herself to further information that positively reinforces her decision. This means the educational process needs time for the mother to be aware, evaluate, try, re-evaluate, and adopt the new behaviour and make it a habit. Consequently, health educationalists, as well as health administrators, should be patient for the outcome of any health campaign. Also, from this brief example, we can demonstrate the way in which health education operates on personal decision and behaviour. This can be seen, from the researcher point of view, as a three-stage process where each stage has distinct aims, intervention strategies, and evaluative procedures:

Stage one: Information dissemination.

The process of health education is initiated by informing the mother about a specific child health problem and reliable ideas for solving it. In an optimal situation, the mother is expected to react positively towards the new information transmitted and the desired behaviour finally appears. Prochaska et al., (1992) concluded that behaviour change without insight is likely to be a temporary change. Media, if put intelligently to the service of health, can contribute to bridge the gulf between rapidly increasing scientific findings on the one hand, and the level of awareness among the mothers and the policy-makers on the other (Esa et al., 1992; Freimuth, 1993, Guenther-Grey et al., 1995)). Public health education should take the initiative in cooperating with media professionals to encourage behaviour change (Fonnebo and Sogaard, 1995).

Personal perception of a health threat is an important stimulant for mother's cognitive system to create a new (or change the already existing) belief system. A mother will take actions to avoid diphtheria if she believes that her beloved child is susceptible to be affected, otherwise she may deny there is any possibility of her child falling victim to the disease. Basically, if the health threat is perceived to be negligible, the tendency to comply with the recommended health actions will be small (Yoshida, et al., 1995). The proposed immunization behaviour depends also on the degree of mother's perception towards the seriousness of diphtheria and how much it can affect her child's wellbeing, e.g. is it a temporary condition or a permanent one? Is it acute or chronic? Can it lead to death? Perception of the degree of seriousness varies from mother to mother, which may create a problem for designing a realistic health risk belief among different mothers, who may be unaware (Bandura, 1986). Additional, the mother has to believe that immunization is effective in protecting her child against diphtheria and can produce the promised solution (Baranowski, 1990).

According to Flay et al., (1981) once changes in knowledge have been brought about, changes in beliefs and attitudes and then behaviour will automatically follow, simply because of the mother's need for harmony among existing knowledge, attitude, and behaviour. This also indicates that changes in attitude are more difficult to attain than

their preceding step, knowledge change. Change in behaviour, in turn, is more difficult to obtain than both attitude and knowledge change. This is clearer when we notice that most people know the association between swimming in the canal and bilharziasis, and the majority of them believe that swimming in the canal can cause bilharziasis. But fewer have a negative attitude towards swimming in the canal or intend to stop swimming in the canal. In fact, a large portion of them still do not even try to stop and those who have tried could not stick to that new behaviour.

However, knowledge cannot be poured into mothers, or simply absorbed by them like a sponge. If the immunization issue causes dissonance, it will be interpreted by the mothers in such a way that a consonant state will be achieved. This stage of stability can also be reached in several other ways rather than by acceptance of immunization. She may reject the facts by questioning their authenticity (diphtheria has never been a disease in our village), or put the source of information in a position of doubt which does not match with her experience (immunization destroys child's natural immunity). Likewise, the mother may interpret the meaning of the data in such a way as to reduce its threats by limiting the facts (diphtheria is not a killer disease), or she may admit the truth but still deem it irrelevant (diphtheria can only affect older children).

There are some other variables, according to Steuart (1969), which limit the dissemination of information. Mothers are primarily autonomous and not easily approachable, and there are those who cannot be reached. Also, they are usually discriminating in their attention to information. Through-out life, a mother is exposed to different stimuli but she is not supposed to respond to each stimulus. She selectively perceives those stimuli that concern her. One of those stimuli, caught in the flood of information, will be the immunization issue. Selective exposure to a campaign is more likely to be related to the level of interest in immunization issue, and the affinity of the information with pre-existing attitudes. Brink et al., (1995) concluded that multiple strategies for dissemination of information about the innovation assures more adequate exposure of the target population to the information.

Correct knowledge itself is insufficient to produce behaviour change (Bandura, 1990;

Brown et al., 1991; Kasen et al., 1992). Health as such is often seen as less important than a health educator sees it. Mothers are more likely to respond to information when they feel the need to do so and when such a response satisfies their needs. Oakley et al., (1995) showed that for young people, health is not of primary importance. There are too many matters in their daily lives which appear to have more significance, such as unemployment. This may lead to various reactions to the same presented message. That is why the message should be clear, interesting and consonant with mothers' values and socio-cultural environment (Levasseur et al., 1994). Furthermore, the measure of an effective health education campaign is, as the last resort, behaviour changes which are demonstrably related to changes in general health status. Consequently, a change in knowledge is auxiliary to these essential outcomes. This forces health educationalists to call for more effort to motivate the mothers to comply with the recommendations not just disseminate information.

Stage two: Motivation to comply.

The value system acts as another variable that can explain an apparent consistency or inconsistency of healthy or unhealthy behaviour, in a health-informed person (Oakley, 1995). The main objective at this stage is to motivate the mothers towards immunizing their children depending upon the acceptance of a system of values which could be regarded as faith. According to Rokeach (1973) a value is acquired mainly through a process of socialization and gaining new beliefs, and serves two functions:

- a) It acts as a standard which guides towards the preferable way of behaviour. It orients peoples' social, moral, and intellectual perceptions, and their choices;
- b) It expresses the need to achieve standards of excellence to maintain and enhance self-esteem i.e. motivational function.

If a mother values child health, she will attempt to immunize her child which is more likely to enhance her self-evaluation to the extent that others are aware of her behaviour. In other words, her self-esteem will be enhanced by their acceptance and admiration. However, in the value system that a mother holds, health care may

occupy a relatively low priority and may probably hold just a neutral position. This is mainly because the child is healthy and rarely examined. The mother must first be aware of the threat which should have a meaning in terms of susceptibility and seriousness. When a mother becomes aware of a health threat, she will find herself in a similar position to a mother of a child who caught the infection and will evaluate both the threat and the action that should be taken.

If a mother, for example, is selectively exposed to new information regarding tetanus neonatorum, she will slowly internalize this new stimulus according to her own criteria depending on her social, cultural contexts, as well as her own experience with previous pregnancies. She may selectively seek medical advice and try to find out if the threat concerns her baby or not. She has to accept that stimulus as a value and make some obligation to it. Immunization against tetanus neonatorum will be highly valued if it prevents the disease and fits her abilities. The mother will confront more than one variable which must be organized, determine their interrelationship, and establish those values that have personal meaning. Consequently, she will develop an evaluative belief e.g. the consequences of receiving the TT.

As discussed before, a mother is most at ease when the knowledge she holds is consistent with her attitudes and values. Consequently, we can assume that, when a mother encounters facts that conflict with her values, dissonance will arise. To be relieved from any dissonance, she must either reinterpret the facts in a way that matches the existing values or, on the other hand, has to accept the facts and consequently, the value system has to be changed to fit the new cognitive system. The main problem that faces the health educationalist at this stage is that people's values are frequently doctrine, making them even more difficult to change.

An Egyptian village, like any other traditional small community, possesses a complex social heritage that arises from a complex value system. This value system acts as a filter for any new ideas proposed by an immunization campaign. It tells the mother what to perceive, what to reject, what to seek, and what to avoid. Intrusion of dissonance into mothers' values creates strain and stress. A value which yields



negative outcomes, or is inconsistent with cultural values, is unstable and subject to reconsideration. Such instability creates tension that stimulates re-adjustment and results in a possible incongruent change. At this point, a health educator's tactic is to stimulate this kind of dissonance in favour of positive health values and practices.

New ideas can only change mothers' values and behaviour if the health educationalist understands and works with their local culture. A public health educator can design the message so that it is strongly related to the most prominent and related value and needs of the target population (Mennie et al., 1992). For example, a mother may refuse to immunize her baby although she knows that it is easy, reasonable, and so on, but she may agree to do so when she realises that it helps the baby to have closer bonds with her. This means that health education campaigns should work to gain an understanding of what a disease means to mothers, how they define illness, what disorders they recognize and which they feel are susceptible to treatment with modern medicine and what knowledge they have of curative techniques and of how illness is tied to other factors, especially their culture, and so on.

There are also certain basic and strong stimuli that can overshadow the values and attitudes acquired and necessitate consideration from the health educationalist. For instance, a working mother may be well informed about the danger she is causing to her child. Although she values her child's health highly, it is the financial drive which led to her negative behaviour. Together with the belief system, the motivational system (attitudes, values, and drives) can stimulate the mother to make health decisions and move to the next step of adopting the recommended behaviour.

Stage three: Behaviour change.

After being informed about the health threat and when its value has been appreciated, the probability of the mother being motivated to immunize her child is further influenced by different variables. From the researcher's point of view, these determinant for execution of the desired health behaviour, can be arranged as follows:

a) **Decision:** It is the mother who plays the major role in solving her child's health problems, and delivering the primary health care. Mothers are responsible for taking the appropriate decision for action which can be considered the first step towards changing a life-long habit (Richards and Waterbury, 1990). The process of adopting an innovation requires an awareness of the characteristics of the innovation and a decision to make a trial effort to use the innovation.

According to the dissonance theory (White, 1982), a mother strives towards consistency within herself. On the other hand, the process of making a decision out of several mutually exclusive alternatives, produces tension and dissonance. This is mainly because each available alternative has some advantages and disadvantages. Interfering with the child's natural immunity can be more dissonance than interference with the child's feeding habit. The more important the decision is, the greater the dissonance. Also, the less attractive the immunization decision (e.g. the clinic is faraway) and the more attractive the unchosen alternative, the greater the dissonance.

However, once a mother decides to immunize her child, the attractiveness of immunization is increased and the attractiveness of the opposite behaviour is decreased. This re-evaluation process occurs in a subjective and biased way because all attractive aspects of the unchosen alternative create dissonance and the negative aspects of the immunization do the same. If by taking the decision the conflict still exists, no further action will be taken, as the mother is not sure of the consequences of her decision. She will continue assessing different alternatives which are facing her in an objective and unbiased way. Re-evaluating the other alternatives can reduce the dissonance, otherwise the mother may reverse the decision. If reversal is not practical or is impossible, the mother may continue immunizing her child with a feeling of regret about her choice. Public health educationalists should encourage the mother to reach a consonant state by taking a positive decision in favour of child health.

b) **Normative system.** Before the mother puts her decision into practice, she must check it with the normative system (Wright and Pearl, 1995). She will assess the likelihood that others in her community (e.g. her husband) have certain expectations

of her, and will accept her behaviour towards child health care. In other words, she will ask: "if I immunize my child, will it be accepted by my friends"? and "how much do I value their approval"? This means that a mother's motivation to comply with health instructions is not sufficient, but should be supported by positive beliefs about the likely reactions of the significant others. Public health education can be of great value in achieving a mass change in understanding or the way of thinking of society. It prepares society for the new health decision to germinate and bear fruit (Sogaard and Fonnebo, 1991).

c) Intention: From the interacting complex of beliefs, motivations and normative systems, intention to immunize the child will be generated. The strength of the resulting behavioural intention (according to the Theory of Reasoned Action) will determine whether the immunization decision will be taken or not. Manstead et al., (1983) found that both attitudinal and normative factors are essential in developing a mother's intention as regards feeding her baby either naturally or artificially. Fishbein (1982) concluded that attitude could be more important than normative factors in modifying women's behaviour as regards smoking. McGuire (1964) noticed that, with regard to children and smoking, beliefs are even more important than attitude. Messages which are designed to change mothers' behaviour should be targeted with these interrelated factors in mind.

However, developing immunization intention will not necessarily lead to actual behaviour unless the mother develops control over the new action and possesses the coping skills (Schulz et al., 1995). Self efficiency shapes the intention into a behaviour. However, it does not refer to personality factors but to specific behaviour (Strecher et al., 1986). Mothers will never vaccinate their children when they feel that it is beyond their control or abilities even if they hold positive attitude, expecting positive outcomes, and expecting approval from others. On the other hand, if a mother rationalizes a disease as an inevitable occurrence or an act supernatural power, she is then influenced by certain external forces. Therefore there is less likelihood that this mother will immunize her child (Mullen, 1994). The fact that the mother may be delayed for her domestic duties could conflict with her intention to protect her

child by immunization could be another example of losing control of behaviour.

Older people are more likely to be internally controlled than adolescents. Thus, we would expect that an older mother's attitude towards immunization is an important determinant of her behavioural intention as she can resist social pressure, which a younger mother cannot do with the same attitude. A younger mother may believe in immunization but she cannot resist her mother-in-law by not immunizing her child. This could also be applied to an educated mother, who is expected to hold a more internally-controlled system than an uneducated mother (Cutts et al., 1991). An immunization campaign should concentrate on making the young and less educated mothers to more internally controlled and helping them to acquire skills to resist negative external social pressure and to increase control over personal life events, to influence decisions made in organizations with which a mother is involved, and to influence decisions made at her community level (Baker, 1993). Increased self-efficiency at multiple levels has been positively associated with mental and physical health indicators (LaVeist, 1992). Mothers' high self-efficiency can also motivate them to influence public health policy (Schulz et al., 1995).

d) Facilitating factors: These are factors related to a mother's environment e.g. social support and reinforcement of behaviour which are important in translating motivations and intentions into action. A persuasive message could target the whole family or other relevant social groups, as well as individuals, to supply them with the required skills to encourage and support those who are trying to protect their children. The message should also contain sufficient instructions for the mother about how to resist negative social pressure as well as the available alternatives.

There is another set of factors that can also facilitate health practice. Such activators may be internal or external e.g. death of a friend's child. The strength of such triggering factors is inversely related to the perceived susceptibility level and the perceived severity of the problem, along with the perceived benefit of taking the action. If a mother does not believe that her child is particularly susceptible, a very

strong cue would be required to motivate behaviour. Conversely, a high level of perceived susceptibility will require a minor stimulus to trigger positive behaviour.

e) Feedback: After immunizing her child, the mother re-evaluates it and receives feedback from this new experience which, in turn, will affect her motivation system as regards repeating the behaviour e.g. short waiting times, not having been turned away from having immunization, and not knowing a child with a post-immunization complication (Cutts et al., 1991). At any time a decision can be reversed according to the new experience acquired, or it may be strengthened. Thus, a media-based campaign needs to reinforce the new behaviour and its associated skills being taught and try to make the new behaviour either self-reinforcing or externally reinforced.

Despite the health educator's efforts, the willingness of healthy people (compared to those who see themselves as ill) to behave appropriately towards a preventive health action can be disappointing. In fact, before healthy individuals meet the two most frequent demands health educationalists make, giving up negative health behaviours or practising positive health behaviour, they normally have to feel really ill or symptomatic. They must believe they are in need of some form of medical attention, and they must begin to follow certain orders. However, the importance of health is mostly appreciated when it is lacking, as in the old Egyptian saying which, states that: *"Health is a crown upon the well man's head. No one can see it but a sick man"*.

1:3:6 SUMMARY:

The main goal for mothers' education for child health is to provide an opportunity for them to apply new knowledge and action in healthy ways. However, because health quality is subjective, a health educator must understand how the mothers perceive health and the processes of adopting the new behaviour as a result of the educational efforts. These processes can be summarized into three main stages as follows:

Stage one: The main target for a health educationalist is always to minimise unhealthy behaviour by stressing its bad effects on health. Basically, knowledge is considered a precursor to appropriate and lasting behaviour change. The initial step in the process of health education is the transmission of relevant scientific knowledge to the mother. Health instructions should demonstrate the possibility of being a victim of the disease, the degree of its seriousness in affecting the child's well-being with its different attributes (physical, mental, and social), as well as the effectiveness of the recommended course of action in achieving the promised well-being. However, dissemination and possession of the right information may or may not motivate the mother to adopt more healthy behaviour. Change in behaviour may occur without prior knowledge and attitude change. This puts in doubt the assumption of a sequence (which was proposed by Flay et al., 1981) consisting of knowledge change inducing attitude change, which in turn leads to behaviour change. It seems to be an oversimplistic notion of a complicated process in which other important variables combine with knowledge in motivating the person towards destructive behaviour (e.g. an individual's values and attitude), and all operate as a complex system.

Stage two: Value analysis is a vital component in motivating the mother towards more healthy behaviour. According to consistency theory, the mother is in a tension-free state when the cognitive elements are in a balanced state. The new information received has to be internalized and valued according to the mother's own criteria and value system. Immunization behaviour must fit with the mother's abilities and experience to be highly valued. This requires a change in the mother's value system in favour of positive child health. However, because of the complexity and the deeply rooted value system, a health educator must analyze and understand the mothers' value system and its interconnection with other cognitive elements and work from the local culture and value system.

The main task for the health educator at this stage is usually to explore, intelligently, alternative ways of satisfying the target population's motives and to apply them to the proposed course of action, as well as to determine whether the effect of the behaviour and mothers' aims are compatible. A campaign's strategy should be related to the

most prominent but related value and stimulate a dissonance in favour of a positive health value. With value system analysis, immunization campaigns can inspire the support of different social institutions, which can help the mothers to comply with the highly valued recommended behaviour and make a decision for action.

Stage three: Each mother makes a decision about immunization on her own terms, to avoid tension and dissonance induced by the highly-valued new information, as much as possible. However, because every individual is in a dynamic interaction with the surrounding environment, she must first check her decision with the normative system before developing an intention to act. The strength of the developed intention will largely affect the performance of the recommended action. With some activating factors and social support, the intention generated can be translated into a behaviour. A health educator's role at this stage is to make the positive decision as easy as possible for the mother and set it apart from the other negative alternatives. An immunization campaign must stimulate mass change in the understanding and way of thinking of a society to allow the intention generated to be changed into real action in favour of health. At the same time, the campaign must encourage the mothers to express their attitude and resist negative social pressure. Thereby, it encourages the mothers to use health services and vaccinations, and at the same time refuse engagement in negative behaviour. It must also identify and use different cues for action to stimulate the mother to make the new behaviour a habit. The television campaign must facilitate opportunities for the real participation of the mothers in community and organizational decision making regarding child health policy, which in turn leads to an increase in mothers' perceptions of influence or control. It must also encourage benevolent organisations to take active roles in community and public policy, which enhances the perceived potential for influence through collective action and enhances the empowering effects of community-based public health initiatives.

1:3:7 CONCLUSION:

The underlying assumption of health education as a strategy for behaviour change is that every mother has an instinctive tendency towards having a healthy child as long as she is supplied with accurate information. Information about health can only stimulate within the mother self responsibility for her child's health. However, many of the factors responsible for the misbehaviour are beyond the control of the mother. This necessitates changes at all levels (social, political, environmental, and so on). At the same time, this necessitates extension of the health education domain. Health educationalists should create the necessary environment to motivate the mothers to comply with instructions and to translate their decisions into actual behaviour. A comprehensive mass media campaign may be an ideal strategy to present as many as possible of the factors related to the assumed behaviour change to the mothers and to policy-makers, creating social and political support for the change to be executed.

Because health is a subjective concept, a health educationalist has to admit that the processes of persuasion for positive change belong to the mother, who has the right to draw her own inferences and reach her own conclusions, unless the safety and welfare of the community are concerned. It is against the rights of the individual for someone to try to control her thoughts and feelings. Imposing decisions on behaviour through laws or rules, simply because she does not understand, indicates failure. It would infer that the human being is an unthinking and unreasonable animal, an assumption which cannot be accepted in today's world. It may be true that most people lack the knowledge required to enable them to formulate decisions in favour of their health, but it is precisely the role of health education to impart this knowledge to all who need it and to confer the full range of individual freedoms and promote human inviolability under the admirable goal of health education. This is an important point to make before moving to the next chapter, which examines the strategy of persuasion using television campaigns to change attitude and behaviour towards immunization, instead of just sending the necessary information to the mothers.

CHAPTER FOUR

PERSUASIVE IMMUNIZATION CAMPAIGNS

1:4:1 INTRODUCTION:

One of the successful reports of the past decade has been the rapid progress made towards immunizing children against diseases that kill and cripple¹. Vaccination of young Egyptians against smallpox, which was eradicated from Egypt, indeed from the whole world, started in 1890. Immunization with DPT (Diphtheria, Pertussis, Tetanus) became compulsory in 1956, followed by polio in 1968, and BCG in 1973. Tetanus Toxoid (TT) had been available to pregnant women on a voluntary basis since 1973. Measles vaccination became obligatory in 1977. Yet thousands of Egyptian children were still dying. In 1984, the WHO in cooperation with the Ministry of Health (MoH), showed that only 30% of Egyptian children were fully immunized, with a marked difference between children in urban areas (50%) and their rural counterparts (15%). Only 19% of mothers were immunized against neonatal tetanus for the second dose. Clearly, extra efforts were called for.

In the previous chapter, changing the behavioural responsibility towards immunization through education is demonstrated. The crux of that process is arming the mothers with the correct information. Where mass education and persuasion is concerned,

¹ See appendix "1" for description of the preventable diseases and their recommended vaccinations.

mass media campaigns can be a desired option (Fonnebo and Sogaard, 1995). The Egyptian media have a variety of experience in health campaigns e.g. family planning, immunization, bilharziasis, ORT, and so on, yet there is little evidence of systematic evaluation of any of these campaigns. It is the purpose of this chapter then to project the essentials of persuasive media intervention with a critical description of the television immunization campaigns presented on the Egyptian television.

1:4:2 IMMUNIZATION CAMPAIGNS' OBJECTIVES:

The technical and financial management of immunization services is predominantly the responsibility of the MoH. The Expanded Programme of Immunization (EPI) was merged as a major component in the Child Survival Project by the MoH and the USAID in 1985, which included immunization against six diseases: tuberculosis, diphtheria, pertussis, tetanus neonatorum, poliomyelitis, and measles. The main objectives were maintenance of the 90% immunization coverage against all targeted diseases, eradication of poliomyelitis by 1994, elimination of neonatal tetanus by 1995, and 90% reduction of measles cases by 1995. Immunization coverage of pregnant women against tetanus to reach 80% by 1995, and strengthening of primary health-care delivery services through integration with EPI activities were also included.

To achieve the above goals and objectives, the MoH improved the management capability and skills of the EPI team and health workers and added new vaccines (e.g. hepatitis "B" vaccine) to the standard programme. Vaccine efficacy was maintained by strengthening the essential infrastructure (e.g. effective cold chain, sterile syringes, improving the existing registration system, technical personnel, and so on), and the extended implementation of health education strategies to include training for medical staff and society's leaders, aimed at rapid identification and reporting of any suspected cases. Additionally, the routine public education to understand and support the need to vaccinate children as early in their life as possible was promoted through wide distribution of posters for the public.

To bring about the breakthrough needed to raise the coverage level of the target population, namely all vaccine eligible children under five years old, to accelerate the EPI objectives, and to create awareness in the population of the need to immunize all their children, cooperation with various non-health institutions (e.g. mass media) in promoting child health nation-wide was ensured. Television spot advertisement campaigns for mothers education about the target diseases, how to suspect a case, when and where to go on the vaccination days, how the vaccine works, its safety, schedule, and so on were broadcast daily over the national television networks to increase public awareness of the campaign, and motivate the mothers to bring their children to the vaccination points.

1:4:3 NATIONAL CAMPAIGN STRATEGY:

A national campaign² strategy receives more attention than the usual television health programmes because it always has a narrow focus (e.g. encouragement of the mothers to immunize their children against polio) that can generate enthusiasm, both among health educationalists and the public, which is lacking in most day-to-day television programmes which deal with various health issues of interesting characteristics, and which have general unmeasurable objectives. Its limited, but specific, time and objectives enhance inter-sectional collaboration to overcome different constraints which can affect the routine immunization services and prove that infectious diseases affecting children can be controlled. Thereby, it creates a climate conducive to success in other large-scale child health promotion and acts as a spearhead to pave the way for the strengthening of other components of primary health care. Moreover, a television campaign is relatively powerful in reaching mass mothers, with less effort and cost (Rogers, 1983). This can be of great value in Egypt, where most of the

² Basically, the term "campaign" is derived from its military usage as a "connected set of actions intended to obtain a particular result" (Longman Dictionary of Contemporary English). In other words, it is a preplanned and coordinated series of activities which are directed to a specific target (e.g. mothers with children less than two years old), and for a measurable objective (e.g. influencing mothers' behaviour regarding measles immunization).

Egyptians watch television³ with a high illiteracy rate especially among rural and low income families (Unesco, 1991) where children's diseases are more prevalent (CAPMAS, 1988). A campaign is politically attractive because it makes everybody in the community aware of the government's efforts. Additionally, a campaign attracts more than one source of funding as it promises and produces a tangible and measurable outcome. These campaigns included:

- National campaigns for polio eradication. These campaigns started in 1984 and continued twice a year in ten-day phases until at least the time of the end of the research in 1994. During each campaign, children between the ages of two months and three years were targeted for vaccination. In a visible demonstration of the political determination to reduce child mortality, the head of the state stressed the importance of immunization policy and opened the campaign by immunizing a child with oral polio vaccine, together with the executive director of Unicef, the prime minister, the minister of health and other high-ranking officials. Involvement of the top political leadership encouraged other ministries and agencies to join in efforts that significantly extended the reach of health services and ameliorated social passivity.

The messages conveyed by television were given further credibility when repeated and amplified by the religious and village leaders who were well known to the community and represented trusted advisers with recognized moral authority. Participation of many government structures in addition to the crucial involvement of the health services was ensured. Emphasis was placed on involving the staff who would normally be responsible for maintaining the achievements of the campaign through regular health services so that the enthusiasm generated would obviate the danger of a serious decline in momentum once the campaign was over. In 1990-1991, eight million children were immunized during the yearly campaigns.

- National campaigns for measles and DPT vaccination. Mass measles vaccination started in 1986 when every child aged between nine months and

³ In 1993, the ERTU showed that television already reached 93.3% of Egyptians.

three years was a candidate for immunization against measles. Three-and-a-half million children were successfully immunized in that year. Other measles campaigns were launched later in 1990 and 1994. Also, in 1986, national campaigns for DPT started with the vaccination of five-and-a-half million children. By 1988, over 80% of the country's young children were immunized with the antigens of the six killer diseases, an impressive achievement in a country with eight million children under five years of age. The DPT campaign was also repeated in March 1989, and in October-November 1992, with special efforts towards districts which showed a high incidence of the disease in the first half of 1992.

- National campaigns for vaccination with TT. A national survey carried out in November 1987 by the WHO, Unicef and MoH indicates that seven governorates had a lower coverage level than the rest of the country. Most dramatically, coverage of pregnant women with TT was found to be a mere 12%. Some 25,000 infants died from neonatal tetanus each year, lives which could easily have been saved by vaccinating the mother-to-be. The risk of death from neonatal tetanus was five times greater in rural than urban areas, due to the common insanitary cutting of the umbilical cord. The campaigns started in 1988 by vaccinating one million pregnant women. These efforts were expanded in rural areas to include all women in childbearing age, who accompany their children to the health unit. Messages were also directed to midwives on sanitary methods of delivery. This led to a reduction of up to 50% in reported cases of tetanus (CAPMAS, 1989).

- National campaigns for vaccination with hepatitis "B" vaccine (HBV). In 1991, a national plan to immunize children before their first birthday with HBV was launched. It was extended to cover primary school children with the vaccine free of charge. The mode of transmission and vaccine's schedule were the main theme of the campaigns

To evoke the desired change, mothers must understand the message in the way the health educator intends. An immunization campaign will be effective only when mothers not only understand the relation between immunization and child health but

also accept this fact and immunize their children. The problem here is how to make a compromise between all the services with one television set for the whole family and in a limited time? This problem can be solved by drawing the attention to the quality of the campaigns. Designing campaigns based on good theory can be effective in attracting the audience, as well as achieving the desired outcomes. In this section, a systematic examination of the immunization campaigns will be carried out in relation to the essential persuasive variables. Through this understanding, campaign planners can set realistic campaign objectives, a scheme for their evaluation, and guidance for future campaigns in the form of lessons learned.

1:4:4 IMMUNIZATION CAMPAIGN PRINCIPLES:

For effective persuasive impact, immunization messages must first be presented to the mothers, who selectively expose themselves to them. The actual attention is enhanced by the extent to which the mothers perceive gratifications from the message that can justify the cost needed to comprehend and process its content. Taking the child to the clinic to be vaccinated represents the goal of the persuasive process which indicates the new behaviour induced by the campaign planners. According to Flay et al., (1981), exposure to the message will lead to awareness about the immunization problem but only when it is attended to. Awareness will lead to changes in mothers' knowledge, but only when the message is comprehended. Changes in knowledge will lead to changes in beliefs, but only if the message's contents are acceptable. Changes in beliefs might lead to changes in attitude, intention, and behaviour. This sequence assumes that changes in knowledge are easier to achieve than changes in attitude which, in turn, are easier than changes in behaviour. To achieve tangible changes in mothers' attitude and behaviour, immunization campaign planners follow some postulates, which are essential where persuasion is concerned, as follows.

1:4:4:1 The Source:

Immunization campaigns in Egypt utilise health communicators who have certain characteristics that can influence the mothers in an attempt to push them towards healthy behaviour. Selection of a credible communicator depends on the nature of the argument to be addressed. Generally, expert health professionals, who know what they are talking about, are introduced, especially if the message is complex (Wilson and Sherrell, 1993), like the immunization schedule and its importance, the mechanism of action of immunization, or at the early stage of introducing the vaccine where knowledge gain is the major goal (Ashley and Jarvis, 1995). However, because mothers should perceive health communicators as disinterested and unbiased, some experts, who may give unexpected opposite effects as they are personally involved in the issue, are avoided. Eagly et al., (1981) argued that a communicator is considered more sincere when arguing against own self-interest. Therefore, the head of the Vaccines Institute who may be seen as promoting for the institute's products when addressing a message regarding the value of vaccination. On the other hand, both of them can be of high credibility when presenting general health policy.

A related factor is the competence possessed by the communicator, which is especially important for mothers in villages, whose rejection or acceptance of immunization is not based upon evaluating the arguments, or when a complex message is being advocated (Schutz, 1993). Commonly, competence cues, e.g. degree of medical education and professional attainment, come before the arguments being presented in order to motivate the mothers to develop more favourable attitude towards the communicator and pay attention to the messages presented. Competence should be enforced by trustworthiness to have an effective persuasive impact, to the extent that adoption of new behaviour can be influenced by non expert persons e.g. a local health worker can be more effective than a foreign paediatrician. A trustworthy communicator who can be seen to have a sincere, honest intention, like a mother inside the health clinic, is commonly used to deliver the immunization messages, and can be effective as long as the goal is to encourage the mothers to change their attitude or behaviour, as Wood and Kallgren (1988) concluded.

Another major character of the source is his/her attraction. The more the communicator is liked, the greater the persuasive power. According to Janis (1983), likeability and homophily are two main dimensions for a health communicator's attractiveness. At the start of persuasion, mothers consider the physical characteristics of the communicator and the arguments presented. Persuasion will be poor if there is no physical attraction from the start between a health communicator and the target audience. However, Zimbardo (1960) argues that disliked communicators can be more persuasive than admired ones, as a mother will try to prove that the message itself is worth listening to, not just owing to admiration of the person.

A health communicator who is high in perceived similarity becomes familiar and well-liked, and tends to be more effective in persuasion (Stoneman and Brody, 1981). Immunization campaigns take advantage of this assumption to persuade mothers towards child vaccination. A mother (who looks like any mother) enjoying time with her child after receiving measles vaccination, who ends a message with "*because I am a sincere mother*", is considered a familiar and honest communicator with a better persuasive power towards measles vaccination. A pregnant mother inside the health clinic waiting to receive TT injection, with a sterile plastic syringe in her hand, who starts a message with "*I am just like you*", creates a feeling of similar destiny with all pregnant mothers and encourages them not only to receive the vaccine but also to use sterile plastic syringes. The same message was sent by different mothers to reach the whole population with homophilic and sincere communicators.

1:4:4:2 The Message:

The persuasive power of an immunization message depends on its content, code, and style of presentation, as Petty and Cacioppo, (1986) assumed.

1) Message Content:

To bring the immunization issue home, campaigns planners structure the information

in mothers' terms, and support it with research findings. They target the immunization issue in two directions. One is related to the disease itself e.g. the prevalence of measles in Egypt, its symptoms, seriousness, ways of prevention and control, and so on. The other direction is related to the immunization in general e.g. its indications, schedule, safety, where to go, and so on. They establish mothers' awareness of diseases like polio as a national health problem and the various factors that can motivate the parents to immunize their children. Generally, four basic messages were produced: introducing the concept of prevention to protect children, informing parents of the immunization schedule; addressing common misbeliefs; and the danger of the target diseases. However, a message always concentrates on a limited idea at one time, and its content satisfies television gatekeepers as well. The main points are always included in the opening or closing portion of the immunization message, where it will be remembered and learned better than if it were in the middle part of the message. Because it is expected that mothers are concerned about the immunization issue, moderate demands are commonly followed by larger demands, to give a better chance of acceptance. Petty and Cacioppo, (1981) assume that if the message contains the main points at the start, the motivated audiences will expect more interesting points as the presentation goes on. By the end of the message they will be disappointed by the declining level of interest in the message. Starting by general arguments leads the interested mothers to develop expectations about what is coming that may be fulfilled by the end of the message.

Another point regarding an immunization message's contents is whether it contains only the positive point of view or both the positive and the negative as well. Because it is presumed that the mother has a positive attitude towards childcare in general, just the positive side of the arguments is commonly presented. This approach is also suitable for those who have little education who constitute the majority of Egyptian mothers⁴. It would be more effective to present the immunization's advantages and complications in the same message and then proceed to counter the negative aspects by refuting them as it gives the arguments high credibility and objectivity, and deals

⁴ By conservative estimates, 70% of Egyptian women were illiterate (Gardner, 1996).

with the mothers as mature informed individuals (Karlins and Abelson, 1970). However, this approach, which attracts only the interested minority, is kept mainly for television health programmes, where more time is available (Cheung, 1990).

Because messages need time to penetrate mothers' minds, repetition of a specific message facilitates development of favourable affect, and enhances its persuasive impact. Although contents are the same, the messages can be varied in style and approach, e.g. several versions of a short spot message, to enhance the level of attention and interest, with the continued repetition of the same message (Cacioppo and Petty, 1984). Generally, optimum repetition depends on the complexity and importance of the arguments e.g. vaccination schedule, as well as the innovative character of the topic e.g. the new introduction of HBV.

2) Message Code:

Medical information regarding immunization is presented in simplified terms and certified medically correct. However, because a persuasive code is mainly linguistics, communicators usually anticipate what responses will be sparked when mothers absorb the words, according to their symbol-referent conventions. This may be a problem for a health educator, who usually has a rich medical vocabulary that definitely differs from a mother's vocabulary. The word immunization ("*tataiem*"), for example, for a health educator means vaccination ("*tahsien*"), but illiterate, or even educated mothers, in a village may understand it as weaning. Persuasion in this situation may be blocked at its initial stage. Active and positive present tenses are generally used ("vaccination protects your children") rather than future and conditional tenses which carry a subjective estimation or interference with God's will ("If you do not do.. your child may suffer from ... " or "your children's health will be in danger if they are not vaccinated"). Classic Arabic is always avoided in favour of using colloquial Egyptian and slogans which are familiar to what mothers hear and see every day.

The use of medical experts who can design easily digestible message codes is not an

easy option. Medical ethics in Egypt prohibit doctors from spreading their knowledge except through specialized medical media e.g. medical periodicals. This limitation results in a lack of confidence in dealing with television. They also fear that too much medical knowledge may result in hypochondriacs. Doctors should improve their communication skills and abandon their reluctance to satisfy their target. Also, they must not see media professionals as technicians who, can be left to get on with the job of communicating the health messages defined only by them. Academic institutions must train medical experts who have the ability to deal with television. This collaboration will provide background information to put health news into context without evoking fears or false hopes (Mead and Turnbull, 1995).

3) Message Style:

Because of the complex nature of medical information, conventional health messages suffer from a dull or complex mode of presentations. Both marketing and media professionals carry the responsibility of handling tough medical advice and turning it into exciting and rewarding information which is less difficult for Egyptian mothers to process. Although most campaigns employ short spot advertisements, enough to inform the mothers of the mass vaccination due time, the perplexity appears always in choosing between an emotional or factual style.

Egyptian media have wide experience in using both styles as synergistic rather than exclusive alternatives. The balance between the two appeals depends on the message contents and the character of the audiences. For example, for the polio campaign, a wheelchair-bound school girl, with tearful eyes, looks at her colleagues who are playing basketball, asking the viewers in an emotional appeal "*who should I blame?*". The same message is also repeated in a different situation with a young paraplegic girl, supported with two wooden stands, looking at her peer running in a big, open farm with great expectations of the future. She cannot move, and has limited expectations, and with a sad voice and full of tears eyes, she asks the viewers "*who should I blame?*". Measles immunization campaigns are also successful in utilising the emotional style in a variety of presentations. This highly emotional appeal,

supported by the colour, sound, and the feature itself, leaves the mother with a feeling of responsibility regarding her child's health and the harmful outcomes. This creates dissonance in a mother's cognitive system who tries to decrease it by attending to more factual information regarding immunization. The short drama, with little to say, is usually followed by messages with a rational appeal which, in contrast to the emotional appeal, emphasises the characteristics of immunization, its indication, value, schedule, and so on in relation to the disease.

Polio spots meet the need of a highly sensitive mother regarding the demands of child health with their emotional approach, especially to the physical dimension of the disease. Similarly, presenting a newly born who is infected with tetanus neonatorum, with an arched back, stiff body, and a bitter smile, was a rational educational spot which was followed by an emotional appeal when the doctor with her white coat, removing her stethoscope from her ear, and turning away from the baby saying "it is the smile of death rather than a cry for life". The message ended with a background baby voice saying "Mummy, please help me". This was a type of a message that prepare the mothers to receive the followed instructions that relive the created emotional stress. In contrast, DPT campaigns invested mothers' initial positive attitude towards immunization, and used a rational style to produce more agreement.

A related approach for presenting the health message is the social marketing technique which attempts to persuade a specific individual to adopt an idea or practice (Ling et al., 1992). Certainly, selling vaccines is different from selling chocolate. Commercial advertising usually concentrates on mobilising an existing predisposition towards chocolate (i.e. a desired behaviour) and not on changing fundamental behaviour. It has the freedom to package the chocolate in a variety of ways and in an exaggerated fashion. It helps consumers to do what they want to do in an easy way, with an immediate tangible benefit and pleasure. It often has a massive budget, yet a small change in behaviour is satisfactory (Bauer, 1964). To achieve this minimal shift in behaviour, a commercial campaign commonly stresses formative market research to design the right message to reach the right target at the right time. Health educationalists, on the other hand, do their best to persuade mothers to change their

lifestyle with certain instructions e.g. telling them to do something which they had never done before. They sell only probabilities and promises e.g. a drop in the infant mortality rate within the next five years. With a small budget, they aim to change the majority of the population's behaviour, ignoring the importance of formative research. Nevertheless, health educationalists should learn more from marketing experiences in dealing with health problems. Although none of these experiences provides a concrete framework that must be adhered to, there are a number of key concepts that could be borrowed by health campaigners to improve their persuasive capacities, such as:

a) Meeting a health campaign objective can be considered as gain, and expenses will become less important when compared with the actual cost. This is evident when estimating the cost of caring for TB patients and the decrease in their productive power of those who might have been healthy as a result of an effective immunization campaigns. Furthermore, once the vaccine preventable diseases are under control, considerable funds can be diverted from expensive curative facilities. Campaign planners have to think in terms of marketing philosophy and profit making and look back to see if they met their consumers' needs (the consumer is always right), or if the campaign strategy was designed only from the organization's point of view.

b) The product in health campaigns will become more valuable for the mothers if immunization is linked with the tangible physical component, as in the marketing concept. A plastic disposable syringe could make the idea of prevention of infective hepatitis more concrete. But how much do the services cost? Cost does not mean monetary only, it includes other factors such as time, effort, psychological, opportunity costs, and so on. This may explain why people avoid free health services. This is mainly because of non monetary causes e.g. a long waiting time, travelling, the psychological cost of accepting free donations in the form of a free examination and medication or, maybe the social stigma attached to those who use free health services. The product should also be made available through effective distribution channels. A shortage of vaccine in the clinic may follow a public immunization campaign, especially with an already low budget (Solomon, 1984).

c) Marketing campaigners usually design their strategies to meet specific target. Audience segmentation could be achieved in many ways e.g. by demographic characteristics, mass media availability, needs, attitudes, geographical distribution, and so forth (Hawthorne, 1994). Obviously, any attempt to communicate with all these subgroups via a single message will most probably fail. A campaign to stop smoking directed at cardiac patients or an old-age group will most probably be more successful than just a general stop smoking campaign.

d) Marketing professionals understand that there are other groups or organizations who may have an interest in the same market. They have to compete for their target audience. Campaigners for immunization hardly think about competition for their products e.g. the power of religious groups and whether they are going to support the campaign or impede the idea of future planning. An awareness and understanding of relevant influential groups is quite critical to any campaign's success. Health campaigners have to design their messages in an attractive, desirable and accessible manner to face up to competition (Kutler, 1972).

e) Health campaign planners should learn from commercial marketing experts the importance of rapid feedback for monitoring and modifying their progress over time. Health campaigners usually ask themselves if the campaign achieved its objectives. Commercial marketing professionals usually put more stress on why it worked or did not work. By setting up a model of the process of change, it might be possible for health campaigners to modify their strategies.

f) Marketing executives usually have modest expectations. They believe in hierarchy effects. Mendelsohn (1973) argues for the adoption of realistic, non-grandiose criteria, such as cutting down slightly on smoking, rather than trying to eradicate all smoking behaviour. A smoking cessation campaign that can persuade only one percent of the total population would be successful because it would result in thousands of extra non-smokers at a relatively low cost.

Dickinson (1995) argues that collaboration between health educators and media

professionals can lead to a clash between two different cultures. While on the surface the two enjoying a harmony of interest, there may be a conflict over the substance of the health messages communicated. The likely result is that health communicators will find their health messages compromised.

1:4:4:3 The Channel:

Mass media and interpersonal communication have different but complementary functions in community campaigns. The mass media can be more effective in raising awareness of the issue (Faris and Shouman, 1994) while interpersonal communication can be more effective in actual behavioural change (Mekhtiev and Fisher, 1994). Immunization campaigns used television in two ways. A direct collaboration between health professionals with media professionals resulted in an infinite number of television spots (each may last 30-45 seconds), interviews, documentary presentations, or health messages impeded into entertainment programmes which reflect Egyptian culture in terms of clothing, environment, moral standards, and social norms. Events took place in both urban and rural settings with different socio-economic backgrounds (Montgomery, 1990). This can be more effective, according to Cheung, (1990), in transmitting messages to all viewers rather than the interested minority. At the same time, health professionals act outside the television institution creating news regarding immunization e.g. involvement of the head of the state in the initiation of the immunization campaigns against polio (Montgomery, 1989).

Television progress in Egypt reflects the technological revolution of the twentieth century. The pattern of its development can be divided, from the researcher's point of view, into three stages: a *selective stage* which represents the embryonic stage of media development in Egypt, when only the elite were literate and could afford to obtain messages from television. On July 21st 1960, Egyptian television had started its broadcasts. By the following year, the second channel started broadcasting, then the third channel on October 31st 1962, and they continued to expand to fill suitable broadcasting hours (see tables 4:1,2,3 for some details of television programmes).

Table 4:1 Health programmes broadcast on television (April 1993-March 1994)

| Channel | Programme | Frequency | Duration | Objectives |
|---------|---------------------------|-----------|----------|---|
| I | Health magazine | Weekly | 30" | Feminine health issues e.g. physical, psychological, developmental etc. |
| | Smile for hope | Weekly | 30" | Handicapped health and their problems e.g. down syndrome. |
| | Stop danger | Daily | 1" | General health hazards e.g. noise, safety measures, hygiene, etc. |
| | A prescription for health | Weekly | 15" | Background and treatment of common health problems e.g. diabetes |
| | Your health is the world | Weekly | 30" | Education for the endemic diseases e.g. TB, bilharsiasis, etc. |
| | The new in medicine | Weekly | 30" | New discoveries in medicine. |
| | 5 minutes for health | Daily | 5" | General health issues related to the current situations. |
| II | Private doctor | Weekly | 30" | Full information for a specific disease e.g. typhoid. |
| | Herbal medicine | Weekly | 30" | Education regarding treatment with herbs. |
| | For you and family | Weekly | 30" | Overpopulation and family health. |
| | Channel 3 clinic | Weekly | 20" | Practical demonstration for cases and the lines of management. |
| | Medical news | Weekly | 10" | Medical news. |
| III | Your health | Weekly | 15" | Preventive health instructions. |
| | For every couple | Weekly | 60" | Pre and post marital health measures. |
| | Crowdedness | Weekly | 15" | Overpopulation problem |
| | The danger | Weekly | 15" | Overpopulation problem |

Table (4:2): Daily average television hours by channel and year*

| Channel | Starting date | 86/87 | 87/88 | 88/89 | 89/90 | 90/91 | 91/92 | Percentage change |
|-----------|---------------|-------|-------|-------|-------|-------|-------|-------------------|
| Total | | 27.1 | 28.8 | 33.2 | 38.7 | 44.4 | 54.6 | 89.6 |
| Channel 1 | 21/7/1960 | 11.9 | 12.8 | 13.4 | 14.2 | 14.5 | 15.8 | 23.4 |
| Channel 2 | 21/7/1961 | 10.6 | 11.3 | 11.8 | 13.8 | 14.6 | 15.3 | 35.4 |
| Channel 3 | 6/10/1985 | 4.6 | 4.7 | 4.9 | 5.7 | 5.7 | 7.6 | 61.7 |
| Channel 4 | 25/10/1988 | - | - | 3.1 | 5.0 | 5.3 | 7.3 | - |
| Channel 5 | 12/12/1990 | - | - | - | - | 4.3 | 8.6 | - |

Table (4:3): Daily average transmission hours by type of programme and year*

| Subject | 86/87 | 87/88 | 88/89 | 89/90 | 90/91 | 91/92 | Percent of change |
|---------------|-------|-------|-------|-------|-------|-------|-------------------|
| Total | 27.1 | 28.8 | 33.2 | 38.7 | 44.4 | 45.6 | 89.6 |
| Comedy | 2.8 | 3.5 | 4.6 | 5.6 | 7.5 | 9.9 | 182.9 |
| Communication | 3.6 | 4.1 | 4.5 | 5.0 | 6.2 | 5.6 | 36.6 |
| Cultural | 11.0 | 11.0 | 12.0 | 14.2 | 15.1 | 18.2 | 65.5 |
| Educational | 1.4 | 1.6 | 1.7 | 1.6 | 2.2 | 1.6 | 0.0 |
| Religious | 2.7 | 2.6 | 3.1 | 3.2 | 3.7 | 3.9 | 50.0 |
| Advertising | 0.8 | 0.8 | 0.7 | 0.7 | 0.8 | 1.1 | 37.5 |
| Others | 4.8 | 5.2 | 6.6 | 8.4 | 8.9 | 14.3 | 175.0 |

* In hours and tenths of hours, except for the percentage. CAPMAS (1993) Statistical year book. Cairo, Egypt

The second stage can be described as the *popular stage*, where television reached nearly everyone in the nation, especially in urban Egypt. Television has reached 95% of the urban population compared to 85% in rural areas of the country, more than ever before. The open economic policy applied by the late president during the late seventies, enabled many Egyptians to work abroad and then return home with more money, utilizing more of the mass media services. Most people buy a television set as a sign of modernization. Even in remote, poor areas in the countryside, people manage to join group viewing centres, such as in the coffee shops for example, which are equipped with a television set. This makes it possible for the majority of Egyptians to be exposed to television messages (ERTU, 1993).

Egypt is now ready to move into the *specialised stage* of television development, which represents its mature stage. This evolution expresses the concurrent expansion of the level of education, affluence, leisure time, population size, as well as extensive political support. Specialisation is either unit specialisation where the entire channel appeals to a specialised audience e.g. Egyptian satellite television for Egyptians outside the country. New specialised channels like Greater Cairo, Alexandria and El-Canal have been established. Specialisation can also be purely internal e.g. part of the women's programmes are designed for family health.

Education for health is based on the motto "*sound in body sound in mind*". From this point of view, the television strategy for health programmes (1995/1996) is based on general hygiene, routine check-ups, premarital check-ups, child immunization, safe motherhood, and environmental and psychological health. It acknowledges the importance of both health programmes and health campaigns to reach the whole community with the new health information (ERTU, 1995/1996). This encourages health educationalists to look for television coverage of their efforts to improve the health status of the community. They aim to educate the community, to explain and disseminate complicated information, to set the agenda in health matters, and to organise long-term campaigns. On the other hand, television is a highly competitive institution not a health institution. It aims to entertain, to inform, to make profits, to look for short-term events, and to present salient topics already digested.

Television had great success in disseminating of information regarding family planning. After advertising the campaign, sales of contraceptive pills rose up to tenfold from pre-campaign levels (Lucaire, 1985) and there was a decline in growth rate (Al-Ahram, 1994). Another impressive example was the implementation of the seven-year television ORT campaign to save 50% of the total deaths of Egyptian children caused by dehydration. With one year's use of television for dissemination of information, correct information regarding dehydration was recorded in 90% of the surveyed sample. There was also a parallel increase in usage of ORT in diarrhoeal episodes from 15% to 70%. A 50% drop in deaths caused by dehydration was reported (EL-Rafie et al., 1990)). Other positive results regarding the significant role of television in health education were also reported by Turner (1992); Piotrow (1992).

On the other hand, the strong direct effect assumption is not greatly appreciated, especially by academic researchers who argue that television has only limited effects (Rogers and Storey, 1987; Battersby et al., 1993; Flay et al., 1995). There are some assumptions which may provide a basis for reconciling some of the divergent perspectives regarding the impact of mediated health campaigns. Assessment of television impact is still at a primitive stage. Both the independent and dependent variables are not yet well identified e.g. which variable is the cause and which is the result, how health issues were presented, selective exposure, and so on. The effect obtained depends on self assessment on issues that are hard to judge, embarrassing to mention, or difficult to recall (Kessler and Stipe, 1984). The usual experimental designs are artificially affected by other variables that operate in real life situations (Eron, 1982). Two-sided coverage of controversial topics may also result in mutual cancellation of the effects. As television viewing is a passive activity, its unbalanced attraction for passive individuals produces a selection artifact which masks television's effects by bringing those inactive people up to the average level. It is not uncommon for persuasion campaigns to suffer from a lack of formative research and social support, unrealistic expectations, and underfunding. The level of expectation should be mid-way between the two parties in evaluating any persuasive campaign, taking into consideration the nature of the problem. Certain issues are much more difficult to communicate and require changing deeply-rooted values (e.g family planning) than

other topics (e.g. immunization).

Television keeps the faith already present preserved, firing enthusiasm for the actions recommended, and setting a healthy agenda for the community (McCombs, 1981) by emphasising the issue which is often mentioned. People estimate the prevalence of various diseases according to the frequency of media mention, rather than their actual prevalence in reality (Wanta and Hu, 1993). It may be effective in cultivating certain beliefs, or enhancing public attitudes towards obscure events (Klingler and Aune, 1994) especially on susceptible sub-populations, e.g. villages with newly installed electricity may be more affected by television than cities (Van Vuuren, 1981). This effect is enhanced by face-to-face communication which may take place in a clinic, while television advertises opportunities to learn, or serves as a reminder, helping mothers to remember what they have learned (Suarez et al., 1993).

1:4:4:4 The Viewers:

Viewers are the crux of the television campaigns. Rural people are mostly television viewers, contrary to urban areas, where people like a greater variety of programmes on the radio network. Radio listening habits are commonly higher among Egyptian men than women. Females like drama more than males. Many females prefer soap operas, whether on radio or television. On the other hand, males tend to like interviewer programmes and round-the-table discussions more than females do. Illiterate listeners prefer drama and this may also explain the gender distinction, since there is more illiteracy among Egyptian women than men (ERTU, 1993).

The Egyptian television continues to fulfil its promise to spread immunization messages to as many mothers as possible, particularly the less advantaged i.e. the poor, the illiterate, and those living in remote areas. Television is also able to reach mothers indirectly through messages directed to health workers, particularly those with little formal training (Jason et al., 1993). Health messages are presented at different times of day, on both national and local television networks, to reach mothers. For

example, housewives can be reached with daytime spot ads while working mothers can only receive the night spot campaigns. Nevertheless, it is expected that most mothers will receive the daytime campaigns because even working mothers, with such young babies, are expected to be on maternity leave. There will also be minimal distraction from other family members.

On the other hand, mothers have different interests in using television. Each segment may react differently towards the same message. Upon presenting the messages, according to Dimpleby and Burton (1995) three probabilities for viewers' reaction can be identified. Television affects each of the heterogeneous mass viewers differently, through selectively attending to, and comprehending, the same message, depending on personal experience and individual filter systems. Therefore each viewer responds differently to the same immunization message. A second perspective suggests that there is social segmentation of viewers based on common interests and experience e.g. a segment represents mothers who have children at the age of vaccination and who hold positive attitudes towards immunization. Since each mother within the group has similar cognitive and attitudinal characteristics, the expected response of each mother will be almost similar to the expected response of the other mothers in the same category, providing that other conditions remain the same.

In small communities, like a village in rural Egypt, the effect of immunization messages is affected to an extent by other members of the community who have strong social relationships with mothers. In the third perspective, informal interaction between the community members creates a common response e.g. a mother may show no response to the message after a negative interaction with her mother-in-law. On the other hand, a mother who does not attend to the message, but interacts with other viewer members, may show a positive reaction as a real viewer. The more people talk about the issue, the more likely they are to attend to the message and the greater the chance for change. This means that mothers are not passive, but an active partner in the process of education. It is the interaction rather than the message in isolation that has a significant impact. Definitely, health educationalists do not like negative side-talk interaction. That is why it is important to monitor mothers' attitude and modify

the approach and the message accordingly. Mothers' characteristics, personal interest, the presented message, the communicator and the chosen channel characteristics, as well as the involvement of respected people, determines the extent of interpersonal interaction and the level of attention paid to the message by the target mothers (Rogers and Shoemaker, 1971).

Through either of these perspectives, campaign planners usually try to maximize viewers' attention to the message presented. Viewer research, to understand their personality, and the nature of the already existing attitudes and behaviour, can be crucial for achieving the campaign objectives. With the expected mothers' motivation towards better child health, and the lesser likelihood that they will be opposed to the immunization message, together with the limited time and budget, formative research is almost always ignored.

Although educational level has little to do with mothers' instincts regarding child care, it can help in determining the rate of attitude change. An educated mother develops new pro-immunization attitude more quickly than an uneducated mother. Her education enables her to comprehend, and evaluate the idea of vaccination and its opposing arguments as well, while the uneducated mother may remain confused about this new information and may consider it a problem which is too much for her. Immunization messages are usually simple for the uneducated mothers. During the campaigns, little attention is directed towards complex information, like the value of the vaccination schedule, or the components of the triple vaccine for example. Simple jargons are generally used to be easy to remember and comply with e.g. *"vaccinate your children to have peace of mind"* or *"the triple vaccine protects my life¹"*.

Generally, females are more easily persuaded than males (Eagly et al. 1981). It can be more effective to direct the immunization messages to mothers, who are also seen as the traditional source for family health care. The relation between age and persuadability seems to be a curvilinear relationship. Susceptibility to persuasion

¹ Literally, my life means the life of my dear child.

increases with age, up to the age of nine years, when maximum influence occurs (Eron et al., 1983). Conformity reaches its maximum at the age of twelve. After that, as one grows older, the susceptibility to persuasion declines gradually (Harris et al. 1983). This can draw attention to directing the immunization messages towards children who are easily persuaded and will be the future mothers and fathers. A recent campaign for hepatitis B vaccine presented school children advising other children to receive the vaccine, which is offered at schools. This could be a step towards building new positive attitude among future parents.

1:4:5 SUMMARY AND CONCLUSION:

This chapter highlighted the principles of the persuasive television immunization campaigns presented on the Egyptian television, as well as the factors that led to a campaign strategy, together with the desired short-term and long-term outcomes. Through persuasive communication, mothers are motivated to behave according to health educationalists' instructions. Mothers have to expose themselves selectively to the message, understand it, retain its contents, and accept and implement its recommendations. It is therefore the health educationalist's role to design an effective strategy, to motivate the mothers to comply with the instructions, according not only to the campaign objectives, but also to the needs and requirements of both the mothers and the television. A campaign strategy involves intelligent manipulation of the communication variables that may influence the outcome of the persuasive efforts. These variables include the communicator, the message, the channel, and the audience.

1) The source: The main task of the communicator is to provide the mothers with information regarding children's diseases and recommendations which they should perceive as a solution for the evoked health problem. Generally, the higher the credibility of the communicator, the higher the persuasive impact. Expert, and competent health professionals are generally perceived as a source of valid and

trustworthy information. By debating to decrease the diseases incidence, health professionals can be seen as sincere and honest communicators who are arguing against their own self interest, with an enhancement of their credibility and persuasive power. Nevertheless, non-expert communicators, who can be seen as similar to the mothers, such as a typical mother, a health worker, or even a young girl, are also used effectively to present different immunization messages.

2) The immunization message: It is not enough for a health educationalist to disseminate correct information to achieve the desired outcomes. The immunization messages presented contain information regarding both the target diseases and their vaccines and are supported by research evidence and documents. It can also be a reminder for mass vaccination of children. Vague or distant information is always avoided to enhance attentiveness and learning. Thus, factual information included in the message is correct, objective, up to date and of a suitable quality for the mothers. The immunization messages reach homes more easily, as they deal with prominent health problems with limited and practical recommendations. Because it is expected that mothers are motivated to attend to child healthcare messages, the main points are usually presented at the end of the message, with few counter arguments.

Health educationalists should be trained to use the media in an effective manner to satisfy both the television gatekeepers and the audience without evoking fears or false hopes. Media organizations should train medical experts who have the ability to deal with the media and to collaborate with media reporters who are interested in health. The mode of presentation of the medical facts should meet viewers' needs with a suitable appeal. The factual and emotional style can work together to enhance understanding and retention of the message. Although there are some restrictions for using social marketing styles to deliver health messages, health educationalists should apply some of the marketing techniques for better and more effective public health campaigns, such as audience segmentation into homogeneous units and audience analysis regarding relevant knowledge, attitude, behaviour, and norms, and developing persuasive messages according to the characteristics of each segment to meet the target population's needs. They should admit that the audience are sometimes right,

and make their recommendation attractive to the audience e.g. easy application of the recommendations with less cost. Identifying the communication channel is also important to reach the target population. Health educationalists should identify the other competing groups who can oppose their messages and design their messages to face up to competition. Above all, health educationalists should have specific and modest objectives for their health intervention.

3) The channel: Television is able to be a link between a small team of health educators and a large number of viewers. Health educationalists select suitable channels for effective communication according to the objectives and available resources. Because health educationalists need television, they should understand the nature of television's objectives and formulate the campaign objectives to be relevant to both television and the viewers. Television provides information and advice concerning the efficiency of immunization and the date of mass vaccination. It also acts as an institution for positive socialisation where mothers have to conform to society's norms. Also, television provides shared experience for a mass of mothers. The controversy among researchers about the impact of television health intervention creates polarity in opinion: some believe in its magic effects, while the others limited its role to just dissemination of information. Between these divergent perspectives, it is possible to assume that the techniques for demonstrating television's impact are still in their embryonic stage, which yields unreliable results. Also, the chronic complaint of under-funding, and unrealistic expectations are more prominent in the field of mediated health education.

4) The viewers: Television audiences are not passive, defenceless targets, who absorb the message once it reaches them. They are active partners in the process of communication. Health educationalists should use viewer research to understand how mothers use television and how they react to its messages. After receiving the message, mothers will react either on an individual basis, group basis, or according to the available social relation. Mothers' characteristics determine the reaction that a health educationalist can anticipate. Females are generally more easily persuaded than males, and young people more than older people. This may draw attention to the

importance of directing the health message at the mother, and school children, rather than adult people in general. With attitude analysis, health educationalists can plan to reformulate the target attitude. It may be possible to assume that health campaigners should learn from the successes and failures of other campaigns, and thereby grow in inspiration. Better application of formative research, precise problem definition, detailed audience analysis through suitable channels, humble goals, and social support are considered essential criteria that must first be stabilised.

CHAPTER FIVE

RESEARCH METHODOLOGY

2:5:1 INTRODUCTION:

Popham (1993) concluded that systematic evaluation for health campaigns is the exception rather than the rule. There are various methods of evaluation but no ideal design. Each has its defect associated with limited resources, limited time, and the complex nature of social reality (Patton, 1990). The choice of an evaluation design depends mainly on the nature of the research questions, problem, setting, participants, and its administration feasibility. Because television intervention is a process as well as an outcomes, its assessment should be carried out at multiple points. Simons-Morton et al., (1995) suggested four stages for campaign evaluation (table 5:1). Each stage has its evaluation methods of choice which in turn have implications for the types of data that would be collected, and how it would be collected and analyzed. Israel (1994) recommended to pursue only one at a time. The research's questions, problem, and hypotheses are concerned mainly with the impact phase rather than the activities involved in the earlier or later phases of campaigns evaluation (e.g. Casiro et al., 1994; Gordon, 1995). In the previous part, a strategy for mothers' behaviour change utilizing television campaigns was discussed. It forms an intellectual frame for the required analysis and discussion regarding mothers' knowledge, attitude, and behaviour towards child immunization. The following part deals with the empirical arguments and techniques that were used to examine such anticipated effects.

Table (5:1) Stages of evaluation and their objectives (after Simons-Morton et. al., 1995)

| Stage | Objectives |
|--------------------|---|
| Needs assessment. | Description of population's beliefs, attitude, risk behaviour, state of health services, health status, as well as personal, cultural, political, social, economic, or geographical factors that may influence the campaign outcomes (e.g. Palumbo and Calista, 1990; Bentley and Mackie, 1993; Leong and Ang, 1993; White et al., 1995). |
| Process evaluation | Description of the campaign activities, the extent of target population exposure, and the internal dynamics of campaign operations. It provides quality assurance, and shows which points of weakness that can be improved or strengths of the campaign that should be remained, and the learning activities or strategies worked and did not work, and why? It also explains how observed changes are achieved. Process evaluation is most useful when data are collected and analyzed in conjunction with outcome data (e.g. Gentry and Jorgensen, 1991; Johnson and Johnson, 1993; McGraw et al., 1994). |
| Impact evaluation | Assessment of the campaign's effectiveness in achieving the desired changes in knowledge, attitudes, beliefs, and behaviour of the target population. It identifies the most important mediators to target and the feasibility of changing them, thereby providing valuable information for the campaign planning process (Mattson et al., 1990-1991). It can be extended to include changes in capacity, social support, and control over decision making and resources at the individual, organization, community, and political level (e.g. Steuart 1993; Eng and Parker, 1994; Paik et al., 1994). |
| Outcome evaluation | Demonstration of the effects of the campaign on the health status of the target population, morbidity, and mortality (e.g. El-Rafie et al., 1990; Mackie and Hole, 1992). |

2:5:2 STATEMENT OF THE RESEARCH PROBLEM:

Mothers who receive immunization messages through television should demonstrate positive changes in their attitude and behaviour towards immunization, as well as increasing their knowledge of better child health measures.

2:5:3 THE WORKING HYPOTHESIS OF THE RESEARCH:

Television in Egypt can play a positive educational role in child health by positively changing mothers' knowledge, attitude, and behaviour towards child immunization.

2:5:4 STATEMENT OF THE RESEARCH QUESTIONS:

- 1- Was the television campaign an appropriate strategy to reach the target population?
- 2- What role does television have in the promotion of improved immunization behaviour among mothers?
- 3- What is the relationship between promotion of immunization by television campaigns and attitude change on the part of the mothers? a) Did it result in any change? b) Was the change for the better?
- 4- Are changes in attitudes by mothers towards better health practices followed up by positive behaviour change ?
- 5- How effective is the use of television educational campaigns on improving mothers' knowledge as regards child immunization?

2:5:5 THE OPERATIONAL HYPOTHESES OF THE RESEARCH:

- 1) The frequency of mothers who show correct knowledge on Mothers' Interviewing Schedule (MIS) is significantly higher in the group of mothers who have received television immunization instructions than those in the group of mothers who have not.
- 2) The frequency of mothers who have positive attitude in the MIS is significantly higher in the group of mothers who received television immunization instructions than in the group of mothers who have not.
- 3) The frequency of mothers who immunize their children as measured by MIS is significantly higher in the group of mothers who received television immunization instructions than those in the group of mothers who have not.

2:5:6 THE STATISTICAL HYPOTHESES OF THE RESEARCH:

- 1) $H_1: K_1 > K_2$
 $H_0: K_1 \leq K_2$

Where:

H_1 = Alternative statistical hypothesis.

H_0 = Null hypothesis

K_1 = Frequency of mothers in the viewer group who demonstrate correct knowledge.

K_2 = Frequency of mothers in the non viewer group who show correct knowledge.

- 2) $H_1: A_1 > A_2$
 $H_0: A_1 \leq A_2$

Where:

H_1 = Alternative statistical hypothesis.

H_0 = Null hypothesis

A_1 = Frequency of mothers in the viewer group who demonstrate positive attitude.

A_2 = Frequency of mothers in the non viewer group who show positive attitude.

- 3) $H_1: B_1 > B_2$
 $H_0: B_1 \leq B_2$

Where:

H_1 = Alternative statistical hypothesis.

H_0 = Null hypothesis

B_1 = Frequency of mothers in the viewer group who demonstrate positive behaviour.

B_2 = Frequency of mothers in the non viewer group who show positive behaviour.

2:5:7 THE RESEARCH VARIABLES:

1) Dependent variables:

- Knowledge change.
- Attitude change.
- Behaviour change.

2) Independent variable:

- Exposure to television immunization messages.

3) Intervening variables:

Mother

- Age
- Educational level
- Occupation
- Religion
- Number of children

Baby

- Age
- Sex

2:5:8 LOCATION OF THE STUDY:

This research was conducted in both *Minya Governorate* (figures 5:1; 5:2) and the capital *Cairo Governorate* (during August 1993-March 1994). These locations were chosen because Minya Governorate is geographically located midway between Cairo, where the services are centralized, and the Southern border of Egypt, where the services are supposed to be of inferior quality. Furthermore, Minya governorate has a high infant mortality rate (59/1000) compared to Cairo (47/1000) (CAPMAS, 1989).

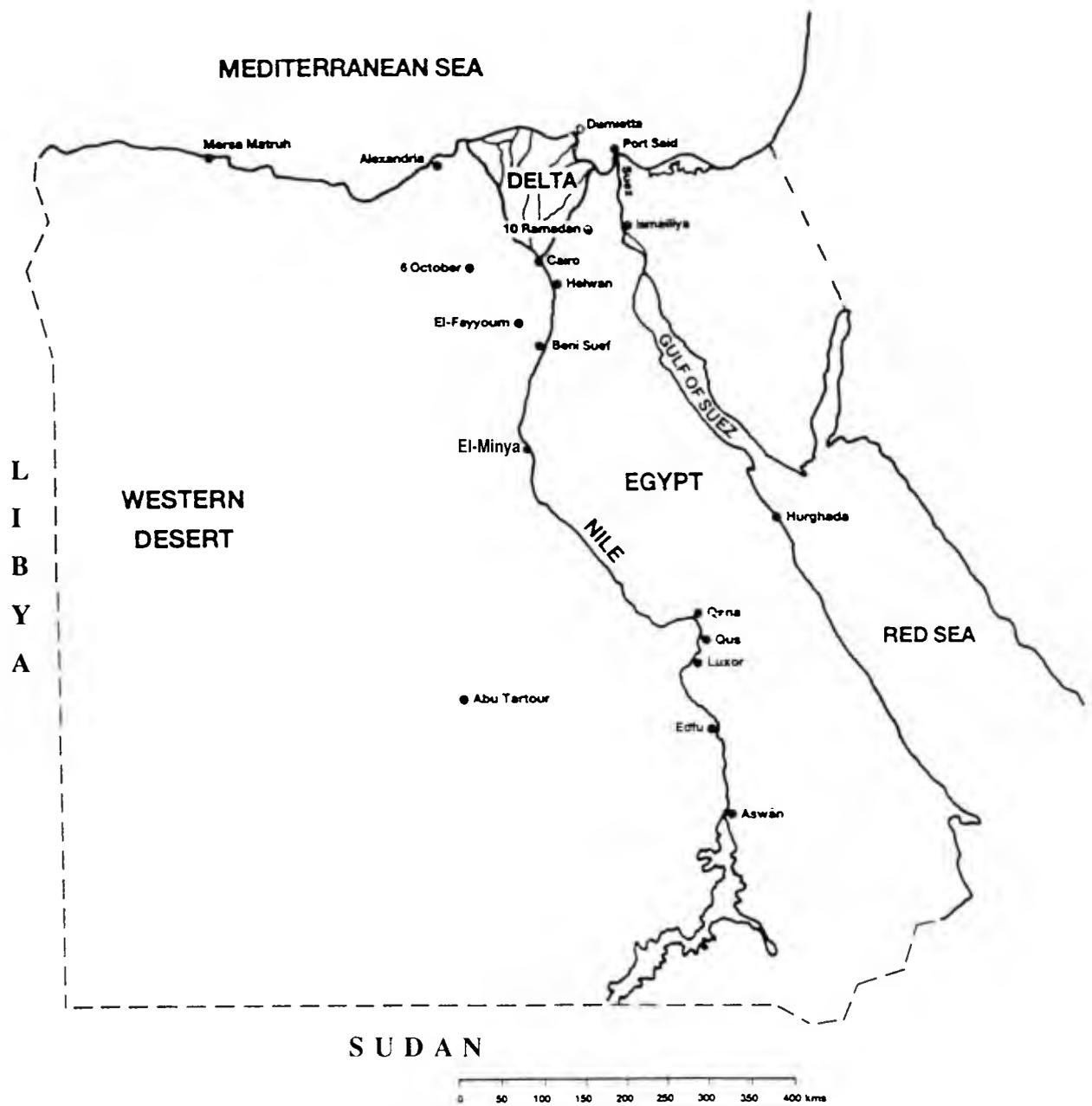


Figure (2:1): Map of Egypt

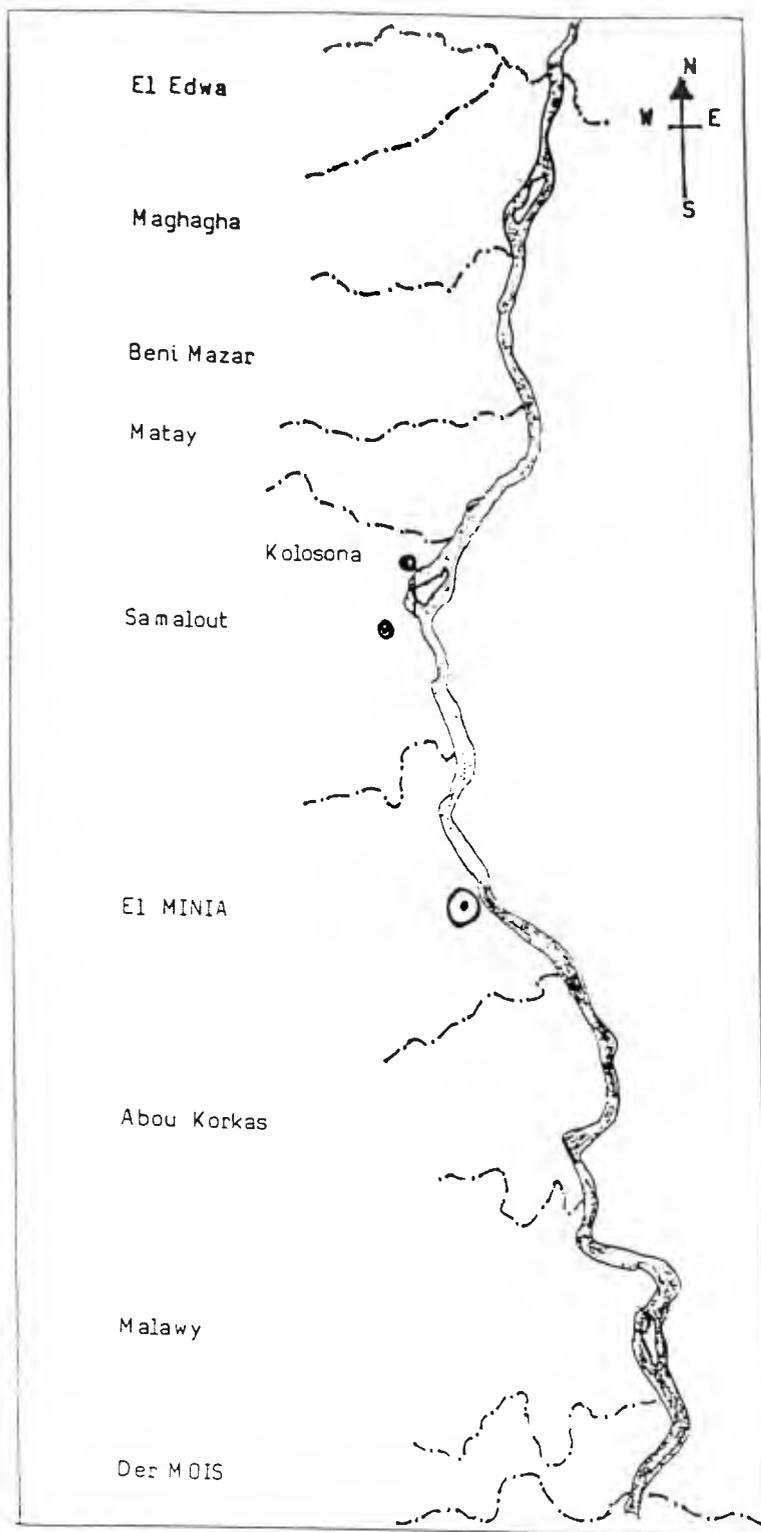


Figure (5:2) Map of Minya Governorate with its nine districts including Samalut district and Kolosona village

The major part of the research was conducted in *Samalut* district of Minya Governorate during November;1993-March;1994. With the help of Samalut Local Council and the Rural Electrification Authority, *Kolosna village* was chosen for the main study for its great suitability for conducting the research. It is almost divided by El-Ibrahimia canal into two sectors. One sector of the village has been supplied with electricity since 1986. The other sector was supposed to be supplied with electricity by May 1994 (just after the end of the study with a small block already have it). This supply of electricity was part of a systematic government plan to supply the whole country with electricity. This plan has nothing to do with the characteristics of the village residence. The second character of this village was the wide distribution of television sets. Farmers used to travel to Libya and Iraq to work over there to earn more money. The first sign of a successful trip was a change in lifestyle. The farmers used to buy a colour television set and a big sophisticated cassette recorder.

Additionally, the total population of the village was 35,000 (in 1992). The number of live births in 1993 was 546. Obviously, this offered a larger sample for conducting this research. At the time of conducting the research, 20,163 of the total village population were still illiterate and only 235 had finished a college degree. The village was then moving gradually towards greater modernization. It had its own primary and preparatory school, its own religious services, its own market, as well as its own health unit, which belonged directly to the main health clinic in Samalut district. The health unit supplied the normal primary health services, including vaccination.

Two prestigious social clubs in Cairo, the Maadi Sports and Yacht Club in the south of Cairo and the Royal Hunting Club in the east of Cairo, were also included in the study during August-October; 1993. To be a member of any of these five star clubs, the candidate should show certain characteristics in keeping with the high status of the club e.g. high educational level, high occupational level, high income, well-known family name, and so on. The clubs' members were considered as representative of a high social class group in Cairo.

2:5:9 RESEARCH DESIGN:

The main purpose at this stage is to justify adopting a comparative design among three groups. Evaluating mediated campaigns is a field of quite extraordinary complexity, where a complex pattern of interacting variables can affect immunization decisions and television viewing is one of them (Schwartz and Capwell, 1995). It involves an understanding of mothers' behaviour at the individual, small group, and community levels; an understanding which is focused on the natural determinants of change in behaviour and attitude, as well as on the dynamics of planned change. Additionally, current scientific knowledge is severely limited. What little is known is easier to conceive theoretically than to apply operationally (Newcomb and Hirsch, 1989)

"Yet while television has been an everyday affair for Americans for a third of a century, use of the medium for health education is in its infancy" (Warner, 1987).

Because of the difficulty in isolating the effect of television viewing from the other whole range of determinants operating at the same time, a *comparative study* was undertaken between a village viewer (VV) group, representing mothers who were exposed to the research independent variable, and an equivalent village non viewer (VN) group, representing mothers who were potentially not exposed (e.g. Newton et al., 1992; Freimuth, 1993). Assignment of both groups was based mainly on chance where the experimental group had electricity before the control group, although both belong to the same village (Berk and Rossi, 1990).

This design served to establish a baseline that depicted the mothers before application of the independent variable regarding their knowledge, attitude and behaviour. From such a baseline, the potential to judge what the viewer mothers would have been like if they had not watched the campaign could be maximized. Consequently, the logic of *changes* in the dependent variables could be pointed out and it could be established whether or not the independent variable had a relation to such changes. To depict the proposed relationship, the research design involved the following (Simon, 1985):

1- Because the research hypothesis suggests that changes in the dependent variables were influenced by exposure to television immunization instructions, broadcasting of the instructions on television should be followed by the suggested changes, and not the reverse. In other words, mothers' exposure to the immunization campaigns should be prior to changes in their knowledge, attitude and behaviour. This constitutes the basic notion behind this naturalistic comparative research design. Obviously, pre-exposure examination could be of some help (e.g. Mayer et al., 1992; Suarez et al., 1993). However, by drawing such a baseline for the viewer group, the time order between the dependent and the independent variables is fulfilled.

2- To assess co-modification, the research dependent variables in the potential viewer group were measured and compared with those who were potentially not exposed to the independent variable. This process of comparison underlined the association between the research dependent and independent variables. However, because television viewing in real life could rarely be duplicated, in this comparative model, the minimal effect of the independent variable might not be as simple as it seems.

3- To enable the researcher to claim that there is a genuine relation among the variables and that the observed co-modification was not based on any connection with some other variables, relevant variables that might act as an alternative explanation for the proposed association between the variables under investigation were controlled. Examining two equivalent groups which belong to one village minimized any possible biases resulting from initial differences between them. Defining the two groups on the basis of electricity supply is effective in avoiding spurious relations. This is in contrast to the assignment of the two groups on the basis of watching behaviour or just ownership of a television set. In that situation, the two groups might show initial differences e.g. economic, social class, level of education, beliefs, and so forth. Similarly, the internal validity of the research would have been seriously affected if two different villages were chosen. By excluding all these differences, competing explanations for dependent variables in the research can potentially be ruled out.

Nevertheless, due to the naturalistic nature of this design, some confounding variables

e.g. educational level, social class, or health professionals could invalidate the proposed relationship. A second reference viewer group from Cairo (CV) representing mothers of high social status, high educational level, and who are mainly users of health professionals, was included in the study to control these variables when compared with mothers in the VV group. It controlled most of the potential extrinsic factors that might jeopardize the internal validity of the research (Freimuth, 1993). Also, the study's sampling technique achieved the proposed relation. For the VV group it was a probabilistic sample but, for the CV and VN groups, it was the whole population sample. This technique helped in the exclusion of possible biases in sampling and further improved the extrinsic validity of the research. Additionally, mothers' interviews were conducted by the researcher himself for the three group study. Certainly, this avoided any interviewer biases in this form of comparative study as his influence would be equal on the three groups.

After controlling the extrinsic factors that might lower the internal validity of the research, designing the study in a form of comparative study helped in mastering most of the intrinsic factors that might endanger the proposed relationship of the variables. There was no major role of any event which occurred during the time of the study e.g. local epidemics or an outbreak for a certain group that might provide an alternative explanation for the changes in the dependent variables of the research. This was mainly due to the fact that the collection of data took place within a relatively short period of time (eight months: three months for the CV group and five months for the village groups), as well as the lack of pre-campaign testing i.e. no time lapse. However, even if any event had occurred, by designing viewer and non viewer groups from the same society, both would have been exposed to the same event which would have just neutralized its effect on the study. Moreover, there was no role of maturation effects that could produce changes in the dependent variables with the passage of time. Maturation effects could possibly explain changes in mothers' knowledge, attitude and behaviour in pre-test/post-test design or upon repeating the interview on mothers on a second occasion, but not in this comparative design, where the groups in the study would have undergone the same changes.

Furthermore, only one instrument was used during the whole study for collecting the data. Again, this might be a problem for pre-test/post-test design or upon repeating the interview on a second occasion, which needs stability of measurement, but at two different stages. Even if the instrument is stable in the pre-test/post-test technique or on repeating the interview, certainly this would sensitize mothers to look for the most acceptable answers and generally affect their response on the second testing. This was very important from the point of view of conducting research in a small community, where verbal communication with others is very prominent. The inclusion of the VN and CV groups controlled these problems of instrumentation and sensitization effects. Their reactive effects would be reflected in all groups and leave very little, if any, grounds for misinterpretation. At the same time, schedule interviewing technique was used for collecting the research data which kept the response rate to a maximum and avoided any informational bias or drop-out.

Additionally, the process of selection for the sample units depended mainly on randomization. Both the VV and VN groups were selected from the same setting with the same health facilities. This ameliorated other factors (extrinsic or intrinsic) whose effects escaped the researcher and might lead to false association interpretation. In this case, both the VV and VN groups share the same characteristics and are also under identical conditions except for their differential exposure to television immunization instructions. Thus, any external events or the research situation are more likely to influence the two groups equally and would not be confounded with the effect of the independent variable of the research. Consequently, any difference between the viewer and the non viewer groups could be interpreted as the effect of the independent variable. This interpretation would be further supported by excluding some important confounding factors, such as educational level, social class, occupation, experience, or health professionals on the independent variables by inclusion of the CV group in the study and comparing the results with the VV group. This will be further demonstrated in part three of the research.

2:5:10 SAMPLING PROCESS:

The pivotal aim of this research is to explore the effects of television immunization messages on mothers' knowledge, attitude, and behaviour. This aim is reflected in the sampling process as follows:

2:5:10:1 Population Sample:

The population sample of this research included mothers who have children of 3-12 months of age. This specification was made because health messages are mainly directed at mothers, who are traditionally key figures as the family source of health care. Also, the immunization under investigation is recommended during the first year of the child's life, starting at the age of at least one month. Identification of the sample population according to these restrictions helped to ensure that each participant in the study has knowledge related to the research objectives; is concerned about the issue of child health and immunization; and is interested in participating in the study. To prevent, as far as possible, any spurious relation between the research variables, some variables were controlled in selecting the research sample i.e. mothers who met one of the following criteria:

- a) Widowed or divorced;
- b) Chronically ill, or hospitalised mother or child;
- c) Linked to the medical profession e.g. if she or her husband is a physician;
- d) Possession of a television set for less than one year (for the a viewer).

2:5:10:2 Sampling Frame:

In rural areas, it was impossible to find such a physical list of the sample population. Nevertheless, it was more practical, to form a list of sample unit addresses, rather than a list of names. Those addresses were used as a sampling frame (Bailey, 1983). A

convenient method for forming this frame was through personal contact, and house to house surveying for sample units. This was a practical approach, as the residents of the village live in clusters rather than widely spread, and they know each other and the surrounding circumstances. It is important here to mention and record the goodwill of some of the key figures in the village, such as the religious leaders (Muslims and Coptic); GP and veterinary doctors; and others who helped in designing the sample frame of the research, finding the mothers, and encouraging them to participate, as well as giving access to valuable information. For the CV group, the sample frame was ready from the registration office of both clubs as well as attending the clubs' nursery rooms and clinics.

2:5:10:3 Sample Size:

To fulfil the purpose of this research, a reasonable sample size (Borg and Gall, 1989) was chosen, guided by the following:

- 1- It was possible to control some of the variables that could have an effect upon the dependent variables e.g. the health unit, age of the child, and so on;
- 2- A difference in the dependent variables was expected among the three groups;
- 3- It was not necessary to divide the main groups into further sub-groups;
- 4- The population in each group was almost a homogeneous society in the variables under investigation. Consequently, variables being measured would show little variation across respondents in each group;
- 5- A structured interview technique was used, which probes the characteristics of the participants under investigation, to collect data;
- 6- A high level of statistical significance was not absolutely essential;
- 7- The financial, time, and political restrictions had to be taken into consideration.

The researcher was encouraged by the welcoming response of the mothers and cannot deny that the generous help and support they offered made it possible to collect the sample size of the study. The total sample size of this research is 332 mothers who are categorised into three groups:

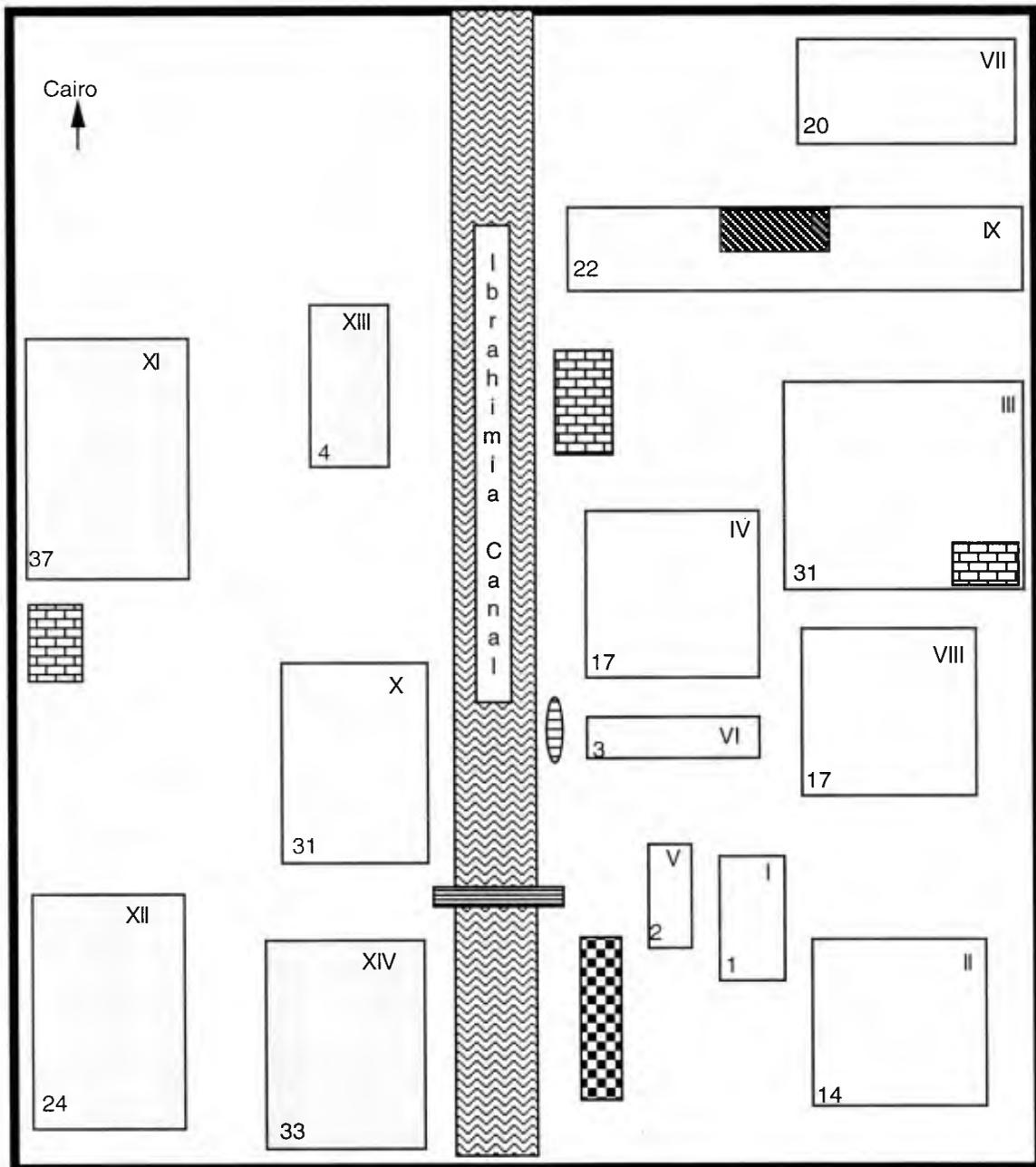


Figure (5:3): Kolosna village's blocks with their sample size

- | | | |
|---|------------------|---------------------------|
|  | Viewer group | Arabic number=Sample size |
|  | Non viewer group | Roman number=Area code |
|  | Mosque | |
|  | Church | |
|  | Water Canal | |
|  | Health unit | |
|  | Bridge | |
|  | Train station | |

- *Cairo Viewer (CV)* group, which included 76 mothers.
- *Village Viewer (VV)* group, which included 158 mothers.
- *Village non Viewer (VN)* group, which included 98 mothers.

2:5:10:4 Sampling Technique:

Kolosna village was grouped theoretically into 14 blocks (10 for the viewer section and another four for the non viewer section, figure 5:3). After grouping, two techniques for collecting the sample units were used, depending on which group of mothers was under investigation (Henry, 1990):

- a) For the VV group, systematic random sample technique (1:2) was applied. The researcher used to tour the village with house-to-house collection of the sample units. This technique provided a total of 158 mothers with a 100% response rate. Added to its simplicity, it was a more practical technique to be employed where all of the population sample can participate in the study and where every sample unit has the same probability of being selected.
- b) For the VN group, a total of 98 mothers, representing the whole population sample for this part of the village, participated in the study, with a 100% response rate.
- c) For the CV viewer group, 76 mothers actually agreed to participate in the study and completed the interview. They gave an 82% response rate of the whole population sample in the two prestigious social clubs in Cairo. These two clubs were chosen randomly out of five social clubs.

2:5:11 GENERALIZATION:

The concern was not only with the effect of television health instructions on mothers' knowledge, attitude, and behaviour in a particular village (Kolosna village), but also with their effect on the wider Egyptian rural population (external validity of the research). To fulfil these criteria, the research was conducted in an almost natural situation without any artificiality that might be reactive and affect the external validity

of the study. A pre-campaign test study was needless as the results would thus be specific to the pre-tested population. At the same time, the research sample design was based mainly on probability, where all mothers in the viewer group had the same chance of being included in the study. This was fulfilled by the maximum rate of response from the mothers. From this design, it might be possible to claim that the research results can be generalized, at least to the rural population.

2:5:12 THE RESEARCH INSTRUMENT (MIS):

With great scientific endeavour, which took up one-and-a-half years of the research's five years duration, Mothers' Interviewing Schedule (MIS)¹ was formulated, based on the findings of the pilot study, from five main categories of questions as follows:

- 1- Questions to form a scale for measuring mothers' knowledge.
 - a) Source of health information;
 - b) Knowledge of each of the target disease;
 - c) Knowledge of the vaccination schedule; and
 - d) Knowledge of the method of protection against each of the target disease.

- 2- Questions to form a scale for measuring mothers' attitude.
 - a) Mothers' affective attitude towards each disease; importance of each vaccine; and vaccination side-effects;
 - b) Mothers' cognitive attitude towards vaccination's function; effectiveness of each vaccine; and vaccination side-effects;
 - c) Mothers conative attitude both behavioural and affective components;
 - d) Stability of mothers' attitude, including distance to the vaccination point, quality of the health service, competing motives, and family pressure.

- 3- Questions related to mothers' immunization behaviour.

¹ See appendix "3" for the MIS of both the main and the pilot studies with the coding sheet.

- a) General immunization behaviour;
- b) Specific immunization behaviour for each target disease (confirmed through child's birth certificate with the official stamp);
- c) Immunization behaviour in relation to the schedule;
- d) Influence of different sources on mothers' immunization decision; and
- e) Factors that may affect mothers' immunization behaviour including social norms, competing priorities, health services, immunization side-effects, and immunization schedule.

4- Television immunization campaigns.

- a) Comprehension of the presented immunization messages;
- b) Awareness of immunization campaigns;
- c) Mothers' evaluative belief of television immunization campaigns.

5- Demographic questions including mothers' age, educational level, occupation, number of children, awareness of the health unite, cost of each vaccination, their children age, sex, religion, and so on.

According to the findings of the pilot study, which will be discussed in more details in the next chapter, the above questions proved to have a high discriminative power. Two groups of diseases were under investigation: the target diseases with the related vaccines; and control disease to test the validity of the MIS, such as bilharsiasis, common cold, anaemia, dehydration, as well as the fake green flower disease. The MIS is formed mainly of closed questions with some open and eventuality questions. Questions related to television were omitted from the MIS for mother in the VN group. Rating, semantic-differential, as well as ranking formate were the main question formate. Each question was phrased and worded (in Arabic) according to the findings of the pilot study. Layout of the questions ensured fluent schedule interviewing. Each question with its rang of answers were on the same page. The researcher himself conducted the interview to all the research samples. For both VV and VN groups, the schedule interview was conducted at the respondent's house while for CV group was at the club.

2:5:13 DATA PROCESSING:

This was the final step in the process of field work which formed a link between the empirical process of the research (data collection) and the next step (data analysis). It involved the transformation of mothers' answers into codes, that could be recorded and processed mechanically through a computer², which was affected by the approach used in handling the data. In this research, the difference between a qualitative and a quantitative approach was blurred. A pendular approach was used i.e. the researcher had to alternate the qualitative and quantitative approaches. This helped in eliminating the inevitable problems in the accuracy of the information collected that was associated with any single method and produced valid and reliable data and would increase confidence in results, as well as strengthening the conclusion as long as the findings from both approaches suggested the same conclusion (Reichardt and Cook, 1979; Allen-Meares and Lane, 1990; Patton, 1990; Steckler et al., 1992).

The qualitative approach in data analysis was used because in a place like a village or a social club, there is no major difference between its members' personal characteristics. Any experience will be generalised, and added to the whole community experience. This small community moves forward and backward as one block. The measured attitude or observed behaviour cannot be understood by simple reference to external or personal factors e.g. education or occupation, but through the revelation of the meaning that mothers attribute to their own lives and actions. This necessitates an inside view from the mothers under study.

Furthermore, this research moved from the particular (the promise that exposure to television immunization instructions changes mothers' attitude and behaviour, as well as supplying them with the required information) to the more general (that television is a potent vehicle in public health and child health promotion). In other words, it progressed from a detailed understanding of television effects on mothers' attitude regarding immunization to the suggestion of a more generalised explanation e.g.

² The researcher used a Statistical Package for Social Science (SPSS) computer programme for data processing.

mothers' categorise vaccines into one group to which they hold a single attitude i.e. to a defined hypothesis, which should be followed later by more wide-scale descriptive empirical testing, with help from precise statistical estimates, facilitated by sophisticated statistical techniques. Additionally, the concern was exploring the independent variable's effects on the dependent variables. Methodological explanation would be able to reveal this relation through a comparative language and the description of a true population in terms of its knowledge, attitude and practice (Fontana and Frey, 1994; Patton, 1990). It helps in clarification of how mothers perceive immunization campaigns and why they react to them in a certain way, and what the anticipated consequences of the campaigns are.

To generalize the data, a quantitative approach was also used (House, 1980). This was appropriate as the immunization campaigns have reached a mature stage and stability (Steckler, 1989). A questionnaire with predetermined response categories, which formed a scale for measuring the variables, was conducted. It included appropriate statistical techniques to determine if and to what extent the study variables were related, and to quantitatively compare the outcomes to maximize objectivity. Descriptive statistical measures, i.e. frequencies and percentages, were used to treat the data as part of the quantitative approach. To test the significance of the difference between the three groups, a chi-square test of significance was applied (e.g. Mead and Turnbull, 1995). If there was no significant difference, no further statistical treatment was applied. On the other hand, if there was a statistical difference, further treatment was applied with chi-square between each two groups separately e.g. CV/VV, CV/VN, and VV/VN for the dependent variables. If the null hypothesis was rejected on the basis of the resulting data, then the alternative hypothesis was accepted with a consequent acceptance of the operational hypotheses and the working hypothesis of the research (Robson, 1994). To achieve more confirmation for the potential association, multivariate analyses were applied to control for other factors that might also influence the results (Judd, 1987). Logistic regression models were formulated to predict the risk factors for having a non immunized child and to identify factors associated with positive immunization behaviour (e.g. Cutts et al., 1991; Raiteri et al., 1994; Rodriguez et al., 1994).

2:5:14 VALIDITY OF THE RESEARCH METHOD:

Schedule interview (MIS) was used to measure the effect of the independent variable on the dependent variables. There is some evidence which indicates that this measuring device measured what the researcher wanted to measure.

1- For every variable under investigation there was a sufficient number of items that constituted a content population for that variable (e.g. statements, indicators or questions). The researcher used his own skill and experience as a paediatrician (with in-depth knowledge of the subject of immunization), as well as a media professional (who is very well-acquainted with television immunization campaigns) to identify most of those items that are known to belong to the research. This secured the sampling validity of the measuring tool.

2- The researcher selected the measuring instrument in accordance with his subjective evaluation to enhance its potential to measure what he intended. After drawing up the questions, each item was reviewed to assess its content in terms of the extent to which it related to the research variables. To confirm his assessment, five specialists in the field³ were consulted. After some recommendations, there was agreement among them that the MIS could measure mothers' knowledge, attitude, and behaviour in each group. Consequently, this research tool satisfied the research tool's face validity.

3- Before starting the formulation the research tool, the theoretical framework of the variables and the relation among them were reviewed. Against this theoretical background, the measuring instrument was derived. It was expected, therefore, that these relations among research variables would in fact exist. In actual fact, working through the data outcome of the pilot study, these anticipated relationships were found and the instrument construction was considered valid. Attitude was measured not only

³ The five experts were a senior lecturer of Behavioural Medicine, El-Azhar university, Cairo; a professor of Psychology, Ain Shams University, Cairo; a professor of Public Health and Epidemiology, Minya University, El-Minya; a lecturer of Community Paediatrics, Ain Shams University, Cairo, and an associate professor of Television's Marketing and Advertising, Cairo University, Cairo.

towards immunization, but also with competing priorities, family dynamic, specific attitude object, health services and so on to examine attitude in a real situation. Also measuring attitude was through measuring its three components, towards a real object.

This type of construct validity was also confirmed by the application of the genuine *unknown-known disease technique*. The researcher constructed the research tool with a known disease (common cold) so that the direction was easily predicted by the researcher. The second disease (anaemia) was not tackled frequently by the media (Casiro et al., 1995). The third disease was supposed to be unknown (the green flower fake disease) and consequently the direction also predicted if the instrument was valid. This technique yielded (with a very high degree of success) the already predicted results that were in keeping with the outlined theoretical framework.

4- Because this field of study is still in its early exploratory phase, and because of the confusion regarding the media effects, assessing the research tool with external criteria seemed to be of less value. Certainly, this is true in developing countries, where this subject has not yet been fully investigated. To overcome such a problem, the researcher repeated the same instrument with different diseases e.g. measles, polio, tetanus, and so on. Results regarding one disease were compared to the results of other diseases. This excluded empirical invalidation of the research instrument⁴.

5- To maximize the degree of the research tool's perfection, the researcher collected adequate knowledge about his research instrument, the population he had to examine, the way mothers would react to MIS, or the answers they would be most likely to give. This took the form of a small-scale pilot survey where the research tools were subjected to a field test, refining the wording, ordering, layout, filtering, or any other modification to meet the research objectives. This is discussed in the next chapter.

⁴ To reveal the positive influence of the television on altering awareness, knowledge, attitude, as well as smoking behaviour, Flay (1987) evaluated 40 smoking cessation campaigns collectively. The positive effect could not be drawn from study of one campaign alone.

2:5:15 SUMMARY:

This research explores the role of television in child health promotion in Egypt. It examines the effects of the television immunization campaigns in changing mothers' knowledge, attitude, and behaviour regarding immunization. The research was conducted in both Kolosna village of Minya Governorate (November, 1993-March, 1994), and Cairo the capital (August-October, 1993). A comparative design was undertaken between one part of the village which is supplied with electricity (the viewer group), and the other part of the village which is not supplied with electricity (the non viewer or the equivalent control group). Electrification of the village, indeed the whole of Egypt, is a part of a systematic governmental plan. This stage of comparison serves not only to judge what the viewer mothers would have been like if they had not watched the campaigns, but also to depict the relation between the observed change and exposure to television. It achieves the time order and underlined the co-variation between the dependent and the independent variables. It also avoids spurious relations that may act as an alternative explanation for the proposed relation between the research variables.

Because of the naturalistic nature of the design, some confounding factors such as educational level or occupation can invalidate the assumed relation obtained from the first stage of comparison. A second reference group from Cairo representing mothers of high social status, high educational level, and who are mainly users of the private health sector, is included in the study to control these variables when compared with mothers in the village viewer group. To make it clearer, if there is a difference between the VV and VN groups, this can be due to the positive effects of exposure to television immunization campaigns, and can also be referred to the difference in educational level, or occupation for example. If there is no difference between the VV and CV groups regarding the variable under investigation, despite the known difference in the confounding variable, it is possible to assume that education or occupation cannot threaten the hypothesised relation, and the observed difference between the VV and VN groups is due to exposure to the research independent

variable. This two-stage comparative design controls the extrinsic factors that may jeopardize the internal validity of the research. This is enhanced by the fact that the interviews are conducted by the researcher himself, for the three groups, and hence any interviewer bias is neutralized. It also controls most of the intrinsic factors related with instrumentation, testing, maturation, regression, history, or drop-out that may endanger the proposed relation, achieving a high degree of internal validity for the research design.

The sample unit of the research is a mother who has a child 3-12 months of age, and who is not a widow or divorced, chronically ill, or linked to the medical profession. A systematic random sample technique (1:2) was applied to collect the sample unit for the VV group to collect a total of 158 mothers. The whole population sample was collected for the VN group which yielded the sample unit. Similarly, a total of 76 mothers were collected for the CV group. The sampling technique and the natural character of the research accomplished the external validity for the research design.

According to the results of the pilot study, MIS was constructed from five main categories which included a scale for mothers' knowledge and another for their attitude, enquiries related to mothers' immunization behaviour, as well as questions related to the presented immunization campaigns on Egyptian television. The target diseases with the related vaccines were examined together with four control diseases and another fake disease to enhance the validity of the MIS. The sampling validity of the measuring tool was ensured, together with its content, construct, face, and empirical validity. To maximize the MIS perfection, a pilot study was conducted where the research tool was worked on to improve its wording, ordering, phrasing, and layout to meet the research objectives.

The researcher used a quantitative approach in his analysis of data to generalize the results and quantitatively compare the outcomes. Descriptive statistics were used together with the chi-square test of significance, which was applied as a first step between the groups, and if there was a significant difference, a further examination between each two groups was applied. If the null hypothesis was rejected, the

alternative and the operational hypotheses of the research would be accepted. Also logistic regression models were designed to identify factors associated with positive immunization behaviour and the risk factors for negative behaviour. However, because the proposed relation would be explained in comparative language between three groups, and because in a small community like a village where any experience will be generalised, understanding the change required a qualitative insight into the meaning that mothers attribute to the change or resistance to change. This was also supported by the idea that the research is moving from the detailed understanding of television's role regarding the immunization issue to a more generalised explanation to its role in health promotion. Applying both approaches not only strengthens the conclusion, but also increases confidence in the research results.

CHAPTER SIX

THE PILOT STUDY

2:6:1 INTRODUCTION:

Owing to the young nature of this field of study, and in view of the lack of similar research¹, the research tool was tested (November, 1992-January, 1993) before carrying out the main study. This necessitated more time and resources. However, a well-constructed schedule interview was not very much more demanding than a poor one, but yielded significant results.

2:6:2 OBJECTIVES OF THE STUDY:

- 1- To enable the researcher to become more familiar with the research problem and the setting in which it would be investigated.
- 2- To provide knowledge about the practicality of the instrument used.

¹The researcher conducted four computer inquiries for relevant research: MEDLIN EXPRESS (1/90-10/95) for medical research; PsyLIT Journals Articles (1/90-9/95) for Psychological research; ERIC, BEI, and BETI (1992-6/95) for educational research; and Social Science Data Base (1/94-10/95). He used the following codes for inspection: health, education, immunization, vaccine, television, mass, media, communication, campaign, attitude, behaviour, belief, awareness, change, persuasion, age, sex, measles, poliomyelitis, tuberculosis, tetanus, pertussis, whooping, cough, diphtheria, and hepatitis. The result showed a real deficit of research in this field of study.

2:6:3 AIMS OF THE STUDY:

- 1- To test the MIS regarding the ease of its handling in the field; the efficiency of its layout, phrasing, wording, and its order; as well as its adequacy in providing an effective scale.
- 2- To examine the sampling technique.
- 3- To determine the response rate.
- 4- To determine the expected cost of the main study; its approximate duration; its various stages; as well as the proper time to carry out the field work.
- 5- To explore the location where the main research would be done.
- 6- To discover the trends.

2:6:4 LOCATION OF THE STUDY:

The researcher looked for a village that could represent the proposed village for the main study. *Itsa* village (figure 6:1) was chosen for the following reasons:

- 1- It is near to Kolosna village and almost the same distance from the Samalut district;
- 2- Both villages are on the same side of the river, as well as on the same railway. This ensured that both population samples would share the same character, habits, knowledge, trends, accents, and so on;
- 3- Both villages belong to the same health centre;
- 4- Both were supplied with electricity at the same time.

2:6:5 PREPARING THE STUDY:

A first draft questionnaire was tested on a small-scale sample of some colleagues and friends who were likely to have knowledge about research work, and who were also willing to examine the plan and to assist in identifying its methodological weaknesses. The significance of this pre-pilot testing was that it was easy and cheap and provided active participation for the first time.

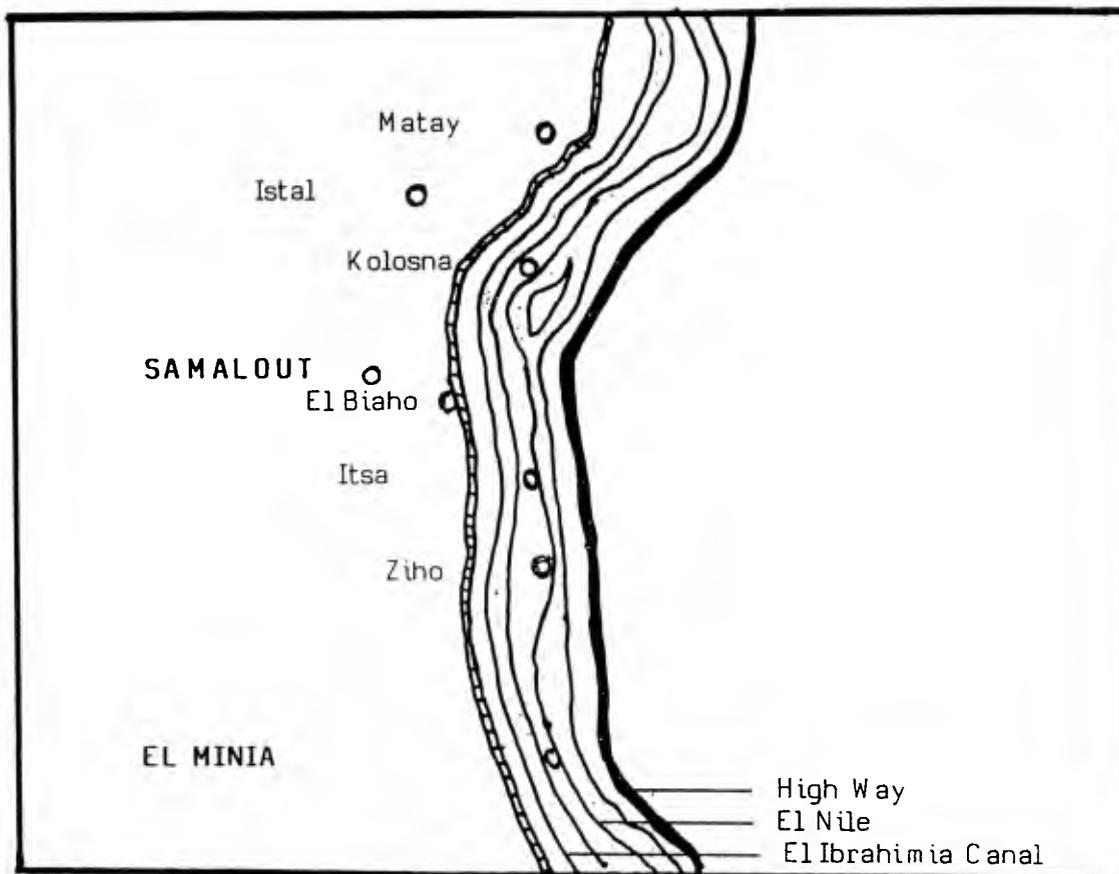


Figure 6:1 Samalut district, Kolosna village, and Itsa village

Before conducting the study, approvals from national and local authorities were obtained. Accommodation, transportation, and other practical arrangements were made. Contact was made with key persons e.g. a principal of a secondary school who is well-known in the village, as well as the religious leader of the village who gave a Friday speech about science in Islam and how Islam advocates that Muslims pursue science and help researchers and scientists.

2:6:6 SAMPLING PROCESS:

2:6:6:1 Pilot Study Population:

The pilot study population consisted of any mother who:

- a) had been permanently resident in Itsa village;

- b) had a child not more than one year old, but not less than three months of age;
- c) was not a member of the main study population later on.

These specifications were applied to ensure that the mothers selected were actually similar to the main sample population, yet would not contaminate them.

2:6:6:2 Sampling Design:

As long as representation or generalization of the pilot results was not included in the research objectives, a non probability sample design (Moser and Kalton, 1971) was more practical and beneficial. Two sample designs were used:

- a) *Convenient sample design*. The researcher used those mothers who were willing to participate in the study;
- b) *Purposive sample design*. The researcher selected some of the sample units subjectively to obtain a sample that appeared representative of the main study sample. This was to test the questionnaire with the range of respondents that would be expected to exist in the main study population e.g. different educational level.

2:6:6:3 Sample Size :

The total piloting sample consisted of two groups (table 6:1):

- Group "A", which consisted of 26 mothers;
- Group "B", which consisted of five health professionals (two general practitioners, one paediatrician and two health workers).

2:6:6:4 Sampling Technique:

Two procedures were used in the pilot study:

- 1- *Self-administered questionnaire*. Eight mothers were asked to complete the questionnaire after receiving proper instructions on how to fill it completely.

2- *Schedule-structured interview.* Eighteen mothers, who could provide more knowledge about the possible locations that might feature in the main study, were interviewed in two different places:

- a) House-to-house interviews were conducted with thirteen mothers in the village. Personal contact was a crucial factor to prepare for each visit;
- b) Another five mothers were interviewed at the health unit.

Nine of the respondents (four from the self-administered group and five from the interview schedule group) were told before administering the questionnaire that one purpose of this interview was to ensure that questions and procedures would work properly for the next main study. They were also asked for critical comments on all aspects of the questionnaire, such as the questions' wording, question order, redundant questions, or confusing questions, space for answering open questions, and any aspect of the questionnaire that they found inadequate. As regards group "B": A non-scheduled interview was used. There was no specified set of questions asked, nor were the questions asked in a specific order. Respondents were encouraged to relate their experiences regarding the effects of television, the health unit, and private doctors on mothers' knowledge, attitude, and behaviour regarding immunization. They were also asked to give their opinion as local advisors on the research tool (wording, phrasing, lay-out, and so on) as well as the research design in general and its practicality in the village. Each doctor received an informal visit in his private clinic. Health workers were interviewed at the health unit (Baker, 1988).

Table (6:1): Sample size of the pilot study

| Group | Sample unit | | No |
|-------|-------------------------------------|-----------------------|----|
| A | Mothers with a baby 3-12 months old | | 26 |
| B | Health professionals | Paediatrician | 1 |
| | | General Practitioners | 2 |
| | | Health Workers | 2 |
| Total | | | 31 |

2:6:7 DEVELOPING THE RESEARCH METHODOLOGY:

2:6:7:1 Method of Data Collection:

1- *Self-Administered Questionnaire:* The fact that the mother did not have to share answers with the researcher gave her considerable freedom to express herself under cover of anonymity. She might be more willing to provide answers that were socially unacceptable (e.g. about the role of the husband). For a village mother with little education, this technique gave her chance to understand and answer the lengthy questions. The mother could spend more time thinking about the question and what her real feeling or opinion was. She could even feel free to answer the questions whenever she had spare time and according to her preferred order. Moreover, it was a rapid way of collecting data. The questionnaire could be administered to a relatively large number of mothers at the same time with minimal cost and effort.

However, this self-administered questionnaire had some drawbacks. Most of the mothers were poorly educated and had poor reading or writing abilities to comprehend the printed instructions. This required another person to explain the questions with an inevitable intermediary's bias. Also, if the mother recorded her answers in a baffling manner, there would be no chance to clarify them. There was no certainty that it was the mother who completed the questionnaire. In general, it has a low response rate (64% returned the form and only 28% completed the questionnaire). A mother might be unable to understand the questions or the instructions or sometimes she missed the whole page. This of course created a bias in the study, where the non-respondents might be different from those who answered the questionnaire.

2- *Schedule-Interviewing:* Having located the mother, the researcher often faced a mother who had little or no previous information about research. Looking at it from her side, her direct and first reaction could be recorded as eagerness to know and to elucidate: Who is this man and where is he from? What does he want from me? Why has he chosen me to help him? And why should I help him?

Some of the time, the researcher was mistaken for a salesman, a representative of a family planning organisation, a taxation collector, or any other situation that might make her susceptible to any form of threat. The mother might even have got the perception that the goal might in some subtle way be to check upon her, especially with the wave of violence between the government forces and those alleged to be terrorists. In that situation, the mother's reaction to the request of the researcher was likely to be a mixture of curiosity, adherence to the social norms of politeness and embarrassment, keenness to help a stranger's enquiries, fear of consequences, and suspicion about the interviewer. Eventually, the end result of this mixture of feelings was in favour of the researcher and the mother was motivated to listen to his request.

The mother then had to be motivated further to answer the questions completely and accurately. A useful method, with a high degree of effectiveness, was an appeal to the mother's good manners, explaining to her the need for her help and how this scientific research might be affected by her response to the whole interview. This was more effective than explaining the importance of the study. To achieve the mother's motivation, certain steps, which were designed and arranged in a semi-personal covering letter, were followed, such as: telling the mother who the researcher was and whom he represented; as well as explaining the purposes and objectives of the research and its scientific importance in a way that stimulated her interest. Describing the method by which the mother was chosen and identifying the approach and tools of the research were also included in the covering letter, together with a statement of the confidentiality of the interview.

After this short opening, the mother was usually ready for the interview motivated by the shared goal (a healthy child). An attempt was made to avoid giving the mother the impression that what was really occurring was a test that might be embarrassing for her. The interview usually began with warm inquiry after the health of the baby, or any member of the family. A medical examination was commonly offered by the researcher (who is a paediatrician belongs to a famous hospital). The mother in this situation was more likely to feel that communication with the researcher would benefit her directly and she would receive gratification from the communication process and

this personal relationship. This was enough to build a rapport and to motivate the mother to give accurate information as a way to attain some satisfaction from the relationship with the interviewer and also motivated other mothers to participate in the study. This in fact was one of the crucial factors that achieved a maximum response rate for the main study in a relatively short time.

However, successful communication with the mother demanded that some kinds of obstacles be overcome, such as:

1- A mother might have thought that her expression of opinion and attitude could be dangerous and risky. She might complain that she had no time or claim that she was the wrong one to be interviewed. Most of the respondents showed that the length of the interview was the major burden to them. However, because of the amount of information that was needed, the length of the interview was unavoidable. Culturally, it was not ideal, on the part of the mother, to be interviewed by a stranger, especially if it was a long interview. However, the presence of another member of the family, or just asking the husband's permission, was enough. Some mothers felt that it was their job just to be a good mother by following instructions but not by taking decisions or answering questions related to child-care.

2- It is a common superstition that mentioning a serious disease like polio or tuberculosis to a mother means that her child will catch it in the future.

3- The main study started during the crisis of the conflict between the government and the fundamentalists and Minya governorate was at the centre of this violence. This might have made some mothers prefer to be very diplomatic in answering the questions.

6- There were always many interruptions. It might have been due to her infant for various reasons e.g. a hungry baby, crying, and so on, or her other children, or even her neighbours, who were curious to see this stranger or to show their support. Sometimes the electricity went off during the interview.

Actually going to a mother's home and speaking to her was considered the best way to gain her and her family's trust. Generally, the schedule interviewing at home had the highest response rate. It also had the highest rate of completion. It was preferable

to carry out house visits at a time when the husband was available, although his acquiescence might be enough. His yielding was an important factor in motivating the mother to start and to continue the interview. It was also more appropriate to conduct the interview in moderately conservative clothes in accordance with the expectations the mother had of a paediatrician. This gave the mother and her husband a strong impression regarding the importance of the research and of the participation in the study. However, the researcher used to spend his leisure time, e.g. in prayer at the main Mosque, in cultural dress (the Galabia or traditional robe). The traditional drink was strong tea, and the researcher learned how to share their customs, although they have to show their extreme generosity by offering more tea and sometimes food as well. It was a good experience to offer a small packet of English tea as a gift to the husband. This was seen as a symbolic gesture (Bailey, 1983). Visiting the mother at her house also enabled the researcher to examine the environment surrounding the respondent. He noted the wide distribution of television sets in the village and in most of the houses he visited the television was on. He also noted the readiness of the houses to receive electricity in the VN group very soon.

Nevertheless, there were some potential *disadvantages* for conducting the interview at a mother's house. It was more costly than self administered questionnaires in terms of time and effort. However, the study population were relatively un-dispersed geographically, which reduced the cost or time to a minimum. The interview itself was lengthy and might delayed the mother from her duties. Some questions were difficult to answer immediately, e.g. the ranking questions. Also, a child birth certificate might not have been readily available.

The lack of anonymity was also a threat to a mother's answers. This was true in a village, where everyone knows each other. Additionally, visits to homes were conducted with the help of local residents or relatives who showed interest in mothers' response, out of curiosity, or a concern for security. Consequently, mothers might select answers that did not offend or disturb the goal of the research or choose certain answers which were seen as socially desirable e.g. positive immunization behaviour. Including the fake green flower disease, as well as diseases like influenza or anaemia,

in the main MIS ameliorated this problem and gave mothers confidence to give valid answers. Also, the comparative design of the study helped in neutralizing the researcher's effect on the groups of the study where he would have influenced all the mothers to the same degree. Similarly, inspecting the child's birth certificate with the official stamp for the recorded vaccination, inspection of the vaccination mark of the child's left shoulder, and inclusion of questions related to vaccination behaviour, such as the vaccination side-effects ensured the high validity of mothers' answers.

Nevertheless, the schedule interview would be the most significant for the main study, in terms of its competence and practicality, given its *advantages*, such as:

- 1- It allowed interaction with the mothers in a much more flexible way, answering their questions, explaining terms that were unclear, searching for adequate answers or more detailed information, and accurately following the instructions or the sequence of the questions. Encouragement was sometimes given to the mother in the form of a verbal signal e.g. please tell me more, what are the other reasons, what else, and so forth, or non verbal gestures as well. This facilitated a solid grasp of the interviewing situation, standardised the surrounding environment and ensured that the interview was conducted in private. The mother was unable to cheat by receiving help from others;
- 2- It provided certainty of mother's answers e.g. inspecting vaccination marks on the baby's arm, birth date, the vaccination schedule with the official stamp for each received vaccine, and possession of a television set;
- 3- Rapport and confidence-building were possible. Points where interest flagged or co-operation seemed strained could be detected early;
- 4- It had a higher response rate than the self-administered questionnaire. This may be due to the fact that it was easy to throw away a questionnaire but not a researcher. Also, this solved the difficulties of reading or writing or even misunderstanding.

2:6:7:2 The research instrument (MIS):

Each question was not only geared towards the research objectives by its answer, but also motivated the mother to give the necessary information. Some factors were involved in piloting and designing the actual study MIS, such as:

1- *Question layout and order.* This was mainly to make the interview as easy as possible. Piloting the MIS in its layout ensured fluent questioning in the main study and accurate and comprehensive recording of answers. A systematic progressive order (funnel sequence) was found to be most appropriate to motivate the mothers to participate effectively in the study, and to recall all the details more efficiently. It avoided stating a frame of reference, as it was in the preparatory study, before obtaining the mother's outlook. Throughout the interview, the relation between each question and its predecessor progressed slowly. It started with how much information mothers have on immunization, what their sources of information are, whether television health instructions have had any influence on their knowledge, attitude or behaviour, and ended with personal information.

Demographic questions, such as age, education, and occupation, were located at the end of the interview for the main study, as the mother usually could not understand the relation between her personal details and the purpose of the research and might feel threatened. She might feel that the aim of the research shifted from what was stated at the start of the interview. Also, by the end of the interview, the mother usually suffered from fatigue. The opening questions put the mother at ease, as it was interesting for her to talk about television rather than herself and different diseases. It was apparent that questions concerning television were not difficult to answer and sustained the mother's confidence and motivation up to the end of the interview.

Although some of the questions were too long to fit into a page, each question and its answering space were squeezed into the same page for the main MIS. This was to ensure that the researcher followed the question as closely as possible rather than relying on memory or returning to check it up. This was also applied to the open

questions, where the answering spaces were designed to fit the mother's different answers, but without leaving too much space, as it made the questionnaire look lengthy and consequently would discourage the mother from completing the interview because of the time it would apparently take.

2- *Question categories:* Mothers were offered a set of answers from which they were asked to choose the one that most closely represented their opinion. This formed the main bulk of the main MIS. This type was more suitable because the objective in most of the questions was to lead the mother to express her already formed attitude and behaviour e.g. her degree of agreement or disagreement, assessment of the level of importance, danger, and so on. This required direct answers rather than exploring the process by which the mother reached a particular point of view, or demonstrating her lack of knowledge, negative attitude or behaviour. Moreover, it was less threatening for a mother to participate in the study and to pick up one of the offered answers like other participants. This was in contrast with the open questions, where a mother would feel it was dangerous to express her point of view, which might expose her to some sort of retaliation. Furthermore, the closed questions were easier to ask and quicker to answer and to record. They were also straight-forward in analysis, as the range of answers to a question was limited and pre-established.

Open questions were also included. They were appropriate to record the mother's point of view, e.g. why she did or did not follow the vaccination schedule, or to get information from the mother according to her expression, in her frame of reference and according to her level of knowledge e.g. the symptoms or signs of the target diseases. Also, open questions were appropriate where the mother had not yet formulated her opinion. In that case, if a closed question was used, the mother might have made a choice that would be entirely different from an opinion that would have otherwise been expressed if she had gone through the process of recalling her own opinion or experience e.g. the mother's favourite television programmes. Additionally, piloting the questions as open to be processed into closed type later in the main study was a valuable technique to determine the main categories in the closed type of questions. This was helped by interviewing local doctors and health workers to

consult them on the formulation of closed questions which can minimize any bias that could be induced by forcing the mother to select an alternative which might not have been her natural choice. For example, a question like how can you protect your child from diseases like polio, measles, etc was piloted as an open question to develop a five categories of answers (proper diet, keeping indoor, immunization, do not know, and others), which formed a closed question in the main MIS (tick a method for protecting our children from the following disease

The interviewing schedule also included questions which were relevant to some mothers yet irrelevant to others e.g. "Why not immunize your child?" was only applicable to mothers who did not immunize their children. In the same way, questions related to television viewing behaviour, which were irrelevant to mothers in the non viewer group, were omitted from the main MIS.

3- Question format: As discussed before, the main bulk of the research questions was composed of closed questions which were designed to cover all possible answers. The mothers were asked to tick a box to indicate their answer. Three formats were used for the research questions, as follows:

a) *Rating:* This scale was used to measure mothers' attitude in terms of sets of ordered categories e.g. strongly agree - - - strongly disagree. Each category had a numerical code which represented the intensity of the response. The higher the number, the more intense the response. For example, I am not immunizing the child because the staff of the clinic are not considerate.

b) *Semantic-differential:* This scale was used to assess mothers' attitude in terms of a set of bipolar contrasting adjectives e.g. definitely true - - - definitely false e.g. disease like polio are a national health problem.

c) *Ranking:* This scale was used obtain knowledge of the grade of information about a set of objects e.g. ranking of the sources of health information.

4- Question wording. In the pilot study, there were some questions that suffered from vague response. In this situation, it was necessary to extract additional information from the mother; and to reduce the amount of irrelevant information (e.g as I

understand from what you said, you feel that, and so on). Empathy in this situation was used as a very important screen for probing. For example;

Researcher: Could you tell me your impression when you saw the immunization campaign on television?

Mother: I felt happy.

Researcher: I see, could you tell me some more about that?

Mother: Maybe I felt that we as mothers ought to pay more attention to the real health problems that can seriously affect our children's well-being and which put their life into some sort of danger. Also, I felt that television stimulates us to behave as reasonable mothers towards our children.

Researcher: You mean that viewing the immunization campaign made you happy because it guided you to behave in a healthy way towards your children?

Mother: That is right. I felt that as a mother, I should immunize my child to protect him, even if I have to do something very important.

Sometimes just repeating the question was enough to elicit the relevant information from the mother. This was true especially when the mother appeared doubtful about whether she had understood the question. The researcher might even have repeated her answer when he was not sure about the one given. This might be mainly due to the use of unfamiliar words or phrases (the researcher was from Cairo and also from a different walk of life to most of the respondents, who have had rather less formal education). Consequently, each of these questions was re-worded so that it would be understood and would fit into the respondent's frame of meaningful information (in Arabic). If the mother could not answer the question, she usually gave a vague reply to cover her lack of experience. For example;

Researcher: What precautions should you take before going to the unit?

Mother: Putting on clean and warm clothes.

The researcher was definitely not interested in the baby's clothes, but the contraindication for immunization, e.g. high fever, gastro-enteritis, allergy, and so on. Her frame of reference was completely different from the researcher's frame of reference. The pilot study was a real exercise in communicating appropriately with the mothers, using their own words and phrases to describe their own feelings. This was of great help in making sure the main study questions were within the mother's vocabulary and at her own level of understanding. Hence, through asking the mothers

in an identical fashion, much of the standardization in the interview could be achieved. However, sometimes a slight deviation from this idiom occurred when the mother could not understand the question wording. To regain the mother's lost attention, it was enough to repeat the question again or just explain it. In some other situations, the question was tailored according to the ability of each mother to explore only the areas under investigation. As a general rule, each question was sufficiently specific, in a mother's simple language, free from any ambiguity or vague words with less personal or presuming questions. This achieved a great deal of the required validity and reliability of the main MIS.

As regards questions that deal with periodical behaviour (e.g. how often do you watch television?) they were re-worded in the main study to be more specific as regards the time (e.g. the mother was asked to take the average of the last month as an example). Each question was redesigned to cover the whole range of expected answers to help the mother to pick out the appropriate one, instead of depending only on her memory. The mother was also asked to consult her child's birth certificate (where the date of birth on one side, and the vaccination schedule on the other side) to make sure of her answers. This question was reworded in a way to ask the mother to confirm the child exact date of birth and the schedule of immunization rather than asking the mother to handle it, which was taken as a sign of doubting the mothers' answers.

5- *Answering instructions.* Although it was possible to answer any inquiry that might be raised by the mother while in the interview, general instructions at the start of the questionnaire and also at the start of each section were given for the main study. It helped the mother to guess what could be in the next section and it standardized the measuring tool.

6- *Question phrasing.* In view of the pilot study, each question was reviewed in such a way as to prevent a mother from accomplishing too high or low a score on the scale, simply because she said yes or no to all the questions automatically. A list of statements was planned for the main study, so that some might express a positive viewpoint and others a negative viewpoint, and the grouping together of questions

referring to the same topic was avoided. Also, arrangement of the diseases in a question was done in a way to avoid a fixed answers for all of them. Their order were changed from a question to another. Also the common questions were alternating with the less common (Bailey, 1983).

7- Power of discrimination. Likert's measuring scale was used for measuring mothers' attitude. Each item in the questionnaire expressed a certain attitude towards immunization through a five point continuum ranging from a strongly negative attitude to a strongly positive one. Weights of 1,2,3,4,5 were assigned and the direction of the attitude was determined by the degree of agreement or disagreement with the item (1 for the strongly negative and 5 for the strongly positive). After piloting the questions, a total score for each respondent was calculated by adding the value of each item that was checked by the mother. Item analysis technique was used to measure an item's ability to discriminate mothers who are high on the attitude continuum from mothers who are low and only questions which showed the largest discriminative power were selected for the main MIS. For example, question statement of opinion regarding legalisation, penalty, media campaign to raise the immunization coverage level showed a low discrimination power and was omitted from the main MIS. Similarly, redundant questions e.g. are you satisfied with the quality of the offered health services were omitted from the main MIS.

2:6:8 DATA TRENDS:

2:6:8:1 Health Unit:

All the mothers in the pilot study (100%) were fully aware of the existence of the health unit in the village. They were also aware of the services that the health unit could offer them, e.g. vaccination, family planning services, examination, and so on

(positive cognition). Mothers hold a positive attitude (affective component) towards the health unit which was gained through:

a) Previous experiences. Mothers showed that they have positive affection for the services supplied by the unit. Seventy-six percent did not make any recommendation to improve the unit much more than it is now. This could be explained by assuming that their attitude had no space to accommodate more positive attitude (when they consider the general situation and availability). Only 24% gave variable answers which are not specific e.g. more child-care, more facilities, better quality of services, such as opening the unit 24 hours a day or giving no fixed days for immunization. However, what was important was that they did not show any major complaint about immunization or any other service. Mothers' positive affection was extended also to the health professionals working in the health unit. 77% of the sample showed that the health workers were doing their job perfectly and they were helpful and the rest showed that they were just cooperative. However, what was important, was that no one showed any negative attitude towards them.

b) This positive experience with the health unit was enhanced by the negligible amount of effort that had to be expended to gain the services. Mothers could go there on foot within a reasonable amount of time. These services also cost them nothing.

2:6:8:2 Mothers' knowledge:

This small scale study showed that mothers had a good knowledge of some diseases but a poor knowledge of other diseases, regarding their signs or symptoms. Polio, measles and dehydration were the kind of diseases which occupied the positive end of the spectrum (100% of mothers had correct knowledge of polio, 94% showed correct knowledge of measles, and 83% showed correct knowledge of dehydration). Pertussis, diphtheria and tetanus occupied the negative end of the spectrum. 45% of mothers showed that they did not know what pertussis was. 60% did not know tetanus, and 68% did not know diphtheria. These differences in their knowledge might be because mothers had more experience with some diseases, like dehydration

and measles, than the less common diseases, such as neonatal tetanus. Some diseases are uncommon but had permanent complications which mothers were likely to have experienced at least once in their life, e.g. a child or an adult who was handicapped as a result of polio. On the other hand, some diseases are more acute i.e either the child will be cured completely or die rapidly, even before diagnosis. This leads to minimal experience or only an individual one. It is not a widespread experience that could stimulate others enough to think about it. This could also be related to the potency of the vaccine that changed the disease pattern. Consequently, some diseases, such as tuberculosis and whooping cough, are relatively rare.

The observed gap in knowledge might also be due to the repeated announcements on television warning of some diseases more than others e.g. dehydration, polio, and measles. This could be a triggering factor which stimulates mothers to learn more about these diseases. Diseases which scored the lowest in their knowledge were covered by the television in relation to immunization not to the individual disease. This again triggered their interest in immunization, but not in the function of immunization, which is the responsibility of others (e.g. doctors).

The majority of mothers knew that the target diseases could be prevented by immunization. 95% of mothers showed correct knowledge of protection against polio and measles. This was followed by tetanus, diphtheria, and tuberculosis, where 68% showed that these diseases could be prevented by immunization. Then came infective hepatitis, with 52%, and finally pertussis, with the lowest level of correct knowledge of methods of protection (43%). Most mothers knew that they have to follow the schedule of immunization properly (95%) otherwise the vaccine might be useless. They usually know the date of immunization through the child's birth certificate, on the back of which the schedule of immunization is recorded. On the other hand, television was considered the main source of information about the date of immunization during the campaign time (which is not recorded on the birth certificate in this case). Some mothers reported that they were aware of the immunization date through religious leaders who announced it of the Mosque. This may explain their inadequate knowledge of the immunization schedule, which is not as high as their

awareness of the importance of vaccination, as well as the importance of following the schedule properly. Also, this may be due to their poor memory, or their belief that they can rely on others to remind them of the exact time.

Tuberculosis vaccination was familiar to 65%, as well as the exact date of the immunization (40%). But 33% did not know what the shoulder vaccine was for and 38% did not know the schedule of the vaccine. As regards the triple vaccine, only 10% knew what this vaccine was for, yet 48% knew the exact timing for giving this vaccine to their children. On the other hand, 67% recognized what the oral drops were for and another 52% knew the time of their administration. As regards measles, 89% knew what the vaccine was for and 72% knew when the vaccine should be administered. This indicates that measles vaccine is well-known because the vaccine is named after the disease i.e. "measles injection". It is also named after the time of administration e.g. the "ninth month injection". This could explain why it has the highest score, together with polio, as the latter is called the "polio drops" (Nokaat El-Chalal). This explanation could also be applied to tuberculosis, which is called the "shoulder injection", but the name does not indicate what it is for or the exact date. The same also applies to the triple vaccine, which is administered with the oral polio vaccine. That is why most mothers think that it is for polio.

Mothers were fully aware of the efficiency of vaccines in preventing different diseases. That is why all mothers believed immunizing their children was mainly to protect them from catching certain diseases. This was followed by positive evaluation of immunization, as it would give the mother a feeling of being a good mother. Mothers made no special preparations before going to the health unit to immunize the child. This means that they considered it a safe procedure. Some said they had to feed their baby before going to the health unit, others said they had to keep him or her fasting for one or two hours. Also, some said that they should be sure that the child is not feverish or sick or having any abdominal trouble. Some other mothers recommended taking a plastic syringe with them. That is why 35% agreed that there was no contraindication to immunization, but 65% said that only if the child is sick would they postpone the immunization.

2:6:8:3 Mothers' attitude and behaviour:

All the sample (100%) said that polio is a very dangerous disease (strongly positive affective attitude). This was followed by tetanus (75%). Only 65% showed that dehydration was a very dangerous disease. This might be because mothers learned through the television how to treat dehydration using a very simple technique. They also learned through the television that other diseases, like polio, are not curable. Regarding pertussis, only 16% considered it a very dangerous disease. This may also be due to the lack of experience, either in reality or through television.

As regards the cognitive component of attitude towards immunization, 95% believed that immunization has a good effect in keeping their child healthy. They also acknowledged that immunization was free from any complication, although 19% recorded that immunization may cause mild fever, mild diarrhoea, or make the child cry. These reported complications were evaluated as being mild and not affecting their positive attitude towards immunization, based on their previous experiences. They also had a positive attitude (cognitive component) towards immunization, as it would help them to reach their goal of having a healthy child. However, this gain was relatively variable from one disease to another. For example, 70% knew that if the child had been immunized against polio, he/she would never catch polio (strongly positive attitude). Another 30% said that it would be hard to catch the disease (fairly positive attitude). This indicated that the gain from immunization far exceeded the cost. This could also be applied to measles, where 50% said that it is hard to be infected after immunization against measles (strongly positive attitude). Twenty-five percent said that they felt that the child could catch the disease even if he/she was immunized against measles (mild negative attitude). Another 25% admitted that they did not know if the child could catch the disease after proper vaccination or not.

Thirty three percent said that their child would never catch whooping cough (strong positive attitude). Another 44% said that it was rare to be infected after vaccination (mild positive attitude). The same percentage applied to tetanus but the lowest

percentage was for hepatitis, where 47% said the child could be infected again. This negative attitude might be due to the fact that hepatitis vaccine was new to the mothers; voluntary; not available in the health unit, only in the health centre in the town; and it was expensive to immunize the child against infective hepatitis. These factors might have contributed to the *decision* not to immunize the child against hepatitis, by incorrectly convincing themselves that it was not so effective.

Mothers' intention to immunize their children did not vary too much compared with their cognition about its effect. For example, all mothers (100%) said that they intended to immunize their children against polio, diphtheria, tetanus, and tuberculosis, according to the recommended schedule. Measles came second, where 95% said that they had to make sure that their children took the vaccine at the proper time, according to the schedule. The positive *intention* of the mother was more evident when there were some other conflicting intentions as well, e.g. busy at work or having something to do. Ninety percent of the mothers insisted on their intention to immunize their children and only 10% would ask someone whom they trusted to take the child to be immunized, but all the sample agreed that they would never let the child grow up without immunization. If they missed the opportunity to immunize the child, all the mothers would feel pain and sadness. To overcome the tension arising from missing the vaccine and exposing their children to the risk of catching the disease, 90% would go to a private doctor to immunize the child or would go back to the health unit again to immunize the child by some "underhand way" e.g. bribery.

Because of this stable relation between the positive attitude towards immunization and the positive intention, 100% of the mothers rejected the idea of letting any problem prevent her from immunizing her child, whether related to the health unit e.g. too distant a health unit, or bad behaviour of the health workers or even poor weather conditions. They also did not expect their closest relative e.g. husband or mother, to reject the idea of immunizing the child. Even if there was some opposition, they would insist on immunizing the child. They all agreed to put immunization at the top of their priorities (attitude with other *competing factors*).

As a result of this positive attitude, as well as the positive intention towards immunization, mothers were just waiting for a signal or a triggering factor to stimulate them to go to the health unit. They found this triggering factor in the television immunization health message. Mothers (67%) ranked television as the most credible source that can influence their decision regarding immunization, followed by doctors (43%). Consequently, all the mothers (100%) actually immunized their children at the proper time to protect them from the consequences of dangerous diseases. Because mothers considered immunization to be a major concern, all mothers remembered the date when their children were vaccinated for the last time, which was confirmed by the official stamp on the back of the child's birth certificate. Guided by their aspiration to have healthy children, all the mothers (100%) said that they had already immunized their children at the proper time to protect them from the consequences of dangerous diseases. Also, they said that they were not afraid of the vaccine.

The positive attitude and positive behaviour towards immunization has also been extended to using mothers' *experience* in promoting and publicising immunization and asking neighbours to immunize their child to prevent the serious consequences of the diseases. However, the majority rejected use of force to get mothers to immunize their children. Sixty-two percent did not agree that immunization should be made compulsory by law or that a penalty should be payable for each missed vaccine. At the same time, 90% did not agree with the idea of paying money for immunization, instead of making it free of charge, and they also (96%) showed that the media had the major role in combating the low level of immunization. This is mainly because of an awareness of the economic situation of many families and a desire to let every family have the right to do what they see as suitable to them. It seems that forced compliance can create self-defence in those people and they will refuse to immunize their children in response to this violation of their right to choose. Added to that, the television is available to every family and hence is considered an inexpensive source of information and motivation towards immunization.

Although 53% felt that it is the mother's responsibility (social norms) to take the child to the health unit to be immunized, 38% have a feeling of shared responsibility

between both father and mother. The traditional sex-stereotyped norms of the community require the mother to take the child to the health unit and the mother is programmed to comply with this expectation. This will satisfy the mother through the process of identification and internalization, as well as allowing her to keep a satisfying relationship with her husband, and to do what society expects her to do. At the same time, mothers found that the means to release her children from the threat of disease was by following instructions and going to the health unit. She is the one who will be blamed if her child catches an infection. That is why 70% admitted that their husband never took the child to the health unit and 20% said that their husbands only took the child to the health unit a few times and only if the situation required it. Because each mother expects every mother to do the same (*social norms*), only 50% agreed to take her neighbour's child to the health unit. This is mainly to let the other mother know how to take care of her children and her family and also not to interfere with other family business, especially in the issue of immunization, which is well-known to every family.

2:6:8:4 Source of health information:

Television occupied the top position as the mass medium used at home which is followed by radio (86%). This showed the importance of television and radio in Itsa village. This was evident as 55% acknowledged that they watched television regularly and another 40% watched it from time to time to see medical programmes, religious programmes, or mother and family programmes. As regards the second choice for the media, the radio, 45% of mothers listened to it continuously, especially to mother and family programmes, religious programmes, and social programmes. Sixty-eight percent of the mothers watched health programmes from time to time and only 26% watched them frequently. This low percentage of viewers was due to the changing of the time of broadcast every day, giving them no fixed time to expect them.

There are various ways to deliver a health message. Television health programmes were the first choice, followed by health spots which could also teach them, but to a

lesser degree and only as a second choice. Mothers remembered very well that they had watched health campaigns on television related to polio, bilharziasis, dehydration, and immunization (100%). In the television campaign, only polio was used as an example of the five dangerous diseases. Complications of polio occupied most of the air time. They were taken as an example of serious disease consequences and how vaccination can prevent such consequences. Diphtheria, followed by infective hepatitis, whooping cough and then tuberculosis, had the highest percentage of missed viewing. This could explain to some extent the relative lack of knowledge about these diseases compared to other diseases, such as polio, dehydration, or bilharziasis.

All the mothers (100%) remembered that there were immunization campaigns on the television and they were fully aware of the aim of these campaigns which was to encourage people to immunize their children. Majority of mothers (95%) recognized that the immunization campaigns were very useful as they informed them of the date of immunization, and gave education about the most dangerous diseases, as well as a visual experience about the consequences of the diseases. So they felt happy and paid close attention to these campaigns.

Mothers chose private doctors as the most *influential* source of information regarding health and immunization issues. This was followed by doctors at the health unit. Within the family, people like the mother, or an old woman, were the first choice, followed by the husband. Within different mass media, television was alone at the top of the list (87%). That is why they chose television as the most *successful method* in giving them the health information and in changing their attitude toward immunization (72%). When asked about the different television health messages regarding immunization, 86% realised after watching the immunization campaign that diseases like polio are a national health problem; 100% of the mothers acknowledged that immunization is very important during the first year of the children's life because it protects them from catching diseases; and every pregnant mother should be vaccinated against tetanus (77%). Added to its success in reaching mothers, 90% of them trusted television health messages and considered it a highly credible source of health information. Vaccination was considered safe by all of the mothers (100%); and every

vaccine should be carried out with a disposable plastic syringe (72%).

2:6:8:5 Summary of the data trends:

1- Mothers are fully aware of the nearby health unit towards which they hold positive attitudes. Their positive attitude is also extended to the vaccination services offered by the unit as well as towards the health workers who supply this service.

2- A majority of the mothers have correct knowledge of the target diseases, yet the level of knowledge varies from one disease to another. Polio, measles, and dehydration occupy the positive end of the correct knowledge scale. Tetanus, diphtheria, and pertussis are on the lesser side of correct knowledge. The difference in the level of knowledge can be referred to exposure to television campaigns, as well as to mothers experience with the diseases, and whether it is acute or chronic.

3- The immunization schedule on the back of the child's birth certificate is usually the main reminder for the next vaccination. However, television and megaphones are the main trigger for vaccination campaigns.

4- Remembering the date and type of each vaccine depends mainly on the name and mode of administration e.g. the shoulder injection for BCG, the ninth month injection for measles, and the oral drops for polio.

5- Mothers have general positive attitudes towards immunization as it protects their children from dangerous diseases. They also carry positive intention to immunize their children in the future, even in the presence of any other competing factor.

6- Mothers show positive behaviour towards immunization, as shown on the back of the child's birth certificate, with the official stamp indicating the date of vaccination.

7- Television has a positive role in triggering the positive intention into actual behaviour. It is also considered the main source of health information. It can reach mothers in the village easily once available. Most of the mothers watch television regularly and have their own favourite health programmes.

CHAPTER SEVEN

MOTHERS' KNOWLEDGE

3:7:1 INTRODUCTION:

Throughout this chapter, mothers' knowledge is analyzed in relation to the source of health information, and the target diseases. To demonstrate the effect of the television health campaigns, mothers' knowledge regarding two groups of diseases is examined:

a) *Control diseases*. These are not the target of the immunization campaigns under investigation. They are included mainly to increase the validity of the research tool, and to act as a base for valuable comparative interpretations.

This group includes:

- Diseases which are common among Egyptians, and commonly tackled by the television campaigns e.g. bilharziasis and dehydration;
- A disease which is not tackled by the television, although common among Egyptians, e.g. anaemia;
- Known-unknown diseases e.g. the common cold, which is the most commonly known disease, and the imaginary green flower disease, which is the unknown one.

b) *Experimental (target) diseases*. Some of these diseases gain longstanding attention for television and support e.g. polio, measles, and tetanus television immunization campaigns. Other diseases do not have such good fortune e.g. diphtheria, pertussis, and tuberculosis. Only very recently, infective hepatitis

started to attract television's attention. Examination of mothers' knowledge will move slowly from simple awareness, through mothers' knowledge regarding the symptoms or signs of the disease, to more complicated knowledge regarding the vaccination schedule.

The television impact on mothers' knowledge is monitored by:

- a) Relating mothers' level of knowledge with the level of television attention;
- b) Comparing mothers' level of knowledge in both VV (the exposure or the test group) and VN (the non exposure, or control) group;
- c) Comparing mothers' level of knowledge in both the CV and VV groups to identify the effect of other intervening factors (mainly health professionals, mothers' experience, and educational level).

3:7:2 MOTHERS' SOURCE OF HEALTH INFORMATION:

As a preliminary step in the analysis of data, and in order to explore the television's effects on mothers' knowledge, the researcher discusses in this section their sources of both general health information and specific information regarding immunization. He first has to identify a base-line whether a mother is a television user or not.

Table (7:1): Frequency table showing mothers' ranking of the available mass media in the Cairo viewer group

| Medium | RANKING | | | | | | | | | |
|---------------|---------|-------|--------|-------|-------|-------|--------|-------|-------|-------|
| | First | | Second | | Third | | Fourth | | Fifth | |
| | Count | % | Count | % | Count | % | Count | % | Count | % |
| Radio | 8 | 10.5 | 19 | 25.0 | 13 | 17.1 | 23 | 30.3 | 13 | 17.1 |
| Television | 51 | 67.1 | 15 | 19.7 | 7 | 9.2 | 3 | 3.9 | 0 | 0.0 |
| Newspaper | 1 | 1.3 | 13 | 17.1 | 37 | 48.7 | 23 | 30.3 | 2 | 2.6 |
| Magazines | 16 | 21.1 | 26 | 34.2 | 15 | 19.7 | 17 | 22.4 | 2 | 2.6 |
| Video | 0 | 0.0 | 3 | 3.9 | 4 | 5.3 | 10 | 13.2 | 57 | 75.0 |
| Not available | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.6 |
| Total | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |

Table (7:2): Frequency table showing mothers' ranking of the available mass media in the village viewer group

| Medium | RANKING | | | | | | | | | |
|----------------|---------|-------|--------|-------|-------|-------|--------|-------|-------|-------|
| | First | | Second | | Third | | Fourth | | Fifth | |
| | Count | % | Count | % | Count | % | Count | % | Count | % |
| Radio | 20 | 12.7 | 107 | 67.7 | 4 | 2.5 | 1 | 0.6 | 0 | 0.0 |
| Television | 135 | 85.4 | 22 | 13.9 | 1 | 0.6 | 0 | 0.0 | 0 | 0.0 |
| Newspaper | 3 | 1.9 | 2 | 1.3 | 23 | 14.6 | 0 | 0.0 | 0 | 0.0 |
| Magazines | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 |
| Video | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 1 | 0.6 |
| Not available* | 0 | 0.0 | 26 | 16.5 | 130 | 82.3 | 154 | 97.5 | 157 | 99.4 |
| Total | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |

* The mother does not have this mass medium.

3:7:2:1 Mothers' usage of the mass media:

(What forms of mass media do you have in your home? Rank them according to their importance to you. Question "1").

In 1993, the ERTU estimated that almost 95% of Egyptian families own a television set. This reflects the importance of television as a medium that can reach the majority of the population with its messages. Tables 7:1 and 7:2 confirm this assumption as each mother in both the CV and VV groups owns at least one television set, and they consider it the most important mass medium at home which cannot be missed. It is reported by 67.1% and 85.4% of the CV and VV groups respectively that television is the most important medium. Printed media are discriminatory in their spread where they are used mainly by the most educated and well-to-do population. On the other hand, radio is the main medium for the VN group (table 7:3). It does not need electricity to operate. It is interesting to find that 26.5% reported having a television set (in its box) ready to be operated once electricity is connected to that part of the village (supposed to be very soon). However, no single mother reported watching television (table 9:27).

Table (7:3): Frequency table showing mothers' ranking of the available mass media in the village non viewer group

| Medium | RANKING | | | | | | | | | |
|----------------|---------|-------|--------|-------|-------|-------|--------|-------|-------|-------|
| | First | | Second | | Third | | Fourth | | Fifth | |
| | Count | % | Count | % | Count | % | Count | % | Count | % |
| Radio | 92 | 93.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Television | 0 | 0.0 | 26 | 26.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Newspaper | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Magazine | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Video | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Not available* | 6 | 6.1 | 72 | 73.5 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |
| Total | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

* The mother does not have it

3:7:2:2 General health information (table 7:4):

(Which sources are most important as providers of information about diseases? Question "8").

1) The CV group shows that television and magazines are the main sources of health information. In total, 30.3% rank magazines as the first source but an equal number (30.3%) show it is television. Freimuth (1993) shows that television is the most important source for cancer information. Similarly, Suarez et al., (1993) demonstrate the positive role of television on women regarding mammography screening. Also, Jason et al., (1993) show that television is the most important source of AIDS information among intravenous drug users. There is much research that confirms the importance of television (Raiteri et al., 1994; DeJong and Atkin, 1995; Wright and Pearl, 1995). We cannot ignore health professionals, when 27.6% show that doctors are the main source of general health information. Sege and Dietz (1994) demonstrate the importance of paediatricians to educate parents concerning their children's health. Also, Hyler et al., (1991) suggest that health professionals can help in improving the public perception of mentally ill persons. Ashley and Jarvis (1995) show that health professionals are able to shape the food choices in collaboration with media.

Table (7:4): Frequency table showing mothers' ranking for two sources of general health information

| MEDIUM | Cairo Viewer | | | | Village Viewer | | | | Village Non Viewer | | | |
|----------------|--------------|-------|--------|-------|----------------|-------|--------|-------|--------------------|-------|--------|-------|
| | First | | Second | | First | | Second | | First | | Second | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Radio | 9 | 11.8 | 14 | 18.4 | 5 | 3.2 | 42 | 26.6 | 21 | 21.4 | 11 | 11.2 |
| Television | 23 | 30.3 | 26 | 34.2 | 130 | 82.3 | 7 | 4.4 | 0 | 0.0 | 0 | 0.0 |
| Newspaper | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Magazine | 23 | 30.3 | 23 | 30.3 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 0 | 0.0 |
| Doctors | 21 | 27.6 | 10 | 13.2 | 8 | 5.1 | 37 | 23.4 | 2 | 2.0 | 6 | 6.1 |
| Family | 0 | 0.0 | 0 | 0.0 | 5 | 3.2 | 21 | 13.3 | 34 | 34.7 | 30 | 30.6 |
| Friends | 0 | 0.0 | 3 | 3.9 | 7 | 4.4 | 29 | 18.4 | 36 | 36.8 | 36 | 36.8 |
| Health Workers | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 21 | 13.3 | 5 | 5.1 | 4 | 4.1 |
| No Answer | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 11 | 11.2 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 |

Table (7:5): Frequency table showing mothers' ranking for three sources of information regarding immunization

| M E D I A | Cairo Viewer | | | | | | Village Viewer | | | | | | Village Non Viewer | | | | | |
|-----------------------|--------------|-------|--------|-------|-------|-------|----------------|-------|--------|-------|-------|-------|--------------------|-------|--------|-------|-------|-------|
| | First | | Second | | Third | | First | | Second | | Third | | First | | Second | | Third | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| R | 1 | 1.3 | 8 | 10.5 | 15 | 19.7 | 8 | 5.1 | 30 | 19.0 | 28 | 17.7 | 10 | 10.2 | 2 | 2.0 | 7 | 7.1 |
| Tv | 20 | 26.3 | 30 | 39.5 | 14 | 18.4 | 114 | 72.2 | 20 | 12.7 | 11 | 7.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 |
| M | 12 | 15.8 | 22 | 28.9 | 18 | 23.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 |
| D | 42 | 55.3 | 9 | 11.8 | 21 | 27.6 | 6 | 3.8 | 37 | 23.4 | 21 | 13.3 | 2 | 2.0 | 8 | 8.2 | 9 | 9.2 |
| FM | 1 | 1.3 | 3 | 3.9 | 6 | 7.9 | 6 | 3.8 | 21 | 13.3 | 27 | 17.1 | 26 | 26.5 | 45 | 45.9 | 17 | 17.3 |
| F | 0 | 0.0 | 4 | 5.3 | 2 | 2.6 | 15 | 9.5 | 26 | 16.5 | 20 | 12.7 | 47 | 48.0 | 33 | 33.7 | 7 | 7.1 |
| HW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 8 | 5.1 | 22 | 13.9 | 47 | 29.7 | 13 | 13.3 | 10 | 10.2 | 48 | 49.0 |
| DR | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 2 | 1.3 | 4 | 2.5 | 0 | 0.0 | 0 | 0.0 | 10 | 10.2 |
| Total | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

R = Radio TV = Television M = Magazine D = Doctors FM = Family Members F = Friends HW = Health Workers
 DR = Do not Remember

A total of 34.2% of mothers choose television as the second most important source of health information, which is closely followed by magazines (30.3%). This in fact signifies the importance of mass media in general as a source of health information.

2) For the VV group, television is way ahead at the top of the list as a source of health information (82.3%). Next to television, radio comes second as a source of general health information (26.6%), which is followed by health professionals (23.4%). This also points to the role of mass media as a very valuable source of health information, especially for disadvantaged people.

3) For the VN group, friends, followed by family members, occupy the first position (36.8% and 34.7% respectively). They also occupy the second source of information regarding health (36.8% for friends and 30.6% for family members).

Mass media, friends, and, to a lesser extent, family members, are the main three sources of health information for all the three groups studied (CV, VV, and VN). As long as television is available, it acts as a family doctor and as a major source of information regarding health¹.

3:7:2:3 Information regarding immunization:

(Could you rank three successful sources in making you aware of immunization? Question "30").

As a successful source of information regarding immunization, table 7:5 shows that:

1) Mothers in the CV group acknowledge that health professionals can satisfy their need for correct information regarding immunization. 55.3% consider doctors as the first source in terms of success, which is followed by television (39.5%) in second place. Health professionals come again in third place, which highlights their importance. Obviously, if a mother chooses voluntarily to go to a particular doctor,

¹ A study done by the Family of The Future (1982) in Egypt showed that television is the primary source of information regarding condom usage among female respondents, and the second source among males. This represents the importance of the television as a channel to reach Egyptian women with health messages.

this means that this doctor already represents the most credible source of information.

2) In the VV group, 72.2% rank television as the most successful source of information regarding immunization. This is followed by health professionals in second place (23.4%). Then come health workers in third place (29.7%). We cannot rule out the role of friends or family members, or even the radio, as a successful source of information as well, but all of them follow television, which is by far the most prosperous source. In fact, television can enable rural mothers to meet those very experienced, expensive, elite doctors whom they cannot afford to visit. In the absence of television, friends are considered by 48.0% of mothers in the VN group as the most successful source of health information regarding immunization. Family members come in second place (45.9%). The third place in the ranking of the most successful sources is occupied by health workers (49.0%).

3) These findings indicate that mass media, especially television, can substitute friends and family members as a source of general health information including immunization. The consistency in mothers' reporting of the importance of television (tables 7:1, 2, 3, 4, 5 and 9:20, 21, 23, 24, 26, 27, 28, 29, 30) shows the high reliability of the MIS.

3:7:3 MOTHERS' KNOWLEDGE REGARDING EACH OF THE TARGET DISEASES:

3:7:3:1 Mothers' awareness (tables 7:6&7:7):

(Have you recently heard about the following health issues? Question "5").

Polio: Polio exhibits a very high degree of awareness. Almost every mother in the three-sample study is fully aware of polio (CV:100.0%; VV: 100.0%; VN: 99.0%). This is not because it is a very common disease and every mother is aware of it through direct personal experience. However, polio has the character of leaving the child physically handicapped. This disease is more dramatic than any other acute infection (e.g. tetanus). Acute disease either takes its course and subsides completely

or ends in death. This means that it is a limited experience. It is the reverse in the case of polio, where every case actually acts as a mobile educational poster. It is a continuous and repeated message and a long-term visual experience of the disease. This may be the main reason for the very high level of awareness across the three groups. It seems that there is no more room for television or any other source of information to exercise its role for raising awareness of polio. In the same way, we may assume that awareness of polio is not affected either by the level of education or any other intervening factors, as evident by the absence of any significant difference among the three groups regarding mothers' awareness level.

Measles: Measles matches polio in its very high level of awareness in the three groups of the study (CV: 100.0%; VV: 99.4%; VN: 100.0%) and the absence of significant differences among the three groups. It also corresponds to polio in the cause of this very high level of awareness, which is experience of the disease. This experience is in most cases a direct one. It might have affected one of the mother's children, other family children or maybe even one of the mother's sisters or brothers, with its characteristic high fever and skin rash. This situation is intensified by the unique character of measles, which is its cyclical epidemics.

Immunization: Like polio and measles, awareness of immunization is 100.0% for mothers in the three groups of the study. Obviously, immunization activity is the most important function of any private or public health unit. Added to that, there is the mother's instinctive awareness of what is related to her beloved child's health and the services that can be offered to him or her. However, the role of media cannot be pinpointed very precisely.

Bilharziasis: This control disease presents a very high degree of awareness but through different mechanisms.

- 1) All CV and VV groups are fully aware of bilharziasis (100.0%), while only 49.0% of the VN group are aware of bilharziasis.
- 2) Experience plays an important role in the awareness of both VV and VN groups as this disease is endemic in Egypt among the villagers. However, experience cannot

explain the difference between the VV and VN groups, where it is supposed that both groups have the same environmental conditions i.e. the same experience. It is reasonable to assume that the observed difference in the level of awareness may be due to the positive effect of the televised anti-bilharziasis campaigns. This assumption is supported by analysis of the level of awareness shown in the CV group where experience has no role for CV as it is a disease for villagers. Thus, the very high degree of awareness among mothers in the CV group can be solely attributed to educational media after the intensive use of media for the anti-bilharziasis campaign.

Dehydration: This disease follows bilharziasis exactly in its extent of awareness:

- 1) Almost all the CV (100.0%) and VV groups (99.4%) are aware of this complication of gastro-enteritis, and only 75.5 % of the VN group are aware of dehydration. This awareness can be attributed to mothers' experience with gastro-enteritis, which is supposed to be more common among children of low social class who live in villages rather than children coming from upper class families, or who live in urban areas.
- 2) Although experience can explain the high level of awareness in the VV group, it is not the only determining factor. The significant difference in the level of awareness between the VV and VN groups can be attributed to the difference in exposure to the television ORT campaigns. The positive role of the ORT campaign can be further highlighted by analysis of the level of awareness of dehydration in the CV group.
- 3) Mothers in the CV group lack a high degree of experience with dehydration, yet express the maximum level of awareness. Media can be seen as the main source of this awareness, especially after the intensive usage of television in the ORT campaign.

Infective hepatitis (IH): The CV group shows that 89.5% are aware of IH. This percentage declines to 70.9% in the VV group and a further significant drop to 41.8% among the VN group. The significant difference between CV and VV can be attributed to the usage of multimedia in the case of CV (television, magazines, radio, as well as communication with medical professionals). On the other hand, the VV group depends mainly on a single medium, e.g. television. At the same time, the significant difference between VV and VN may be due to television usage by the VV group and the exposure to the television IH campaign. The generally lower level of

awareness of IH compared to the level of bilharziasis or dehydration awareness may be attributed to the earlier, and more persistent, television attention to bilharziasis compared to the IH immunization campaign. This may again support the positive effect of the sustained television campaigns on the awareness level.

Tetanus: This is the same as in the case of infective hepatitis regarding the pattern of awareness among the three groups.

1) The awareness level is highest among the CV group (96.1%) followed by VV (88.6%). Then comes the VN group (50.0%). Since tetanus is more common at farms and in rural areas, the highest level of awareness of tetanus noenatorum among mothers in the CV group can be attributed to the television campaigns. This may again become clearer by comparing mothers' level of awareness in both the VV and VN groups.

2) The marginal difference between CV and VV compared to the case of infective hepatitis may be related to the relatively recent television campaign for infective hepatitis, which started in October 1991, compared to the older tetanus campaign (March 1988); as well as the relatively active health units in rural areas which supply tetanus vaccination but not HBV.

Pertussis (Whooping cough): This disease follows the same pattern as tetanus.

1) The awareness level is highest among CV (60.5%) followed by VV (57.0%). Then comes the VN group, where only 28.6% is aware of pertussis.

2) The level of awareness of pertussis is generally lagging the level of awareness of the diseases previously discussed. This indicates a lack of media stress on pertussis as a disease on its own, rather than relating it to the DPT vaccination, which further supports the positive role of television immunization campaigns.

3) The level of mothers who "do not remember" is in fact higher among VN (30.6%), than both VV (22.8%) and the CV group (18.4%). This may be related to the common confusion between pertussis and any other cough, whether specific or non specific. This may signify the importance of designing the health message to be understandable for the mothers according to their own terms and experiences.

4) The significant difference in the awareness level between the VV and VN groups

can be attributed to the difference in exposure to the television immunization campaigns. This can of course be supported by the high level of awareness among mothers in the CV group, who are lacking in experience but have a high probability of television exposure.

Table (7:6): Chi-square critical value and level of significance for the difference in mothers' awareness level of each disease between each two groups

| Awareness | Groups | Chi-square | | | |
|--|---------------------|------------|-----------|--------------|---------|
| | | Value | DF | Significance | |
| Not aware + do not remember compared with positive awareness | Polio | CV/VV/VN | 2.39497 | 2 | 0.30195 |
| | Tuberculosis | VV/VN | 14.98801 | 1 | 0.00011 |
| | | VV/CV | 0.03425 | 1 | 0.85318 |
| | | CV/VN | 11.57474 | 1 | 0.00067 |
| | Measles | CV/VV/VN | 1.10459 | 2 | 0.57563 |
| | Diphtheria | VV/VN | 15.83987 | 1 | 0.00007 |
| | | VV/CV | 0.02042 | 1 | 0.88638 |
| | | CV/VN | 12.23770 | 1 | 0.00047 |
| | Tetanus | VV/VN | 46.6586 | 1 | 0.00000 |
| | | VV/CV | 3.48194 | 1 | 0.06204 |
| | | CV/VN | 43.32461 | 1 | 0.00000 |
| | Whooping cough | VV/VN | 19.62055 | 1 | 0.00001 |
| | | VV/CV | 0.26784 | 1 | 0.60479 |
| | | CV/VN | 17.88265 | 1 | 0.00002 |
| | Infective hepatitis | VV/VN | 21.22595 | 1 | 0.00000 |
| | | VV/CV | 9.98774 | 1 | 0.00158 |
| | | CV/VN | 41.50849 | 1 | 0.00000 |
| | Dehydration | VV/VN | 39.06597 | 1 | 0.00000 |
| | | VV/CV | 0.483.8 | 1 | 0.48703 |
| | | CV/VN | 21.59020 | 1 | 0.00000 |
| | Bilharziasis | VV/VN | 100.17832 | 1 | 0.00000 |
| | | CV/VN | 54.41080 | 1 | 0.00000 |

Table (7:7): Frequency table (in percentages) showing mothers' awareness of the target diseases

| AWARENESS | Polio | TB | Measles | Diphtheria | Tetanus | Pertussis | Hepatitis | Dehydration | Bilharziasis | Immunization | Green Flower |
|-----------|-------|-------|---------|------------|---------|-----------|-----------|-------------|--------------|--------------|--------------|
| C | 0.0 | 15.8 | 0.0 | 14.5 | 0.0 | 21.1 | 3.9 | 0.0 | 0.0 | 0.0 | 100.0 |
| V | 100.0 | 65.8 | 100.0 | 59.2 | 96.1 | 60.5 | 89.5 | 100.0 | 100.0 | 100.0 | 0.0 |
| | 0.0 | 18.4 | 0.0 | 26.3 | 3.9 | 18.4 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| V | 0.0 | 15.8 | 0.0 | 17.7 | 7.0 | 20.3 | 11.4 | 0.0 | 0.0 | 0.0 | 97.5 |
| V | 100.0 | 64.6 | 99.4 | 58.2 | 88.6 | 57.0 | 70.9 | 99.4 | 100.0 | 100.0 | 0.6 |
| | 0.0 | 19.6 | 0.6 | 24.1 | 4.4 | 22.8 | 17.7 | 0.6 | 0.0 | 0.0 | 1.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| V | 0.0 | 43.9 | 0.0 | 46.9 | 33.7 | 40.8 | 31.6 | 10.2 | 33.7 | 0.0 | 92.9 |
| N | 99.0 | 39.8 | 100.0 | 32.7 | 50.0 | 28.6 | 41.8 | 75.5 | 49.0 | 100.0 | 0.0 |
| | 1.0 | 16.3 | 0.0 | 20.4 | 16.3 | 30.6 | 26.5 | 14.3 | 17.3 | 0.0 | 7.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Diphtheria: 1) Both CV and VV groups show almost the same level of awareness (59.2% and 58.2% respectively). The VN group shows (as expected) a lower level of awareness (32.7%).

2) The extent of "do not remembers" is almost the same in CV (26.3%), VV (24.1%) and VN (20.4%) groups. This is mainly due to the common confusion between diphtheria and the other more common disease, tonsillitis.

3) The positive television effect can be shown by comparing the three groups as discussed before.

TB (Tuberculosis): 1) Both the CV and VV groups show almost the same degree of awareness (65.8% and 64.6% respectively). The VN group shows that only 39.8% is aware of TB. It is generally a disease of the slums and deprived urban areas (Unicef 1985). This means that all the three groups in the study are relatively unlikely to experience the disease i.e. there is a low incidence of the disease among them. This means that experience of this disease has a limited role.

2) The significant difference in the level of awareness between CV and VV, on the one hand, and VN, on the other hand, relates to the role of media exposure.

3) The negligible difference between the CV and VV groups can be explained by the reluctance of health professionals or other types of media (other than television or radio) to give health information about that disease.

3:7:3:2 Mothers' knowledge of a characteristic sign or symptom of each of the target diseases (tables 7:8&7:9):

(Could you identify the main characteristics of each of the following diseases? Question "7").

Polio: As we discussed before, the three groups show a high level of awareness of polio. A high level of knowledge regarding the disease is also expected as its paralytic manifestation is obvious and every mother can recognize it. Both the VV and VN groups show a very high level of knowledge of polio (100.0% and 96.9%

respectively). In the CV group, 71.1% show correct knowledge. The extremely high level of knowledge among the VV group cannot be related to television exposure alone as there is a comparably high level of correct knowledge of signs or symptoms regarding polio among the VN as well. Interpersonal conversation is a crucial channel for spreading information in rural areas. Awareness of a single case of polio in a village can be disseminated all around in a short time with its relevant information, whether correct or incorrect. Drakshayani and Venkata (1994) show that television enhances this kind of interpersonal conversation by transmitting the correct information to even those who did not get exposed to the message.

The CV group, despite showing a lower level of correct knowledge, may be confused with their more complicated knowledge. They know that it is not only polio which can cause paralysis, but many other diseases can do so as well. Also, they know that there are different stages of polio and it is confusing for them to know the symptoms or signs corresponding to each stage. They are looking for the ideal answer, or otherwise no answer. This is not the case for mothers in a village, who usually have a limited working knowledge that matches their limited world. Their information depends on experience and chatting. This may explain why they believe every paralysed child is suffering from polio. It may be reasonable to think that television campaigns have not enough space to practise their power to provide the knowledge regarding the disease and to stretch audiences' cognition system for more information.

Measles: As with polio, both VV and VN groups show a very high level of correct knowledge (94.9% and 92.9% respectively). Obviously, this high level of correct knowledge can be attributed to the same factor responsible for the high level of awareness (experience) as discussed before. On the other hand, the CV group show a significantly lower level of correct knowledge (64.5%), than villager mothers with 22.4% who do not know any of the symptoms or signs of measles. This low level of correct information is mainly due to the spread of measles vaccination coverage with a corresponding lowering in measles cases. Consequently, they lack experience which mothers in villages still possess. Media may be responsible, to a large extent, for the correct knowledge in the CV group.

Table (7.8): Frequency table showing mothers' knowledge of the symptoms or signs of each of the target diseases

| KNOWLEDGE | Polio | | TB | | Measles | | Diphtheria | | Tetanus | | Pertussis | | Hepatitis | | Dehydration | | Green Flower | |
|-------------|-------|------|-------|------|---------|------|------------|------|---------|------|-----------|------|-----------|------|-------------|------|--------------|-----|
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Incorrect | 16 | 21.1 | 6 | 7.9 | 10 | 13.2 | 4 | 5.3 | 1 | 1.3 | 30 | 39.5 | 3 | 3.9 | 9 | 11.8 | 0 | 0.0 |
| Correct | 54 | 71.1 | 23 | 30.3 | 49 | 64.5 | 25 | 32.9 | 28 | 36.8 | 30 | 39.5 | 45 | 59.2 | 67 | 88.2 | 0 | 0.0 |
| Do not know | 6 | 7.9 | 47 | 61.8 | 17 | 22.4 | 47 | 61.8 | 47 | 61.8 | 16 | 21.1 | 28 | 36.8 | 0 | 0.0 | 76 | 100 |
| TOTAL | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 |
| Incorrect | 0 | 0.0 | 25 | 15.8 | 0 | 0.0 | 32 | 20.3 | 8 | 5.1 | 41 | 25.9 | 12 | 7.6 | 0 | 0.0 | 0 | 0.0 |
| Correct | 158 | 100 | 49 | 31.0 | 150 | 94.9 | 50 | 31.6 | 105 | 66.5 | 84 | 53.2 | 75 | 47.5 | 152 | 96.2 | 0 | 0.0 |
| Do not know | 0 | 0.0 | 84 | 53.2 | 8 | 5.1 | 76 | 48.1 | 45 | 28.5 | 33 | 20.9 | 71 | 44.9 | 6 | 3.8 | 158 | 100 |
| TOTAL | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 |
| Incorrect | 0 | 0.0 | 17 | 17.3 | 4 | 4.1 | 12 | 12.2 | 17 | 17.3 | 52 | 53.1 | 12 | 12.2 | 4 | 4.1 | 0 | 0.0 |
| Correct | 95 | 96.9 | 12 | 12.2 | 91 | 92.9 | 16 | 16.3 | 39 | 39.8 | 10 | 10.2 | 19 | 19.4 | 72 | 73.5 | 0 | 0.0 |
| Do not know | 3 | 3.1 | 69 | 70.4 | 3 | 3.1 | 70 | 71.4 | 42 | 42.9 | 36 | 36.7 | 67 | 68.4 | 22 | 22.4 | 98 | 100 |
| TOTAL | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 |

Dehydration: This killer complication of gastro-enteritis is assumed to follow the same pattern of correct knowledge as above among the three groups, as it is more common in rural and low social classes than in the higher social class of the more advantaged urban child. The VV group demonstrates a higher degree of correct knowledge regarding the symptoms or signs of dehydration (96.2%). This is followed by the CV group (88.2%) and lastly the VN group (73.5%).

Gastro-enteritis is common in both the VV and VN groups. However, dehydration is a very acute complication which makes it short in duration with not enough time for the mother to experience it indirectly with her child. Educational media can substitute experience (as demonstrated by the higher level of awareness and correct knowledge of measles, or dehydration among mothers in the CV group). It may be possible then to demonstrate the role of television in this high level of knowledge in the CV and VV groups but not in the VN group.

TB: This is also a chronic disease, but not like polio. The infected child can mix with others unnoticed and go about a normal way of life (as compared to polio). It can also be a treatable condition, with good medical care. Both CV and VV show almost the same level of correct knowledge for TB (30.3% and 31.0% respectively). The VN group shows a very low level of correct knowledge (12.2%). This is also anticipated as long as there is no source of information other than experience, which is already limited. At the same time, the three groups show a great lack of knowledge regarding TB symptoms (VV: 53.2% "do not know"; CV: 61.8%; VN: 70.4%) with a relatively low level of incorrect knowledge. This may be related to the declining incidence of TB cases in both rural and high social class urban areas and the hidden symptoms of the disease.

Although low, the effect of television campaigns on knowledge can be shown by the significant difference between the VV and VN groups. This low level of television effect can be explained by the same reasons as diphtheria (apart from being confused with any other disease, as will be explained later). This confirms the assumption that attitude can affect the educational media function.

Table (7:9): Chi-square critical value and level of significance for the difference in mothers' knowledge level of each disease sign or symptom between each two groups

| Knowledge | Groups | Chi-square | | | |
|---|---------------------|------------|----------|--------------|---------|
| | | Value | DF | Significance | |
| Wrong knowledge + do not remember compared with correct knowledge | Polio | VV/VN | 4.89409 | 1 | 0.02695 |
| | | VV/CV | 50.48312 | 1 | 0.00000 |
| | | CV/VN | 23.31296 | 1 | 0.00000 |
| | Tuberculosis | VV/VN | 11.73772 | 1 | 0.00061 |
| | | VV/CV | 0.01353 | 1 | 0.90739 |
| | | CV/VN | 8.64832 | 1 | 0.00327 |
| | Measles | VV/VN | 0.47420 | 1 | 0.49106 |
| | | VV/CV | 37.43790 | 1 | 0.00000 |
| | | CV/VN | 21.93374 | 1 | 0.00000 |
| | Diphtheria | VV/VN | 7.41903 | 1 | 0.00646 |
| | | VV/CV | 0.03677 | 1 | 0.84794 |
| | | CV/VN | 6.52386 | 1 | 0.01064 |
| | Tetanus | VV/VN | 17.46850 | 1 | 0.00003 |
| | | VV/CV | 18.34407 | 1 | 0.00002 |
| | | CV/VN | 0.15772 | 1 | 0.69126 |
| | Whooping cough | VV/VN | 48.04171 | 1 | 0.00000 |
| | | VV/CV | 3.85002 | 1 | 0.04975 |
| | | CV/VN | 20.71370 | 1 | 0.00001 |
| | Infective hepatitis | VV/VN | 20.52547 | 1 | 0.00001 |
| | | VV/CV | 2.83203 | 1 | 0.09240 |
| | | CV/VN | 29.19303 | 1 | 0.00000 |

Tetanus: Tetanus is supposed to follow the same pattern as measles regarding the correct knowledge of its symptoms, as it is more common in rural areas and among farmers than in towns. The VV group shows a higher level of correct knowledge (66.5%). This is followed by the VN group (39.8%) and then, the CV group (36.8%). The lower level of knowledge in the CV group can be due to the relatively low incidence of the disease; the shortage of the health unit's activities among higher social classes; and reluctance of the obstetrician to promote the tetanus vaccination for

pregnant mothers. Each mother is expecting fully hygienic care during labour.

The relatively low level of knowledge among VN is more likely to be due to a lack of exposure to the television campaigns, as well as the secret burying of a neonate who dies before registration i.e. before knowing the cause of death. What is more obvious here is the significantly higher level of correct knowledge among mothers in the VV group. This supports the assumption regarding the role of television campaigns in modifying and enforcing knowledge gained through experience. Mothers remembered that tetanus television campaigns presented a baby with a "distressing smile" and a stiff wooden body.

Diphtheria: This acute disease gives a short, indoor, and limited experience. However, sometimes this experience is incorrect or incomplete. Both the CV and VV groups have almost the same low level of correct knowledge (32.9% and 31.6%). Although low, the effect of television immunization campaigns can be demonstrated by comparing the VV (31.6%) and VN (16.3%) correct knowledge. The question here is why these groups have a low level of correct knowledge (compared to polio, measles, or dehydration for example). This may be explained as follows:

- a) Television campaigns concentrate mainly on triggering the mothers to immunize their children with the triple vaccine. On the other hand, they do not concentrate on explaining the target diseases that can be prevented by the triple vaccine. This kind of information is relatively low compared to the specific campaigns directed against polio or dehydration, for example.
- b) It may be logical to assume that a mother's attitude towards the disease can affect her interest in seeking knowledge. Consequently, attitude can affect the supply of knowledge from the television. It can affect a mother's selection, exposure, attention, and comprehension of the message.
- c) There is common confusion between diphtheria and tonsillitis (both affect the throat). A child may wrongly be suspected of having tonsillitis instead of diphtheria and vice versa, which is more common in the VV and VN groups (20.3% and 12.2% respectively) in comparison to the CV group (5.3%). This shows the significance of interpersonal conversation, even with wrong facts.

Pertussis: This disease constitutes the third component of the triple vaccine. Like diphtheria and tetanus, it suffers from a low level of correct knowledge, with a relatively higher level of incorrect knowledge. Because of the common confusion between other kinds of cough (e.g. pneumonia in CV and influenza in both VV and VN), 53.1% in the VN group show incorrect knowledge and 25.9% of the VV as well. Furthermore, 53.2% of the VV group show correct knowledge as compared to the very low level of correct knowledge among the VN group (10.2%). Television immunization campaigns can be a major factor for explaining the significant gap in the level of knowledge of the VV and VN groups, especially if they are supported by previous experience with the disease.

Because of the regular vaccination, the CV group lack this important practical demonstration about pertussis. They depend mainly on media or the busy, expensive, and elite health professionals to get the required information. This may also explain why there is only 39.5% of correct knowledge for pertussis, as well as the importance of improving the health message to reach all members of the target population.

Infective hepatitis: This disease is not uncommon among Egyptian children, especially those of low social class. A mother can recognize it by noticing the yellowish discolouration of the child's sclera. 59.2 % of CV demonstrate correct knowledge which is significantly higher than the VV group (47.5%). Both groups show a higher level of correct knowledge than the VN group (19.4%). Here we may be able to show the positive effect of the television campaign. Because of the relatively short duration of the television campaign against infective hepatitis, the level of correct knowledge is still not very high, compared to dehydration for example.

Green flower: This is a fake disease as discussed before. All the three groups in the study reported do not know this disease. This signifies the high validity of the MIS, as well as excluding any doubt that any group will give false answers.

3:7:4 MOTHERS' KNOWLEDGE OF THE VACCINATION SCHEDULE:

Mothers' knowledge regarding the vaccination schedule includes three items (tables 7:10, 7:11, 7:12, and 7:13):

- a) Type and date of each vaccine (What kinds of immunization do you think your child needs during the first year of life? Question "22");
- b) Target disease for each vaccine (Do you know what each of the shoulder injection, oral drops, triple vaccine, and the ninth month vaccine is for? Question "19").

Polio: The pattern of knowledge is generally as anticipated where mothers in the CV group have the higher level of correct knowledge, followed closely by the VV group. The lowest knowledge is in the VN group.

The CV group shows a maximum (100.0%) of correct knowledge about the inclusion of polio vaccine in the schedule during the first year of the baby's life. Almost all mothers, apart from only one, know the right age for polio vaccination (98.7%). Again, all the mothers (100.0%) know that the reddish oral drops are for polio vaccination. This maximum level of knowledge in the CV group compares positively with a slightly lower level of correct knowledge regarding the vaccination schedule among the VV group. A total of 82.3% of the VV group know that polio vaccine is included in the vaccination schedule. Only 50.0% of this group know the right time for its administration according to the recommended schedule, with 82.9% fully aware that the reddish oral drops are for polio vaccination.

Mothers in the VN group show a lower level of knowledge with high significance when compared to either the CV or VV group. Only 46.9% show correct knowledge regarding the schedule of vaccinations during the first year of the baby's life. But only 24.5% know the right time for receiving the vaccine. As with the VV group, the number who recognize that the reddish oral drops are for polio rises to 61.2%. It is even more than those who memorize the correct time for receiving the vaccine. It may be easier for a mother to know that reddish oral drops are for polio. They have

a characteristic colour and an easy non painful route of administration. Besides that, they are commonly called "the polio drops". Mothers may lack correct knowledge about the form of polio vaccine, but because they actually do immunize their children mainly for polio, every vaccine is perceived as just for polio.

Educational and general social status may have an effect on the memorizing and understanding the details of the vaccination schedule. This is also supported by involvement with health professionals, from whom mothers can get information about the schedule. They pay some money not only to receive the vaccine, but also to get the maximum benefit from the health professional in return for the effort they usually make (tables 9:39&9:42). They want to feel that they are mature and well informed mothers who deal with the issue of their child's health on the basis of logic not just led by the health professional. They are the only people who are responsible for their children, not the elite of health professionals. In turn, the health professionals have to do their job in an ideal way to keep their clinic busy in the long run and not only for vaccination. They offer the maximum number of services of the highest quality to their customers and information (e.g. contraindications, side-effects, the schedule, challenging ideas, alternatives, and so on) is one of these services.

Both the VV and VN express the same view, namely "I will do what is best for my child as others advise me". More complex knowledge is difficult to understand, and it is a problem for those who have to decide the best time for vaccination. They just follow the orders of the more knowledgeable health professionals. At the same time, health workers in the health units either do not have the right knowledge to spell out, or they are already overloaded with many other things to do. Mothers feel that they have many other things to do which are not as systematic as in towns. This may make it difficult for them to involve themselves in memorizing the schedule.

Although the CV group rank health professionals as the most important source of information regarding vaccination, we cannot ignore the role of television campaigns, which follow health professionals in second place as an important source of health information regarding immunization. This advantage of using multiple media (face-to-

face with the credible health professionals, as well as the use of mass media) may have an enhancing effect in obtaining maximum knowledge concerning the polio schedule. This situation is slightly different for the VV group where television is considered the most important source of information regarding immunization. It may be logical to relate the recorded high level of knowledge to the television immunization campaigns. The difference in mothers' level of knowledge in both the CV and VV groups can be associated with the role of other sources to the advantage of the mothers in the CV group (e.g. the availability of health professionals). This positive role of television immunization campaigns can also be supported by predicting what the level of knowledge would have been in the VV group if they were deprived of the television campaigns like mothers in the VN group.

Measles: Measles has the same pattern of correct knowledge as polio regarding the vaccination schedule. The CV group has the highest score, closely followed by VV, with a much lower score for the VN group.

In the CV group, 93.4% demonstrate correct knowledge regarding the inclusion of measles vaccine in the schedule and 89.5% know the correct date for vaccinations. The score again rises to 96.1% for mothers who know that the ninth month's injection is for measles vaccination. On the other hand, 73.4% of the VV group show correct knowledge that measles vaccine is one on the schedule. This number drops to 50.0% for those who know the right time for administration of that vaccine. However, 79.1% know that the ninth month's injection is for measles. It is also more than those who memorize the schedule.

In the VN group, 40.8% know that measles vaccine is one of the vaccines that the baby has to receive during his first year of life. The number falls to 22.4% for mothers who know the exact time for vaccination against measles. More than those who memorise that measles vaccine is included in the schedule, 48.0% know that the ninth month's injection is for measles prevention. The ninth month's injection has another common name, "the measles injection" which can be a factor, as in polio, to explain why people know it in more detail than the other vaccine.

**Table (7:10): Frequency table showing mothers' knowledge of the vaccination schedule:
Knowledge of the type of each vaccine**

| KNOWLEDGE | Polio | | BCG | | Measles | | DPT | | HBV | |
|-------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|
| | Count | % | Count | % | Count | % | Count | % | Count | % |
| C | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| V | 76 | 100.0 | 38 | 50.0 | 71 | 93.4 | 64 | 84.2 | 61 | 80.3 |
| Do not know | 0 | 0.0 | 38 | 50.0 | 5 | 6.6 | 12 | 15.8 | 15 | 19.7 |
| TOTAL | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |
| V | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 0 | 0.0 |
| V | 130 | 82.3 | 66 | 41.8 | 116 | 73.4 | 88 | 55.7 | 22 | 13.9 |
| Do not know | 28 | 17.7 | 92 | 58.2 | 42 | 26.6 | 68 | 43.0 | 136 | 86.1 |
| TOTAL | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |
| V | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| N | 22 | 46.9 | 15 | 15.3 | 40 | 40.8 | 19 | 19.4 | 4 | 4.1 |
| Do not know | 136 | 35.1 | 83 | 84.7 | 58 | 59.2 | 79 | 80.6 | 94 | 95.9 |
| TOTAL | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

**Table (7:11): Frequency table showing mothers' knowledge of the vaccination schedule:
Knowledge of the date of each vaccine**

| KNOWLEDGE | Polio | | BCG | | Measles | | DPT | | HBV | | |
|-------------|-----------|-------|-------|-------|---------|-------|-------|-------|-------|-------|------|
| | Count | % | Count | % | Count | % | Count | % | Count | % | |
| C V | Incorrect | 0 | 0.0 | 0 | 0.0 | 1 | 1.3 | 0 | 0.0 | 0 | 0.0 |
| | Correct | 75 | 98.7 | 27 | 35.5 | 68 | 89.5 | 64 | 84.2 | 50 | 65.8 |
| Do not know | 1 | 1.3 | 49 | 64.5 | 7 | 9.2 | 12 | 15.8 | 26 | 34.2 | |
| TOTAL | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | |
| V V | Incorrect | 4 | 2.5 | 4 | 2.5 | 11 | 7.0 | 5 | 3.2 | 2 | 1.3 |
| | Correct | 79 | 50.0 | 41 | 25.9 | 79 | 50.0 | 57 | 36.1 | 11 | 7.0 |
| Do not know | 75 | 47.5 | 113 | 71.5 | 68 | 43.0 | 96 | 60.8 | 145 | 91.8 | |
| TOTAL | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | |
| V N | Incorrect | 1 | 1.0 | 7 | 7.1 | 4 | 4.1 | 1 | 1.0 | 0 | 0.0 |
| | Correct | 24 | 24.5 | 4 | 4.1 | 22 | 22.4 | 11 | 11.2 | 0 | 0.0 |
| Do not know | 73 | 74.5 | 87 | 88.8 | 72 | 73.5 | 86 | 87.8 | 89 | 100.0 | |
| TOTAL | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 89 | 100.0 | |

Table (7:12): Frequency table showing mothers' knowledge of the vaccination schedule: Knowledge of the target disease for each vaccine

| KNOWLEDGE | Oral Drops | | Shoulder Injection | | 9th month Injection | | Diphtheria (DPT) | | Tetanus (DPT) | | Pertussis (DPT) | |
|-----------|------------|-------|--------------------|-------|---------------------|-------|------------------|-------|---------------|-------|-----------------|-------|
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| C | 0 | 0.0 | 22 | 28.9 | 1 | 1.3 | 9 | 11.8 | 13 | 17.1 | 8 | 10.5 |
| V | 76 | 100.0 | 36 | 47.4 | 73 | 96.1 | 26 | 34.2 | 40 | 52.6 | 48 | 63.2 |
| | 0 | 0.0 | 18 | 23.7 | 2 | 2.6 | 41 | 53.9 | 23 | 30.3 | 20 | 26.3 |
| TOTAL | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |
| V | 3 | 1.9 | 38 | 24.1 | 7 | 4.4 | 47 | 29.7 | 48 | 30.4 | 42 | 26.6 |
| V | 131 | 82.9 | 50 | 31.6 | 125 | 79.1 | 19 | 12.0 | 21 | 13.3 | 43 | 27.2 |
| | 24 | 15.2 | 70 | 44.3 | 26 | 16.5 | 92 | 58.2 | 89 | 56.3 | 73 | 46.2 |
| TOTAL | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |
| V | 4 | 4.1 | 28 | 28.6 | 8 | 8.2 | 30 | 30.6 | 30 | 30.6 | 30 | 30.6 |
| N | 60 | 61.2 | 2 | 2.0 | 47 | 48.0 | 5 | 5.1 | 4 | 4.1 | 11 | 11.2 |
| | 34 | 34.7 | 68 | 69.4 | 43 | 43.9 | 63 | 64.3 | 64 | 65.3 | 57 | 58.2 |
| TOTAL | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

As was the procedure with polio, the effect of television campaigns can be demonstrated by comparing the level of mothers' knowledge in the three sample groups. From the analysis of the level of awareness, as well as the level of correct knowledge regarding polio and measles, it may be possible to assume that experience (if available) has a major role to play in creating awareness of the health issue, but its effect is attenuated in providing more complex information.

TB: Although at a lower level, knowledge of the BCG's schedule among the three groups studied follows the same pattern as measles. The CV group shows better knowledge than VV, which in turn shows better knowledge than the VN group.

Only 50.0% of the CV group know that BCG is included in the schedule, with 35.5% aware of the right time for its administration and 47.4% aware that the shoulder injection is the BCG. This is a lower score than polio and measles, which can be explained by the active role of health professionals in giving correct information regarding the measles and polio schedule. Most health professionals do not recommend BCG vaccination any more, especially for the higher social classes. That is why they have a lower level of knowledge of BCG than of polio or measles. On the other hand, 41.8% of mothers in the VV group show correct knowledge regarding the BCG vaccination in terms of its inclusion in the schedule. This score falls to 25.9% for those who know the right time for its administration. But this score rises a little (31.6%) for those who know that the shoulder injection is for BCG.

For the VN group, only 15.3% know that BCG is one of the vaccines that the baby has to receive during the first year of life. This already low level of knowledge drops to 4.1% for those who know the exact time for its administration. Only 2.0% know that the shoulder injection is for the prevention of TB. It may be interesting to mention that those who give incorrect answers confuse the BCG with polio vaccination but that rarely occurs with measles prevention. This significantly low score in comparison to polio and measles can be explained by the easy and striking name for polio vaccine ("the paralytic drops") and measles ("the measles injection") but not the vague "shoulder injection" as well as mothers' feeling towards the disease.

We can assume from these results that the role of television is essential in the positive change in knowledge regarding the BCG schedule, especially for the less advantaged population. We can also note the importance of health professionals as a valuable and credible source of health information, especially for the advantaged population. Furthermore, a clear descriptive name for the vaccine can be a key factor in helping the disadvantaged people to know and to remember the schedule.

HBV: The CV group show better knowledge² than those in the VV group, who in turn show better knowledge than those in the VN group. As expected, there is a big gap in the amount of relevant information regarding HBV between both VV and VN, on the one hand, and the CV group on the other.

In the CV group, 80.3% know that HBV is one of the vaccines that is needed during the baby's first year of life, and 65.8% know its time of administration. Only 13.9% of mothers in the VV group show correct knowledge regarding HBV's inclusion in the vaccine schedule, with 7.0% aware of the right time for its administration. On the other hand, only 4.1% of the VN group remember that HBV is one of the advised vaccines that each baby has to receive during the first year of life. There is not a single mother (0.0%) in this group who can remember its time of administration.

These results confirm the positive role of health professionals for knowledge gain. They can satisfy the mothers' need for new and valuable information. Television campaigns may not have the same effect but, at this stage, we cannot confirm that. However, this situation is different for disadvantaged mothers. Because HBV is not available at the local health unit, health workers never talk about it. It is only available at the central health clinic (35 km away from the village) at a cost of 5-15 Egyptian pounds for each injection (according to the child's age). This may explain the very low level of knowledge as regards the HBV schedule. These results may also signify the importance of repeating the messages and the long-term effect of the television health campaigns, especially for the most vulnerable group. Furthermore,

² The researcher did not include a question regarding knowledge for HBV administration as it has no characteristic name or route of injection.

the results show the importance of the availability of the vaccines at the local health unit, which encourages mothers to seek more knowledge and the health workers to supply mothers with the basic working knowledge.

DPT: The CV group show better knowledge than those in the VV group, who in turn show better knowledge than those in the VN group. As expected, there is a big gap in the amount of relevant information regarding DPT among both VV and VN groups, on the one hand, and the CV group, on the other.

In the CV group, 84.2% know that DPT is a vaccine that every baby has to receive during his first year of life. The same percentage also applies to those who know the correct time for its administration according to the schedule. With this higher percentage of knowledge, only 34.2% know that this vaccine is for diphtheria, 52.6% for tetanus, and 63.2% know that pertussis vaccine is included with the DPT. This can be explained by the fact that DPT is known as the triple vaccine without any further information. Mothers can recognize that this triple vaccine is included in the schedule but it may be difficult to memorise its composition, especially if this has not been tackled frequently by the media. A mother may feel that it is her duty to immunize her child with the vaccine but not to go further into complex information. For the VV group, 55.7% know that DPT vaccine is included in the schedule and 36.1% know its time of administration. A much lower level of knowledge about the composition of DPT can be noted as it is only 12.0% for diphtheria, 13.3% for tetanus and 27.2% for pertussis. These results further confirm the effective role of health professionals in providing refined information that television campaigns cannot supply to the same degree. However, television has a prominent role, as evident by comparing the level of correct knowledge in both the VV and VN groups.

Only 19.4% of the VN group know that DPT is a vaccine that is included in the vaccination schedule and 11.2% know the correct time for its administration. A very low level of knowledge regarding the composition of DPT is then expected. This is true especially for tetanus (4.1%), diphtheria (5.1%), and 11.2% know that it is for pertussis immunization. Most mothers who have incorrect knowledge refer to DPT

as a vaccine of polio and few think that it is for measles.

Table (7:13): Chi-square critical value and level of significance for the difference in mothers' level of knowledge of each vaccine type and the date of vaccination between each two groups

| Knowledge | | Groups | Chi-square | | |
|---|-------------------------------|-----------|------------|---------|--------------|
| | | | Value | DF | Significance |
| Wrong knowledge + do not remember compared with correct knowledge | Polio drops | VV/VN | 35.15979 | 1 | 0.00000 |
| | | VV/CV | 15.29900 | 1 | 0.00000 |
| | | CV/VN | 57.51489 | 1 | 0.00000 |
| | Polio drops date | VV/VN | 16.36901 | 1 | 0.00005 |
| | | VV/CV | 54.05702 | 1 | 0.00000 |
| | | CV/VN | 96.08042 | 1 | 0.00000 |
| | BCG | VV/VN | 19.58744 | 1 | 0.00001 |
| | | VV/CV | 1.40696 | 1 | 0.23556 |
| | | CV/VN | 24.32391 | 1 | 0.00000 |
| | Tuberculosis vaccination date | VV/VN | 19.96346 | 1 | 0.00001 |
| | | VV/CV | 2.28309 | 1 | 0.13079 |
| | | CV/VN | 28.90584 | 1 | 0.00000 |
| | Measles injection | VV/VN | 27.00666 | 1 | 0.00000 |
| | | VV/CV | 12.79239 | 1 | 0.00035 |
| | | CV/VN | 51.28318 | 1 | 0.00000 |
| | Measles vaccination date | VV/VN | 19.21965 | 1 | 0.00000 |
| | | VV/CV | 34.23460 | 1 | 0.00000 |
| | | CV/VN | 77.00819 | 1 | 0.00000 |
| | DPT vaccine | VV/VN | 32.77694 | 1 | 0.00000 |
| | | VV/CV | 18.32970 | 1 | 0.00002 |
| | | CV/VN | 72.098231 | 1 | 0.00000 |
| | DPT vaccination date | VV/VN | 19.14962 | 1 | 0.00001 |
| | | VV/CV | 47.614261 | 1 | 0.00000 |
| | | CV/VN | 92.97625 | 1 | 0.00000 |
| Hepatitis B Vaccine | VV/VN | 6.42134 | 1 | 0.01128 | |
| | VV/CV | 98.66673 | 1 | 0.00000 | |
| | CV/VN | 106.15694 | 1 | 0.01128 | |
| Hepatitis B Vaccine date | VV/VN | 7.12911 | 1 | 0.00758 | |
| | VV/CV | 92.14476 | 1 | 0.00000 | |
| | CV/VN | 90.47114 | 1 | 0.00000 | |

3:7:5 MOTHERS' KNOWLEDGE OF A METHOD OF PROTECTION FROM EACH OF THE TARGET DISEASES (tables 8:14&8:15):

(Select a method to protect our children from each of the following diseases.
Question "9")

Polio: Mothers in the three groups show a very high level of awareness, correct knowledge about the disease in terms of its signs or symptoms, as well as its vaccination schedule. Here we also expect that mothers will present a high level of correct knowledge regarding the ideal method of protection from polio. In fact, this is true where the three groups state the maximum correct knowledge, especially in both the CV and VV groups.

The CV group show a maximum percentage (100.0%) of correct knowledge. Also, mothers in the VV group show 92.4% correct knowledge that polio can be prevented only by vaccination. Although the VN group show a lower level of knowledge (69.4%), it is the highest of all the diseases. This indicates that mothers in this group are more concerned with polio and how they can protect their children from it, than with any other disease. This can be the attitude's function as well as the availability of different sources of information.

Measles: Like polio, the three groups studied show a high level of awareness of measles, its symptoms or signs, as well as the measles vaccination schedule. As regards the ideal method of protection against measles, mothers show a good level of knowledge that varies among the three groups. The CV group show a very high level of correct knowledge (98.7%), which is followed by the VV group (79.1%), and then the VN group, which shows the lowest level (52.0%).

As discussed before, the joint effect of both the health professionals and media campaigns can be demonstrated by the high level of correct knowledge in the CV group. However, the range of the television's positive effect can be isolated by comparing the VV group with the VN group regarding their level of knowledge. However, some mothers in both the VV and VN groups still have incorrect knowledge

about the method of protection against measles e.g. being indoors, wearing red-coloured clothes, or even saying that there is no way of protection. They believe that it is an inevitable disease, as every child should catch measles.

Infective hepatitis: Although mothers in the three groups show a slightly higher level of awareness, only mothers in the CV group show a consistently high level of knowledge as regards the symptoms or signs of the disease as well as its vaccination schedule. Both the VV and VN groups show a drop in their level of knowledge, especially in the VN group.

The highest level of correct knowledge as regards the method of protection against this disease is in the CV group (94.7%). This is followed by the VV group (60.8%). The VN group shows the lowest level of correct knowledge (23.5%). The role of health professionals in CV is very prominent and they are the first who are responsible for the difference in the level of knowledge between CV and VV. However, in villages health professionals cannot be blamed as the HBV is available only at the health centre in the capital of the province. On the other hand, the positive role of the television immunization campaigns can be demonstrated by comparing the level of knowledge in both the VV and VN groups. Mothers who are pro-vaccination believe in it as a preventive method for known, as well as unknown, diseases. This may explain the higher level of knowledge as regards the method of protection against infective hepatitis than the basic knowledge regarding infective hepatitis symptoms or signs, or the schedule of its vaccination.

Tetanus: It is an example of the disturbed pattern regarding the level of knowledge. The three groups studied show a moderate degree of awareness of tetanus whereas the CV group show the highest level. As regards tetanus symptoms or signs, mothers in the CV group show the lowest level, which rises again for tetanus's vaccination schedule. The CV group show the maximum level of correct knowledge (100.0%) as regards the method of protection against tetanus. Then comes the VV (85.4%) followed by the VN group (42.9%). The significant difference between VV and VN groups can be related to the intensive use of television health campaigns for

vaccination against tetanus. Although television makes a great effort to raise the level of awareness and knowledge of tetanus or tetanus neonatorum, it seems that it did not do the same regarding what the disease is, or the means of prevention.

Diphtheria: The level of mothers' awareness of diphtheria is moderate among all the three groups studied. Although this level drops for both the VV and VN groups as regards diphtheria symptoms or signs, with a further slide regarding its vaccination schedule, the CV group do not show this decline. Mothers in the CV group have the highest level of correct knowledge (78.9%) regarding diphtheria. Then comes the VV group (59.5%). This is followed by the VN group, who show a very low level of correct knowledge (17.3%).

Mothers commonly see tonsillitis as an example of diphtheria that cannot be prevented and which is commonly recurrent. This may be responsible for the very low level of correct knowledge among the VN or even the VV group. The positive effect for the television immunization campaigns can also be illustrated by comparing the level of knowledge in both the VV and VN groups.

Pertussis: Pertussis is a disease of which the CV group show a moderate level of awareness, and a moderate level of correct knowledge regarding its signs or symptoms or its vaccination schedule. The VV group show a moderate level of awareness, lower than that in the CV group but higher than the level of awareness in the VN group. The level of knowledge as regards its symptoms and signs, as well as its vaccination schedule, in the VV group is low but still higher than that of the VN group.

A pattern similar to diphtheria is expected as mothers confuse it with other kinds of cough. Some mothers still think that a cough is a feature of a growing child. 67.1% of mothers in the CV group show correct knowledge. 46.2% of the VV group show correct knowledge, compared to only 12.2% in the VN group. Both VV and VN show a high level of incorrect knowledge (27.2% and 38.8% respectively). The positive effect for the television immunization campaigns can also be seen by comparing the level of knowledge in both VV and VN groups.

Table (7:14): Frequency table showing mothers' knowledge of the method of protection against each of the target diseases

| KNOWLEDGE | Polio | | TB | | Measles | | Diphtheria | | Tetanus | | Pertussis | | Hepatitis | | Common cold | | Anaemia | | Green Flower | |
|-----------|-------|------|-----|------|---------|------|------------|------|---------|------|-----------|------|-----------|------|-------------|------|---------|------|--------------|------|
| | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % |
| Incorrect | 0 | 0.0 | 9 | 11.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.6 | 2 | 2.6 | 37 | 48.7 | 0 | 0.0 | 0 | 0.0 |
| Correct | 76 | 100 | 54 | 71.1 | 75 | 98.7 | 60 | 78.9 | 76 | 100 | 51 | 67.1 | 72 | 94.7 | 35 | 46.1 | 41 | 53.9 | 0 | 0.0 |
| DK | 0 | 0.0 | 13 | 17.1 | 1 | 1.3 | 16 | 21.1 | 0 | 0.0 | 23 | 30.3 | 2 | 2.6 | 4 | 5.3 | 35 | 46.1 | 76 | 100 |
| Total | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 | 76 | 100 |
| Incorrect | 3 | 1.9 | 8 | 5.1 | 18 | 11.4 | 11 | 7.0 | 2 | 1.3 | 43 | 27.2 | 10 | 6.3 | 6 | 3.8 | 10 | 6.3 | 1 | 0.6 |
| Correct | 146 | 92.4 | 109 | 69.0 | 125 | 79.1 | 94 | 59.5 | 135 | 85.4 | 73 | 46.2 | 96 | 60.8 | 143 | 90.5 | 19 | 12.0 | 0 | 0.0 |
| DK | 9 | 5.7 | 41 | 25.9 | 15 | 9.5 | 53 | 33.5 | 21 | 13.3 | 42 | 26.6 | 52 | 32.9 | 9 | 5.7 | 129 | 81.6 | 157 | 99.4 |
| Total | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 | 158 | 100 |
| incorrect | 7 | 7.1 | 16 | 19.4 | 23 | 23.5 | 3 | 3.1 | 5 | 5.1 | 38 | 38.8 | 11 | 11.2 | 5 | 5.1 | 5 | 5.1 | 2 | 2.0 |
| Correct | 68 | 69.4 | 18 | 18.4 | 51 | 52.0 | 17 | 17.3 | 42 | 42.9 | 12 | 12.2 | 23 | 23.5 | 86 | 87.8 | 9 | 9.2 | 0 | 0.0 |
| DK | 23 | 23.5 | 61 | 62.2 | 24 | 24.5 | 78 | 79.6 | 51 | 52.0 | 48 | 49.0 | 64 | 65.3 | 7 | 7.1 | 84 | 85.7 | 96 | 98.0 |
| Total | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 | 98 | 100 |

Co. = Count

DK = Do not know

Anaemia: It is a disease which is not tackled commonly by television, yet it is very common among all sectors of the population. 53.9% of the CV group show correct knowledge which can be attributed to personal communication with their health professionals and routine medical check-ups. At the same time, they are more likely to be exposed to other media where anaemia may be tackled. On the other hand, there is a very low level of correct knowledge in both VV and VN (12.0% and 9.2% respectively). These results demonstrate the role of television campaigns clearly, especially for the less privileged group. Furthermore, there is a very high level of "do not know" in the three groups (VV: 81.6%; VN: 85.7%; CV: 46.1%). This also reflects the importance of television campaigns for the three groups. The results also show the high validity of the MIS as evident by the absence of any significant difference between the VV and VN group. This also shows the validity of the research design as Casiro et al., (1994) concluded.

Common cold: It is a disease which is very similar to anaemia in the way in which the media deal with it, although it is very common. It is very well known to almost every mother. 90.5% of the VV group show correct knowledge about the method of protection against the common cold, which is followed very closely by the VN (87.8%), and then the CV comes last with only 46.1%. Mothers in the village know that the common cold is a self-limiting disease which can be prevented by some traditional procedures e.g. keeping the child away from infected persons, or avoiding sudden exposure to cold weather. They got this knowledge from experience and passed it down from previous generations. On the other hand, mothers in the CV group depend mainly on health professionals. They do not trust that experience as all the diseases have the same symptoms but different diagnoses, which is the job of health professionals. They know that prevention is commonly through vaccination, which is not the case for the common cold. That is why they cannot answer correctly. This indicates the importance of experience as a source of information for both the VV and VN groups. It may also indicate the importance of media as a valuable source of information for mothers in the CV group. An important point is the absence of significant difference between the VV and VN groups as regards both anaemia and the common cold. This further signifies the validity of the MIS and the research

design. These can also be confirmed by the absence of significant difference between the three groups regarding the green flower disease.

Table (7:15): Chi-square critical value and level of significance for the difference in mothers' knowledge level regarding the method of protection against each disease between each two groups

| Knowledge | Groups | Chi-square | | | |
|--|---------------------|------------|----------|--------------|---------|
| | | Value | DF | Significance | |
| Wrong knowledge + do not remember, compared with correct knowledge | Polio | VV/VN | 23.36518 | 1 | 0.00000 |
| | | VV/CV | 6.08416 | 1 | 0.01364 |
| | | CV/VN | 28.11224 | 1 | 0.00000 |
| | Tuberculosis | VV/VN | 61.99746 | 1 | 0.00000 |
| | | VV/CV | 0.10356 | 1 | 0.74760 |
| | | CV/VN | 48.98182 | 1 | 0.00000 |
| | Measles | VV/VN | 20.63463 | 1 | 0.00001 |
| | | VV/CV | 15.82603 | 1 | 0.00007 |
| | | CV/VN | 46.61841 | 1 | 0.00000 |
| | Diphtheria | VV/VN | 43.74818 | 1 | 0.00000 |
| | | VV/CV | 8.63138 | 1 | 0.00330 |
| | | CV/VN | 65.84062 | 1 | 0.00000 |
| | Whooping cough | VV/VN | 31.44727 | 1 | 0.00000 |
| | | VV/CV | 9.00074 | 1 | 0.00270 |
| | | CV/VN | 55.77541 | 1 | 0.00000 |
| | Tetanus | VV/VN | 51.41080 | 1 | 0.00000 |
| | | VV/CV | 12.26924 | 1 | 0.00046 |
| | | CV/VN | 46.03874 | 1 | 0.00000 |
| | Infective hepatitis | VV/VN | 33.80982 | 1 | 0.00000 |
| | | VV/CV | 29.25582 | 1 | 0.00000 |
| | | CV/VN | 87.70426 | 1 | 0.00000 |
| Common cold | VV/VN | 0.48526 | 1 | 0.48605 | |
| | VV/CV | 55.70501 | 1 | 0.00000 | |
| | CV/VN | 35.14400 | 1 | 0.00000 | |
| Anaemia | VV/VN | 0.50138 | 1 | 0.47889 | |
| | VV/CV | 47.30108 | 1 | 0.00000 | |
| | CV/VN | 41.88409 | 1 | 0.00000 | |

3:7:6 SUMMARY OF MOTHERS' KNOWLEDGE:

Because the effect of the television immunization campaigns on mothers' knowledge is not directed to individually targeted items but to collectively increasing the general level of knowledge regarding each of the targeted diseases, it may be logical to estimate mothers' level of knowledge of each disease on one the hand and of all the target diseases on the other hand, using the constructed knowledge scale from questions number 5, 7, 22, 18, and 9.

3:7:6:1 Knowledge of each of the recommended vaccines (table 7:16):

A. group which have a high television coverage:

Polio: Although experience is a major source of information, it is not enough to supply more sophisticated knowledge. The three groups show a maximum level of basic knowledge. The difference is obvious by examining more complex knowledge.

The CV group show the highest level of knowledge among the three groups (95.0% can express correct knowledge as measured by the MIS' knowledge scale). This is followed closely by the VV group, where 84.6% can show correct knowledge of polio in general. The VN group show the lowest tendency to express the correct type of knowledge among the three sample groups. Although only 66.3% of mothers in the VN group show the correct information, this percentage represents the highest level of knowledge among them, compared with the other target diseases.

Experience can play a major role for this high level of knowledge among the three groups of mothers. It is the major determining factor for the VN group. It also shares the support of television for the high level of knowledge in the VV group. Regarding the CV group, experience, television campaigns, as well as the other sources of information, mainly the health professionals or other media, can be responsible for their high level of knowledge. Another striking point is the very low level of

incorrect knowledge that mothers may give regarding polio (3.5%, 1.1%, and 2.0% for the CV, VV, and the VN groups respectively). This may indicate that experience never lies. Hasting (1987) also concluded that the extent of respondents' knowledge regarding the target diseases was related to familiarity. Yet, because experience of polio was rare in Scotland, there was a limited knowledge among respondents. This shows the importance of experience as a variable for determining the level of knowledge, as well as the evolution of health intervention according to the community need and aspiration which may differ from one community to another. It also shows the merit of continuous health education efforts to keep the knowledge at its highest level as experience fades with the gradual disappearance of the disease as a result of successful immunization as White et al., (1995) concluded.

Measles: This is another example of a disease which receives a high level of television support, added to the experience acquired from its characteristic reddish skin rash after a period of very high fever, as well as its cyclical epidemic, where every susceptible child is more likely to catch the disease. As with polio, mothers are very unlikely to give incorrect answers as regards measles (2.6%, 3.8%, and 6.6% for the CV, VV, and the VN groups respectively). This also supports the role of experience as a source of health information. There is, corresponding with television attention, a very high level of correct knowledge regarding measles among mothers in both the CV and VV groups, but moderate knowledge among mothers in the VN group (90.8%, 79.3%, and 59.4% respectively). This also supports the assumption that experience enhances the television's impact.

B. A group which have a moderate level of television coverage:

Infective hepatitis: This is a disease which attracted television attention but only for a short time, compared to either measles or polio. Although the disease is not uncommon among Egyptians, mothers do not display the very high level of knowledge they have of polio or measles. This may show the long term cumulative effect of television health messages. Also, the absence of HBV from the health units may mark

the relevance of social mobilization and the cooperation of all groups with television to get the desired effects. It is important to show the role of health professionals by comparing the level of correct knowledge in the CV group (77.9%) with that in the VV group (40.0%). Nevertheless, the VV group can still show a higher level of knowledge than those in the VN group, where only 17.8% appear to have correct knowledge. Another striking point is the high incidence of "do not know" (20.0%, 54.7%, and 71.2% for the CV, VV, and VN groups respectively).

From the above analysis, we can assume that:

- a) Health professionals and experience are the main enhancing factors for television's impact in bringing a positive change of knowledge in favour of health.
- b) The level of knowledge increases when the level of television attention is raised.
- c) Multiple media are more effective in changing knowledge than a single medium approach.

Tuberculosis: This is an example of not only moderate television attention but also the lack of professional health support. Only 50.0% of the CV group can express correct knowledge regarding tuberculosis. This can support the role of health professionals in supplying the required working knowledge. At the same time, only 44.0% of the VV group can show correct knowledge regarding tuberculosis, compared to 15.3% of the VN group. Additionally, there is a high incidence of mothers who admit to lacking knowledge regarding tuberculosis, with totals of 39.3%, 45.5%, and 63.3% of mothers in the CV, VV, and VN group respectively. This finding supports Swaddiwudhipong et al., (1992) regarding the positive role of health professionals in disseminating health information and preventive methods to the target population, or in fighting the source of incorrect information as Hyler et al., (1991) concluded.

Diphtheria, Pertussis, and Tetanus: These diseases follow the tuberculosis pattern of the level of correct knowledge among the three groups. The CV group have the highest level of knowledge (62.3%, 66.4%, and 75.7% for diphtheria, pertussis, and tetanus respectively). This is followed by the VV group (42.2%, 45.9%, and 57.6% show the correct information regarding diphtheria, pertussis, and tetanus respectively).

Table (7:16): Frequency table showing mothers' general knowledge of each of the recommended vaccines

| KNOWLEDGE | Polio | | TB | | Measles | | Diphtheria | | Tetanus | | Pertussis | | Infective hepatitis | |
|-----------|-------|-------|-------|-------|---------|-------|------------|-------|---------|-------|-----------|-------|---------------------|-------|
| | count | % | count | % | count | % | count | % | count | % | count | % | count | % |
| C | 3 | 3.5 | 8 | 10.7 | 2 | 2.6 | 4 | 5.3 | 2 | 3.0 | 9 | 12.3 | 2 | 2.1 |
| V | 72 | 95.0 | 38 | 50.0 | 69 | 90.8 | 47 | 62.3 | 58 | 75.7 | 51 | 66.4 | 59 | 77.9 |
| | 1 | 1.5 | 30 | 39.3 | 5 | 6.6 | 25 | 32.4 | 16 | 21.3 | 16 | 21.3 | 15 | 20.0 |
| TOTAL | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |
| V | 2 | 1.1 | 17 | 10.5 | 6 | 3.8 | 21 | 13.2 | 13 | 8.0 | 27 | 17.4 | 8 | 5.3 |
| V | 134 | 84.6 | 69 | 44.0 | 125 | 79.3 | 67 | 42.2 | 91 | 57.6 | 73 | 45.9 | 63 | 40.0 |
| | 22 | 14.3 | 72 | 45.5 | 27 | 16.9 | 70 | 44.6 | 54 | 34.4 | 58 | 36.7 | 87 | 54.7 |
| TOTAL | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |
| V | 2 | 2.0 | 19 | 19.4 | 7 | 6.6 | 15 | 15.6 | 15 | 14.6 | 27 | 27.4 | 11 | 11.0 |
| N | 65 | 66.3 | 15 | 15.3 | 58 | 59.4 | 17 | 17.0 | 27 | 27.9 | 15 | 15.5 | 17 | 17.8 |
| | 31 | 31.7 | 64 | 65.3 | 33 | 34.0 | 66 | 67.3 | 56 | 57.5 | 56 | 57.1 | 70 | 71.2 |
| TOTAL | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

The VN group put forward a very low level of correct information (17.0%, 15.5%, and 27.9% of mothers can give correct information regarding diphtheria, pertussis, and tetanus respectively). From these results, we can assume that:

- a) The lower the television's level of coverage, the lower the level of correct knowledge regarding the disease, and vice versa.
- b) Television may act in a different way, rather than just disseminating information to increase the level of positive knowledge (primary catch up). Television can stimulate a change of behaviour or attitude towards the subject directly, without the need for more sophisticated information. This initial change will, in turn, if positive enough, stimulate knowledge change (secondary catch up).

3:7:6:2: Knowledge of target diseases (table 7:17):

1) From a general point of view, the CV group show the highest level of general knowledge regarding the target diseases and their vaccines. Their high score is the result of a combination of different elements, such as:

- a) Television health campaigns;
- b) Exposure to other media;
- c) Active role of the health professionals;
- d) Intervening variables, mainly the high level of education;
- e) The positive attitude and behaviour and their positive impact on knowledge.

2- The VV group show a moderate level of correct knowledge of target diseases, yet higher than that of the VN group. Such a high level is a result of:

- a) Television health campaigns;
- b) Experience with the disease itself;
- c) Positive attitude and behaviour and their positive impact on knowledge gain.

By comparing the results of both the CV and the VV groups, we can demonstrate the enhancing effect of exposure to multiple media, and health professionals, as well as high education..

Table (7:17): Frequency table showing mothers' knowledge of vaccination

| KNOWLEDGE | Cairo viewers | | Village viewers | | Village non viewers | |
|-----------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Incorrect | 4 | 5.6 | 13 | 8.5 | 14 | 14.0 |
| Correct | 56 | 74.1 | 89 | 56.2 | 30 | 31.2 |
| Do not remember | 16 | 20.3 | 56 | 35.3 | 54 | 54.8 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

3) The VN group show the lowest level of correct knowledge regarding the target diseases. Their correct knowledge derived mainly from their experience with the disease. By comparing the results of both the VV and the VN group, we can discount the role of experience or health professionals, and the positive role of the television immunization campaign on mothers' knowledge can then be demonstrated. This finding is supported by findings of Zimicki et al., (1994) which suggest that the increase in knowledge is related to exposure to mass media campaigns.

3:7:7 CONCLUSION:

1) Television is considered a valuable source of information for an individual's or a community's health. Mothers in a rural area believe that television is a major channel to supply them with information regarding their children's immunization. If a mother does not have a television set, she might depend on her friends or other family members to supply her with health information, with an end result of transmission of misbelief from generation to generation. From this perspective, the decision to use television to channel health information regarding child health, can be considered a very successful option.

2) There should be room in a mother's cognitive system for television to practise its role in enriching her with health information and for the new information to settle in.

Experience (direct or indirect) can form an important source of information which may occupy the whole available space. This is more evident in diseases like polio or measles where the television's role in raising mothers' level of awareness or supplying them with basic information cannot be isolated. If a health educationalist is looking to limit the role of experience (decreasing the incidence of the disease), more space in a mother's cognitive system should be free for the new information. This forms a further challenge for television in the near future. Television should supply the mother with missed experiences indirectly to be able to promote child health.

3) By acknowledging the role of experience as a source of basic information and awareness, this effect is attenuated by increasing the level of complexity of the knowledge offered, like the vaccination schedule for example. Face-to-face communication with a credible source can be very valuable in that respect and enhancing to the impact of television in reaching the target population. This may also form an additional role for television to play, not only to educate the public but also to supply health professionals and health workers with the necessary information. However, health professionals are not easily available to the mass population. In that case, television constitutes the most accessible and the cheapest source of health information to reach the mass population with a credible health message.

4) The health unit, in a village, can play an important role for health education. It can supply a mother with information regarding the available health service. Television can have an important role, not only in raising mothers' awareness of child immunization, but also in creating public opinion regarding the available health services. At the same time, it may attract the attention of both governmental and non governmental organizations to health services' availability and their sustainability, which, in turn, can affect mothers' knowledge.

5) Multiple media are always preferable and more effective in reaching the target population with all their different segments. Each medium has an enhancing effect for the other medium. Television health messages should stimulate other forms of communication, like interpersonal for example, in a positive way and should also

attract the attention of other media to respond to the health issue in question.

6) Television health messages should reflect people's needs and inquiries to achieve a positive effect. The message should tackle knowledge and fallacies in a society wisely and discuss them in a positive way to explore the truth. This indicates the importance of formative audience research to find an effective message to use. A health educator should also take advantage of a national or local occasion to send his messages e.g. the anniversary of the death of the most popular Egyptian singer by bilharziasis could be a perfect time to spread an educational television message about bilharziasis.

7) From the above conclusions, supported by the research results and analysis, it could be possible to conclude that:

- Television campaigns are an appropriate strategy to reach the target mothers with the health message formulated regarding child immunization.
- Television, with its high potential, is an effective medium when used to improve or change mothers' knowledge as regards child immunization.

CHAPTER EIGHT

MOTHERS' ATTITUDE

3:8:1 INTRODUCTION:

The effect of television immunization campaigns on mothers' attitude towards immunization is analyzed in this chapter. Mothers' affective attitude demonstrates their feeling towards immunization and its relation with the target diseases (i.e. receiving the health threat, acceptance of immunization, as well as their feeling towards immunization side effects). Mothers' cognitive attitude is also examined to show their understanding and their own judgment regarding vaccines' function, the effectiveness of each vaccine, and vaccination side effects. Furthermore, mothers' intention towards immunizing their children is examined to demonstrate the conative component of the attitude system.

Results of the three attitude dimensions form an attitude scale that can measure mothers' general attitude towards immunization in the three groups studied (CV, VV, and VN). In addition to analysis of the direction of attitude change, the effect of exposure to television immunization messages on the stability or the strength of mothers' attitude is also examined. The television's effect is clarified by comparing mothers' attitudes among the three groups studied (CV, VV, and VN), as was done previously with mothers' knowledge.

3:8:2 MOTHERS' AFFECTIVE ATTITUDES:

Mothers' affective attitude in the three groups studied is examined towards the following:

3:8:2:1 The target diseases (tables 8:1&8:2):

(If a child is infected with one of the following diseases, how dangerous do you think it is? Question "6").

Polio: Although all of the CV group have a positive affective attitude towards the seriousness of polio, only 73.7% consider it a very dangerous disease. In the VV group, all mothers have a positive attitude but it is a slightly higher percentage than CV for those who consider polio a very dangerous disease (79.7%). Similarly, all the VN group have a positive attitude, with a higher percentage (88.8%) for those who consider polio as very dangerous. This can be referred to their perception of health. They mainly view health as physical fitness. A physically handicapped person is considered lacking all health and is dependent on others for a living. This is mainly enforced by the need for complete physical strength to survive (in farming for example), as well as the lack of other alternatives. This point of view is different in the CV group, where they view health in broader terms as an aid to survive better. Their frame of reference is wider. As long as polio does not kill the person, but is a distressing crippling disease, it tends to appear less dangerous. Though handicapped, a person can live with an intact mind, and enjoy high status¹.

Measles: In the CV group, 81.6% have a positive attitude. The majority of them (67.1%) feel that it is less serious. They feel that it is not one of the major killer diseases. The child may suffer but in most cases, with good medical care, the child

¹ Mr. Taha Hussen, the former minister of education in Egypt, though blind, held two PhDs. He was considered the leading figure of Modern Arabic Literature.

recovers completely and will acquire permanent immunity. As discussed before, they miss the experience. This can be demonstrated by a higher percentage of "undecided" (18.4%) compared to both the VV and VN groups for "undecided" (0.6% and 2.0% respectively). Long-term and gradual changes of attitude towards "do not know" are expected with continuous immunization. It is the role of the media to keep their attitude highly positive (McGreal, 1996).

In the VV group, measles gains a positive attitude among 98.7% of mothers. This percentage represents a more positive attitude than in the CV group. Although the majority feel that it is a fairly dangerous disease, 32.9% still take the view that it is very dangerous and a killer disease (only 14.5% of mothers in CV feel so). In the VN group, an even more positive attitude is noted than in CV. A total of 96.0% of mothers have a positive attitude and only 2.0% "do not know". Like the VV group, the majority feel it is a fairly dangerous disease (53.1%) but with a very small margin over those who feel it is a very dangerous disease (42.9%). This means that experience has a role in attitude formation towards measles. If this practical experience is missing, television will be the main tool either for creating a new attitude, or enforcing the existing positive attitude.

TB: Tuberculosis is neither a common disease in rural areas nor among the higher social classes (as discussed before). At the same time, private doctors are reluctant to give the BCG in their private clinic. In the CV group, 78.9% have a positive attitude towards TB. The majority (65.8%) feel that it is a fairly dangerous disease with another 21.1% who do not know their attitude towards TB. These results demonstrate the positive role of the television campaigns on mothers' attitude in the CV group (after potentially controlling the role of experience and of health professionals).

In the VV group, 79.1% (almost the same percentage as in CV) have a positive attitude towards TB. A relatively high percentage (49.4%) feel that it is a very dangerous disease. A total of 19.0% do not know exactly how they feel towards TB. On the other hand, only 49.0% of the VN have a positive affective attitude towards

TB (significantly lower than both CV and VV groups). The lack of exposure to television immunization campaigns may provide an explanation for this low level of positive attitude. This, together with the lack of experience, may also explain the relatively high percentage of "do not knows" (50.0%).

Infective hepatitis (IH): The attitude level is similar to that for TB among the three different groups. In the CV group, 97.4% have a positive attitude for IH, and 63.2% feel that it is a very dangerous disease. Only 2.6% "do not know" their attitude.

In the VV group, 85.5% have a positive attitude with a majority of 65.2% showing a very strong positive attitude (almost the same percentage as CV). Another 12.7% (higher than those in CV) are not sure yet what their view is. On the other hand, 52.1% of the VN have a positive attitude, highly significantly lower than those in CV or VV groups. Only 28.6% feel that it is a very dangerous disease. A very high percentage (43.9%) are not sure yet what their attitude is. The positive television impact on mothers' attitudes towards IH can be demonstrated by comparing the VV and VN groups, especially for the "do not know" groups.

Tetanus: It follows the same pattern as TB and IH, yet there is not a single mother who has a negative attitude throughout the three groups. In the CV group, 97.4% have a positive attitude towards tetanus, with 92.1% feeling that it is a very dangerous disease. They believe that it is an untreatable disease and can be fatal. In the VV group, 87.3% have a positive attitude towards tetanus with 75.3% having a strongly positive attitude. Although 41.8% of the VN group showing a strongly positive attitude, another 42.9% are undecided. This is the highest percentage of "do not knows" among the three groups. The positive effect of television campaigns on mothers' attitude can be shown by comparing both the VV and VN groups. The effect of the other variables can also be shown by comparing CV and VV (e.g. other media or experience).

Table (8:1): Frequency table showing mothers' affective attitude towards each of the target diseases

| Attitude | Polio | | TB | | Measles | | Diphtheria | | Tetanus | | Pertussis | | Hepatitis | | Dehydration | | Common Cold | | Green Flower | | | |
|----------|-------|-------|------|-------|---------|-------|------------|-------|---------|-------|-----------|-------|-----------|-------|-------------|-------|-------------|-------|--------------|-------|------|-------|
| | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | Co. | % | | |
| C V | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 9 | 11.8 | 0 | 0.0 | |
| | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 5.3 | 0 | 0.0 | 0 | 0.0 | 63 | 82.9 | 0 | 0.0 | |
| | 3 | 0 | 0.0 | 16 | 21.1 | 14 | 18.4 | 20 | 26.3 | 2 | 2.6 | 24 | 31.6 | 2 | 2.6 | 3 | 3.9 | 0 | 0.0 | 76 | 100 | |
| | 4 | 20 | 26.3 | 50 | 65.8 | 51 | 67.1 | 15 | 19.7 | 4 | 5.3 | 31 | 40.8 | 26 | 34.2 | 49 | 64.5 | 4 | 5.3 | 0 | 0.0 | |
| | 5 | 56 | 73.7 | 10 | 13.1 | 11 | 14.5 | 41 | 53.9 | 70 | 92.1 | 17 | 22.4 | 48 | 63.2 | 24 | 31.6 | 0 | 0.0 | 0 | 0.0 | |
| T | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 76 | 100.0 |
| V V | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 85 | 53.8 | 0 | 0.0 | |
| | 2 | 0 | 0.0 | 3 | 1.9 | 1 | 0.6 | 3 | 1.9 | 0 | 0.0 | 8 | 5.1 | 3 | 1.9 | 17 | 10.8 | 69 | 43.7 | 0 | 0.0 | |
| | 3 | 0 | 0.0 | 30 | 19.0 | 1 | 0.6 | 41 | 25.9 | 20 | 12.7 | 55 | 34.8 | 20 | 12.7 | 0 | 0.0 | 1 | 0.6 | 156 | 98.7 | |
| | 4 | 32 | 20.3 | 47 | 29.7 | 104 | 65.8 | 37 | 23.4 | 19 | 12.0 | 59 | 37.3 | 32 | 20.3 | 105 | 66.5 | 3 | 1.9 | 0 | 0.0 | |
| | 5 | 126 | 79.7 | 78 | 49.4 | 52 | 32.9 | 77 | 48.7 | 119 | 75.3 | 36 | 22.8 | 103 | 65.2 | 35 | 22.2 | 0 | 0.0 | 2 | 1.3 | |
| T | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |
| V N | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 3.1 | 0 | 0.0 | 0 | 0.0 | 74 | 75.5 | 0 | 0.0 | |
| | 2 | 0 | 0.0 | 1 | 1.0 | 2 | 2.0 | 3 | 3.1 | 0 | 0.0 | 49 | 50.0 | 4 | 4.1 | 18 | 18.4 | 20 | 20.4 | 2 | 2.0 | |
| | 3 | 0 | 0.0 | 49 | 50.0 | 2 | 2.0 | 59 | 60.2 | 42 | 42.9 | 39 | 39.8 | 43 | 43.9 | 6 | 6.1 | 1 | 1.0 | 95 | 96.9 | |
| | 4 | 11 | 11.2 | 16 | 16.3 | 52 | 53.1 | 15 | 15.3 | 15 | 15.3 | 3 | 3.1 | 23 | 23.5 | 55 | 56.1 | 3 | 3.1 | 0 | 0.0 | |
| | 5 | 87 | 88.8 | 32 | 32.7 | 42 | 42.9 | 21 | 21.4 | 41 | 41.8 | 4 | 4.1 | 28 | 28.6 | 19 | 19.4 | 0 | 0.0 | 1 | 1.0 | |
| T | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

Attitude 1 = Strongly negative Attitude 2 = Fairly negative Attitude 3 = Neutral Attitude 4 = Fairly positive Attitude 5 = Strongly positive Co. = Count T = Total

Pertussis: It is another example of how television health campaigns can stimulate a positive change in attitude. In the CV group, 63.2% have a positive attitude towards pertussis with 40.8% feeling that pertussis is fairly dangerous. There is a high percentage of "do not know" in this group (31.6%) which is mainly due to lack of experience, as well as their mistaking it with a cough or pneumonia.

Just as in CV, 60.1% of the VV group have a positive attitude towards pertussis. 37.3% feel that it is a fairly dangerous disease. This may be related to the confusion between pertussis and other types of cough, or to the common misdiagnosis of a prolonged cough lasting for one or two weeks as a pertussis case, especially with the absence of the characteristic whoop in small children. The mother's feeling that this is a fairly dangerous disease stems from her experience. There is a high percentage of "do not know" in this group (34.8%) which is quite close to that of the CV group. This may reflect the positive change in attitude induced by the television when compared with mothers' attitude in the VN group.

Only 7.2 % of the VN group have a positive attitude, with 53.1% displaying a negative attitude. This is in fact due to the common confusion with all other kinds of cough and the belief that pertussis is like a common cold. Mothers still believe that a cough is a sign of a growing child and that every child should cough. Comparing both VV and VN groups, we can note the strong indication of a positive change in beliefs and in the affective attitude for pertussis. Television can even change attitude which has been built on an incorrect frame of reference.

Diphtheria: It is like pertussis in that the role of television is apparent in positively changing attitude towards health. In the CV group, 73.6% have a positive attitude towards diphtheria, with 53.9% feeling that it is a very dangerous disease. Although they lack experience with diphtheria, this can be attributed to the positive effect of the media, plus face-to-face communication with their health professionals. However, 26.3% still do not know exactly what their feeling towards diphtheria is.

Table (8:2): Chi-square critical value and level of significance for the difference in mothers' affective attitude level towards the seriousness of each disease between each two groups

| Disease | Groups | Chi-square | | | |
|--|---------------------|------------|----------|--------------|---------|
| | | Value | DF | Significance | |
| The negative + neutral affective attitudes compared with the positive affective attitude | Polio | VV/VN | 3.52796 | 1 | 0.06034 |
| | | VV/CV | 1.09127 | 1 | 0.29619 |
| | | CV/VN | 6.65801 | 1 | 0.00987 |
| | Tuberculosis | VV/VN | 25.06814 | 1 | 0.00000 |
| | | VV/CV | 0.00086 | 1 | 0.97661 |
| | | CV/VN | 16.32790 | 1 | 0.00005 |
| | Measles | VV/VN | 2.09526 | 1 | 0.14776 |
| | | VV/CV | 23.70845 | 1 | 0.00000 |
| | | CV/VN | 9.48975 | 1 | 0.00207 |
| | Diphtheria | VV/VN | 31.27192 | 1 | 0.00000 |
| | | VV/CV | 0.06064 | 1 | 0.80549 |
| | | CV/VN | 2345334 | 1 | 0.00000 |
| | Whooping cough | VV/VN | 70.84141 | 1 | 0.00000 |
| | | VV/CV | 0.19841 | 1 | 0.65600 |
| | | CV/VN | 62.12817 | 1 | 0.00000 |
| | Tetanus | VV/VN | 30.05470 | 1 | 0.00000 |
| | | VV/CV | 6.05675 | 1 | 0.01385 |
| | | CV/VN | 36.66040 | 1 | 0.00000 |
| | Infective hepatitis | VV/VN | 33.96744 | 1 | 0.00000 |
| | | VV/CV | 7.64795 | 1 | 0.00568 |
| | | CV/VN | 43.47187 | 1 | 0.00000 |

As in the CV group, 72.1% have a positive attitude towards diphtheria in VV, with 48.7% feeling that it is a very dangerous disease. Another 25.9% do not know exactly

what their opinion is regarding the dangers of diphtheria. This may be due to the confusion with tonsillitis. The insignificant difference in the attitude pattern between CV and VV should draw attention to the positive role of educational television for disadvantaged people. For the VN group, only 36.7% have a positive attitude towards diphtheria. A very high percentage of "do not know" (60.2%) is expressed for this disease. Again, this may be due to the long-standing confusion with tonsillitis and the lack of any educational media. By comparing the attitude level in both VV and VN groups, the potentially positive role of television can be demonstrated, not only in attitude formation but also in reinforcing existing positive attitude.

Common cold and green flower: Common cold is a very common disease with a well known very mild degree of seriousness, while green flower is an unknown controlled disease with an unknown degree of seriousness. The inclusion of these diseases is to examine how mothers can see different diseases in relation to others i.e. what are their boundaries for disease seriousness. It also explores the validity of the MIS and the research design.

In the CV group, 82.9% consider common cold as not such a dangerous disease (i.e. mild negative attitude). A discrepancy between the weakly negative attitude (43.7%) and the strongly negative attitude (53.8%) appears among VV mothers. 75.5% of mothers in VN feel that it is not dangerous at all (strongly negative attitude). By comparing the attitude level of both the VV and VN groups, we can claim that television can generate a general attitude towards health, especially for disadvantaged people. Through exposure to television, it is more likely that a mother will take her sick baby to a doctor for medical advice, even for a common cold instead of relying on traditional means of treatment.

The insignificant difference between the three groups regarding the fake green flower disease, as well as the reporting "do not know" for almost all mothers, confirm not only the validity of the MIS, but also that of the research design. There is no basis to suggest that any group of mothers gives a non valid answer.

3:8:2:2 Importance of each vaccine (tables 8:3&8:4):

(How important is it to you to keep immunizing your child against the following diseases? Question "11").

A mother may feel that it is very important to immunize her child against a certain disease or, at the other end of the spectrum, may feel that it is not important at all. She is expected to have a strongly positive attitude if she realises the seriousness of the disease, the susceptibility of catching the disease, and the effectiveness of the vaccine itself. Generally, mothers will do their best for their children even if the benefit from the proposed action is relatively small or uncertain. That is why it is more likely that mothers who cannot decide whether the vaccine is effective or not take positive side regarding the importance of vaccination. It is an expression of the tendency towards positive behaviour regarding their child's health. Additionally, a mother may feel it is important to immunize her child regardless of her knowledge of that disease or even the vaccine itself. She will express this attitude for all the diseases mentioned i.e. all the diseases are bound together in one block and a general positive attitude is formed towards that block.

Polio: All the CV group have a positive attitude towards vaccination against polio, with 93.4% feeling that it is very important to vaccinate their children against polio. This even includes mothers who do not know whether the vaccine is effective or not. At the same time, 93.0% of the VV group have a positive attitude regarding the importance of immunization against polio. This includes two cases of mothers who have not immunized their children because of other competing factors (e.g. family criticism and pressure). Only 71.4% of the VV group have a positive attitude of which 59.2% feel it is very important to immunize the child against polio, and another 14.2% having a negative attitude. The nine mothers who have not immunized their children have a neutral attitude. This may represent an intermediate step in the incongruent change of the mothers' attitude towards the positive side, which can be enhanced and fastened by exposure to television campaigns. The effect of television in positively changing attitudes can be more evident by noting the significant difference when mothers' attitude patterns in both VV and VN groups are compared.

At the same time, the small difference between the CV and VV groups points to the minor effects of the other intervening factors, such as educational level, or health professionals. Their role will be further explored through analysis of other diseases.

Measles: In the CV group, 94.7% have a positive attitude regarding the importance of measles vaccination with 84.2% feeling that it is very important to immunize their children against measles. There is not a single mother who has a negative attitude. At the same time, 91.1% of the VV group have a positive attitude, with 75.9% feeling that it is very important to immunize their children against measles. Even for those who do not immunize their children, their attitude varies from strongly negative to "do not know" i.e. not all have negative attitude.

As regards VN, 66.3% have a positive attitude, with only 54.1% feeling that it is very important to immunize their children against measles. Another 13.3% do not know what their attitude is. As with polio, they are the most liable to change their attitude to the positive side. This may stress the importance of television as a factor for changing attitude in the desired direction. The television's positive role can also be explained by the significantly more positive attitude among those who watch television compared with the VN group. Also, the insignificant difference between the CV and VV groups can be referred to the insignificant role of other intervening factors.

HBV: In the CV group, 88.1% have a positive attitude regarding the importance of vaccinating their children against IH, with 85.5% feeling that it is a very important vaccine (strongly positive attitude). We can assume the reasons behind this high degree of positive attitude as follows:

- a) Exposure to the media immunization campaign;
- b) Face-to-face communication with credible health professionals;
- c) Absence or at least the lack of experience with any side-effects of HBV;
- d) Positive experience with the outcome of HBV;
- e) Awareness of the seriousness of the disease.

In the VV group, 82.9% have a positive attitude regarding the importance of HBV.

71.5% of mothers feel that it is very important to vaccinate their children with HBV. The reasons behind these results can be explained by the exposure to the television campaigns with their positive role on attitude, the positive and extended attitude for vaccination in general, as well as the positive experience with the vaccine. The insignificant difference between the CV and VV groups may also exclude the role of intervening factors, leaving mother's exposure to television immunization campaigns the main factor responsible for mothers' positive attitude. This can be confirmed by analysis of the attitude level between the VV and VN groups.

In the VN group, 48.9% have a positive attitude towards the importance of vaccinating their children against IH with 36.7% feeling that it is very important to vaccinate their children against IH with HBV. Another 37.8% (a relatively high percentage) have a neutral attitude. The relatively low percentage of positive attitude and the higher percentage of "do not knows" can be explained by the lack of both exposure to television campaigns, and the supportive health unit, as well as the more "do not knows" for other diseases, which creates a general neutral attitude for all vaccinations.

TB: In the CV group, 52.6% have a positive attitude. This is a relatively low percentage compared to other diseases. This compares to 39.5% of "do not knows". These results can be explained by the positive role of media campaigns, and the lack of encouragement from health professionals or even their expression of a negative attitude towards BCG. On the other hand, 78.5% of the VV group have a positive attitude. It is the only attitude which is more positive than in CV group which may significantly exclude the role of intervening factors such as educational level or social class. Still higher than for the CV, 60.8% feel that it is very important for them to vaccinate their children with BCG. Only 12.7% have a neutral attitude. These results can be explained by the positive role of television health messages, the active health unit where the health staff recommend BCG routinely, the general positive attitude towards immunization, as well as the minor side-effects of the vaccines e.g. local abscesses may be a factor for the negative attitudes.

In the VN group, 42.8% have a positive attitude towards immunization with BCG.

Only 35.7% have a strongly positive attitude. This relatively low percentage is accompanied by a similar percentage of neutral attitude (39.8%). These results can be explained by the lack of both exposure to television immunization messages and experience with the disease as it is less common than in slum or urban areas. Also, a negative past experience with BCG may enhance the already negative attitude towards immunization. The positive role of television campaigns can be explored by comparing the attitude level in both the VV and VN groups.

Tetanus: All the CV group have a very strong positive attitude. In the VV group, 86.7% have a positive attitude regarding the importance of vaccinating their children with TT, of which 72.8% feel that it is very important to vaccinate their children against tetanus. On the other hand, 54.1% of the VN group hold a positive attitude, with 42.9% feeling that it is very important for them to immunize their children. The percentage having a neutral attitude (27.6%) is higher than those in VV (5.1%). These results can be explained by:

- a) The exposure to a long-standing television campaign for the CV and VV groups, an advantage that VN group misses;
- b) The routine contact and support of health professionals, an advantage that mothers in CV have;
- c) The secret burials of a neonate in rural areas which might lead to a lack of experience with the neonatal tetanus for both the VV and VN groups;
- d) It is not uncommon for a mother to believe that tetanus is a really serious disease but for adults only, as babies are too young to get it. Consequently, they believe there is no need for vaccination. However, television can give the mother this missed experience as well as correct the misbelief;
- e) The occurrence of a pro-vaccine attitude directed to all vaccines as a block.

Diphtheria: In the CV group, 76.3% show a positive attitude towards vaccination against diphtheria, with 69.7% feeling that it is very important to vaccinate. There is not a single case of negative attitude. At the same time, 77.3% of the VV group have a positive attitude, with 62.7% having a strongly positive attitude. They feel that it is very important for them to vaccinate their children against diphtheria. Only 6.4%

have an anti-vaccine attitude. For mothers in VN, 43.9% have a positive attitude with 37.8% feeling that it is very important (strongly positive attitude) to immunize their children against diphtheria. A much higher percentage (40.8%) do not know exactly what their attitude is. These results can be explained by:

- a) Television campaigns which may have a great role in changing attitude in a more positive direction. They may at least have some effect in changing negative attitude to neutral. This positive change in mothers' attitude is evident by noting the significant difference in mothers' attitude level in both the VV and the VN groups;
- b) The insignificant role of the intervening factors such as educational level or occupation, as evident by the insignificant difference between the CV and VV groups.
- c) Mothers who do not know are most commonly lacking knowledge of that particular disease or they have incorrect knowledge;
- d) Again, mothers react to immunization as one block, not showing separate reactions for separate diseases. This may be true to some extent, except when mothers have confidence in their knowledge of each disease and its related vaccine. This implies the importance of the consistency between a mother's attitude and her knowledge regarding a disease.

Pertussis: A total of 75.0% of the CV group have a positive attitude with 57.9% having a strongly positive attitude, while another 25.0% have a neutral attitude. As with tetanus and diphtheria, there is not a single mother who has a negative attitude. At the same time, 72.1% of the VV group have a positive attitude regarding immunization against pertussis, with 52.5% showing a strongly positive attitude, while another 12.1% have a negative attitude. Only 29.6% of the VN group have a strongly positive attitude. There is a relatively large percentage of "do not knows" (36.7%). These results can also be explained by:

- a) The effective television immunization campaign causes the significant difference in positive attitude between the VV and the VN groups, but the insignificant difference between the CV and VV groups excludes the intervening factors' effects;
- b) Confusion between pertussis and other types of cough;
- c) The high level of negative and neutral attitudes, particularly among the VN group; and lack of knowledge about the vaccine, which is more prominent in the VN group.

Table (8:3): Frequency table showing mothers' affective attitude towards the importance of each vaccine

| ATTITUDE | Polio Vaccine | | BCG | | Measles Vaccine | | Diphtheria Vaccine | | Pertussis Vaccine | | Tetanus Vaccine | | HBV | | Green Flower vaccine | | | |
|----------|---------------|-------|-------|-------|-----------------|-------|--------------------|-------|-------------------|-------|-----------------|-------|-------|-------|----------------------|-------|------|-------|
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | | |
| C V | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.6 | |
| | 2 | 0 | 0.0 | 6 | 7.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| | 3 | 0 | 0.0 | 30 | 39.5 | 4 | 5.3 | 18 | 23.7 | 19 | 25.0 | 0 | 0.0 | 9 | 11.8 | 74 | 97.4 | |
| | 4 | 5 | 6.6 | 9 | 11.8 | 8 | 10.5 | 5 | 6.6 | 13 | 17.1 | 0 | 0.0 | 2 | 2.6 | 0 | 0.0 | |
| | 5 | 71 | 93.4 | 31 | 40.8 | 64 | 84.2 | 53 | 69.7 | 44 | 57.9 | 76 | 100.0 | 65 | 85.5 | 0 | 0.0 | |
| Total | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |
| V V | 1 | 5 | 3.2 | 6 | 3.8 | 5 | 3.2 | 5 | 3.2 | 5 | 3.2 | 5 | 3.2 | 5 | 3.2 | 5 | 3.2 | |
| | 2 | 3 | 1.9 | 9 | 5.7 | 4 | 2.5 | 5 | 3.2 | 14 | 8.9 | 8 | 5.1 | 4 | 2.5 | 4 | 2.5 | |
| | 3 | 3 | 1.9 | 20 | 12.7 | 5 | 3.2 | 26 | 16.5 | 25 | 15.8 | 8 | 5.1 | 18 | 11.4 | 70 | 44.3 | |
| | 4 | 3 | 1.9 | 27 | 17.1 | 24 | 15.2 | 23 | 14.6 | 31 | 19.6 | 22 | 13.9 | 18 | 11.4 | 8 | 5.1 | |
| | 5 | 144 | 91.1 | 96 | 60.8 | 120 | 75.9 | 99 | 62.7 | 83 | 52.5 | 115 | 72.8 | 113 | 71.5 | 71 | 44.9 | |
| Total | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |
| V N | 1 | 7 | 7.1 | 7 | 7.1 | 7 | 7.1 | 7 | 7.1 | 10 | 10.2 | 10 | 10.2 | 7 | 7.1 | 11 | 11.2 | |
| | 2 | 7 | 7.1 | 10 | 10.2 | 13 | 13.3 | 8 | 8.2 | 14 | 14.3 | 8 | 8.2 | 6 | 6.1 | 8 | 8.2 | |
| | 3 | 14 | 14.3 | 39 | 39.8 | 13 | 13.3 | 40 | 40.8 | 36 | 36.7 | 27 | 27.6 | 37 | 37.8 | 45 | 45.9 | |
| | 4 | 12 | 12.2 | 7 | 7.1 | 12 | 12.2 | 6 | 6.1 | 9 | 9.2 | 11 | 11.2 | 12 | 12.2 | 7 | 7.1 | |
| | 5 | 58 | 59.2 | 35 | 35.7 | 53 | 54.1 | 37 | 37.8 | 29 | 29.6 | 42 | 42.9 | 36 | 36.7 | 27 | 27.6 | |
| Total | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

Attitude 1 = Strongly negative Attitude 2 = Fairly negative Attitude 3 = Neutral Attitude 4 = Fairly positive Attitude 5 = Strongly positive

Table (8:4): Chi-square critical value and level of significance for the difference in mothers' affective attitude level towards the importance of each vaccination between each two groups

| Disease | Groups | Chi-square | | | |
|---|----------------|------------|----------|--------------|---------|
| | | Value | DF | Significance | |
| The negative + the neutral affective attitude compared with the positive affective attitude | Polio | VV/VN | 21.87179 | 1 | 0.00000 |
| | | VV/CV | 5.55214 | 1 | 0.01846 |
| | | CV/VN | 25.87867 | 1 | 0.00000 |
| | Tuberculosis | VV/VN | 23.32284 | 1 | 0.00000 |
| | | VV/CV | 15.43871 | 1 | 0.00009 |
| | | CV/VN | 1.64123 | 1 | 0.20016 |
| | Measles | VV/VN | 24.84434 | 1 | 0.00000 |
| | | VV/CV | 0.93538 | 1 | 0.33347 |
| | | CV/VN | 20.63567 | 1 | 0.00001 |
| | Diphtheria | VV/VN | 29.34050 | 1 | 0.00000 |
| | | VV/CV | 0.02338 | 1 | 0.8746 |
| | | CV/VN | 18.49521 | 1 | 0.00002 |
| | Whooping cough | VV/VN | 27.93347 | 1 | 0.00000 |
| | | VV/CV | 0.21157 | 1 | 0.64554 |
| | | CV/VN | 22.65911 | 1 | 0.00000 |
| | Tetanus | VV/VN | 33.65007 | 1 | 0.00000 |
| | | VV/CV | 11.09717 | 1 | 0.00086 |
| | | CV/VN | 47.07167 | 1 | 0.00000 |
| Infective hepatitis | VV/VN | 33.11259 | 1 | 0.00000 | |
| | VV/CV | 1.08507 | 1 | 0.29757 | |
| | CV/VN | 29.31773 | 1 | 0.00000 | |

Green flower: This is, again, a fake disease to examine the validity of the MIS. Mothers in CV built their attitude on a scientific basis and relevant knowledge. Only 2.6% feel that it is not important at all. However, 97.4% express a neutral attitude as regards the importance of vaccinating their children. This situation differs for mothers

in both the VV and the VN groups, where they categorise attitude towards immunization in general in one block. They are generally pro-vaccination.

In the VV group, 44.3% show a neutral attitude towards this completely un-known disease, with 50.0% expressing their positive attitude towards the importance of vaccination against the green flower disease. "If I recognise that there is a vaccine for my child in the health unit, I will rush immediately to the health unit to vaccinate my child" one mother said. As in the VV group, 45.9% of the VN group show a neutral attitude regarding vaccinating their children against the green flower disease, and another 34.7% show a pro-vaccination attitude. The negative attitude is mainly for those mothers who do not accept vaccination from the start. It is one category of attitude directed towards the whole set of vaccines.

3:8:2:3 Vaccination's side-effects (tables 8:5&8:6):

(How dangerous are the disadvantages of immunization? Question "12B").

This is an eventuality question for those mothers who reported some complications for immunization. Vaccination has some side-effects. Yet it provides valuable protection from many diseases. Each mother has to weigh these two factors to reach a conclusion and to form her evaluative beliefs about vaccination. Almost all mothers in the CV group (98.7%) have positive beliefs in favour of vaccination, and 72.4% believe that it is completely safe. In the VV group, 88.6% have positive beliefs about the safety of vaccination, with 72.1% believing that it is completely safe. On the other hand, 64.3% of the VN group have positive beliefs regarding vaccination safety, with 61.2% believing that it is completely safe. These results can be explained by:

a) Mothers vaccinate their children only if they have positive beliefs that the vaccine is safe. Some mothers believe that vaccines have some complications but the final outcome (i.e. protection of the child) will out-weigh the side-effects. Thus, they show a positive evaluation and are expected to immunize their children. Mothers who show negative evaluative beliefs of immunization, are expected to show negative behaviour.

Table (8:5): Frequency table showing mothers' affective attitude (evaluative belief) towards the vaccination's side-effects

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 7 | 4.4 | 22 | 22.4 |
| Fairly negative | 0 | 0.0 | 1 | 0.6 | 3 | 3.1 |
| Undecided | 1 | 1.3 | 10 | 6.3 | 10 | 10.2 |
| Fairly positive | 20 | 26.3 | 26 | 16.5 | 3 | 3.1 |
| Strongly positive | 36 | 47.4 | 64 | 40.5 | 15 | 15.3 |
| Not applicable* | 19 | 25.0 | 50 | 31.6 | 45 | 45.9 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

* Mothers who reported no disadvantage for immunization.

b) The VN group have the lowest percentage of positive evaluative beliefs as there is more widespread fear of vaccination complications.

c) The significant difference between the VV and VN groups can be explained by the difference in exposure to television immunization messages.

Table (8:6): Chi-square critical value and level of significance for the difference in mothers' affective attitude level towards the vaccination's side-effects between each two groups

| Attitude | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative+neutral affective attitudes compared with positive attitude | VV/VN | 36.93963 | 1 | 0.00000 |
| | VV/CV | 6.11557 | 1 | 0.01340 |
| | CV/VN | 53.25526 | 1 | 0.00000 |

3:8:3 MOTHERS' COGNITIVE ATTITUDE:

Mothers' cognitive attitude is measured in the three groups towards the following:

3:8:3:1 Vaccine's function (tables 8:7&8:8):

(State your opinion to "I am vaccinating my child to be sure that he/she will never suffer from the serious diseases", question "24". How can we protect our children from the dangerous diseases? Question "14").

Most of the three groups understand that immunization offers protection to children against the killer diseases. This understanding derived from previous experience with the vaccine or with the disease itself, as well as the information they gained from different sources. Their positive attitude can be based on incorrect belief with false expectations e.g. a mother may believe that immunization protects her child against gastro-enteritis or pneumonia. Obviously, this is derived mainly from the vague understanding of what is known about the immunization e.g. "health injections or immunization protects your child's health". On the other hand, a mother may have a negative attitude towards the protective function of the vaccine because she believes that vaccines are curative rather than preventive. At the same time, mothers may have doubts about what is given free of charge in the health unit. This belief is enforced by doctors who usually ask the mother to buy the medicine from outside the health unit or from them directly, but never use free medicine. These false beliefs are prevalent in rural areas rather than in Cairo, where they believe in modern medicine and in the scientific etiology of diseases rather than supernatural or natural causes. All the CV group have a strongly positive belief that immunization is for protection of their children from the target diseases, yet some other diseases are not preventable.

Table (8:7): Frequency table showing mothers' cognitive attitude towards immunization's function

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 1 | 0.6 | 12 | 12.2 |
| Fairly negative | 0 | 0.0 | 5 | 3.2 | 9 | 9.2 |
| Undecided | 0 | 0.0 | 10 | 6.3 | 9 | 9.2 |
| Fairly positive | 0 | 0.0 | 25 | 15.8 | 6 | 6.1 |
| Strongly positive | 76 | 100.0 | 117 | 74.1 | 62 | 63.3 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Also, 89.9% of the VV group have positive belief in the protective function of the vaccines. This is significant compared to the relatively low percentage of the VN group (69.4%) who have a positive belief regarding vaccine function. This difference in attitude can be related to exposure to the television campaigns that supply mothers with the correct information which shaped their beliefs and attitudes. Television immunization messages can also correct information which has been gained by direct experience. This is the opposite of the VN group, who developed their attitude mainly on the basis of their direct or indirect experience, that may be incorrect. The influence of the television campaigns on attitude or belief change can be demonstrated further by comparing the level of negative attitude of the VV group (3.8%) and that of the VN group (21.4%).

Mothers who have a negative attitude believe that diseases like polio are caused by God as a test to their faith. This means that they have to accept it as fate. Mothers may believe in angry or unhappy ancestors, or witchcraft. These are all supernatural forces about which modern medicine cannot do much but education can. A baby may be so good (e.g. beautiful, a strong, good eater, and so forth) that a witch may cast a disease on him/her (just by looking with her eyes). The baby may catch any disease, in accordance with his prominent good character and what the witch might have seen. For example, if the baby is strong and muscular or can walk easily, s/he may develop polio. If the baby is beautiful or intelligent, he may suffer recurrent falls and repeated fractures, injuries, mental retardation or even death. If the baby is well-built, s/he may develop severe diarrhoea. The mother in that case has to draw a figure on a paper representing the suspected witch. She then has to punch seven small holes, using a pin, in each of the figure's eyes. She usually mentions the name of the suspected witch with each punch. Then the figure must be burned with anything that belongs to the suspected witch (a small piece of her clothing, her hair, and so on) and the ashes will be used as an eyeliner for the baby's eye. There are six mothers (3.8%) among the VV group and 19 mothers (19.4%) among the VN group who still believe that diseases are caused by such supernatural causes.

Table (8:8): Frequency table showing mothers' beliefs in means of diseases prevention if not immunization

| BELIEF | Cairo viewers | | | | Village viewers | | | | Village non viewers | | | |
|--------------------|---------------|-------|------------|-------|-----------------|-------|------------|-------|---------------------|-------|------------|-------|
| | The first | | The second | | The first | | The second | | The first | | The second | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Supernatural means | 0 | 0.0 | 0 | 0.0 | 6 | 3.8 | 0 | 0.0 | 19 | 19.4 | 0 | 0.0 |
| Natural means | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 2.5 | 0 | 0.0 | 13 | 13.3 |
| Do not know | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 1 | 0.6 | 4 | 4.1 | 0 | 0.0 |
| No answer | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 0 | 0.0 | 10 | 10.2 |
| Not applicable* | 76 | 100.0 | 76 | 100.0 | 151 | 95.6 | 151 | 95.6 | 75 | 76.5 | 75 | 76.5 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 |

*A mother who already immunizes her child

Mothers may attribute illness to an imbalance of hotness and coldness, or dryness and moisture. For example, exposing the baby's abdomen, even for changing the diaper, may be a cause of coldness for the abdomen. Consequently, severe diarrhoea will occur. In that case, the "pillar of the abdomen" (in the mother's expression) will be disconnected. An old woman may be of more help than any health professional in reconnecting this disconnected "pillar" through circular massaging of the baby's abdomen with hot olive oil to get the coldness out. This is an example of natural forces that cannot be avoided by modern medicine (in the mother's belief). In this respect, a mother may believe that she knows much better than those helpless health professionals. This belief in natural causes is not as salient among mothers in rural areas as the supernatural causes. Only four mothers (2.5%) in the VV group as well as 13.3% in the VN group believe in natural causes. For both these two factors, the concept of prevention with modern medicine may not agree with mothers' beliefs in the causes of diseases and death. People regard infant death as a natural event. They may not give a name to the baby or record him/her until the infant passes the first forty days. This does not mean that parents do not value their baby's health, but rather they accommodate themselves to what has been inevitable.

3:8:3:2 Effectiveness of each vaccine (tables 8:9&8:10):

(In your opinion, how likely is an immunized child to catch any of the following diseases. Question "10").

Polio: In the CV group, 90.8% believe that polio vaccine can effectively prevent the occurrence of polio with 56.6% thinking that it is very rare for a child to catch polio after proper vaccination. Another 9.2% do not know exactly whether the child can catch the disease or not. The occurrence of polio vaccine in three doses creates doubt about its effectiveness. "If it is so effective, why should it be administered many times?" is not an uncommon question. Similarly, 89.9% of the VV group have a positive attitude regarding polio vaccine's effectiveness. There is a higher percentage than in CV (65.2%) of who reported very strong positive attitude towards polio vaccine's effectiveness. This may be because they lack more advanced knowledge of

the CV or have a blind faith in medicine. For the VN group, attitude towards polio vaccine's competence, can be seen as bipolar, either strongly positive (48.0%) or "do not know" (30.6%). Experience tells mothers who have positive attitude that after vaccination against polio, there is no longer any risk of infection with that dangerous disease. Only those who did not receive proper vaccination will be threatened by infection. On the other hand, mothers who have a neutral attitude may lack essential knowledge regarding the vaccine's function or its effectiveness. To be in a consistency state, vaccination should be either very effective or at least without side-effects. The effective role of television immunization campaigns in building a positive attitude can be seen not only by the significant difference in attitude level between the VV and VN groups but also from the large number of "do not know" in the VN group compared to the VV group. This may represent a relatively easy task for television to move the neutral attitude a step further towards the positive side of the attitude spectrum. At the same time, the insignificant difference between the CV and VV groups points to the insignificant role of the intervening factors, such as education or occupation, in mothers' attitude to polio vaccine's effectiveness.

Measles: In the CV group, 93.4% have a positive attitude to the effectiveness of measles vaccine, with 77.6% believing that it is unlikely that a child will catch measles after measles vaccination. The reason for this differs from polio. Commonly, health professionals concentrate on the fact that after vaccination, if the child is exposed to a measles case, s/he is fairly unlikely to catch the disease. Similarly, the majority of the VV group (81.0%) have a positive attitude, with 59.5% believing that it is a fairly effective vaccination to prevent the disease. The reason here differs from CV as it is not common to have the baby vaccinated by a health professional. Their experience tells them that any child can be re-infected, but very mildly. On the other hand, only 38.7% of the VN group have a positive attitude regarding the effectiveness of measles vaccine. Another 29.6% have a negative attitude. Some mothers believe children should have measles once in their life. Some even believe it may be bad to prevent measles as it will remain dormant inside the abdomen. The positive role of television messages in changing attitude the effectiveness of the vaccine can be shown by comparing the VV and VN groups.

Table (8:9): Frequency table showing mothers' cognitive attitude towards each vaccine's effectiveness

| ATTITUDE | Polio Vaccine | | BCG | | Measles Vaccine | | Diphtheria Vaccine | | Pertussis Vaccine | | Tetanus Vaccine | | HBV | | Green Flower vaccine | | |
|----------|---------------|-------|-------|-------|-----------------|-------|--------------------|-------|-------------------|-------|-----------------|-------|-------|-------|----------------------|-------|-------|
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | |
| C V | 1 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| | 2 | 0 | 0 | 9.2 | 3 | 3.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| | 3 | 7 | 9.2 | 32 | 42.1 | 2 | 2.6 | 16 | 21.1 | 17 | 22.4 | 11 | 14.5 | 14 | 18.4 | 76 | 100.0 |
| | 4 | 26 | 34.2 | 32 | 42.1 | 59 | 77.6 | 26 | 34.2 | 26 | 34.2 | 9 | 11.8 | 18 | 23.7 | 0 | 0.0 |
| | 5 | 43 | 56.6 | 5 | 6.6 | 12 | 15.8 | 34 | 44.7 | 33 | 43.4 | 56 | 73.7 | 44 | 57.9 | 0 | 0.0 |
| Total | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | |
| V V | 1 | 3 | 1.9 | 1.9 | 6 | 3.8 | 3 | 1.9 | 5 | 3.2 | 3 | 1.9 | 3 | 1.9 | 3 | 1.9 | |
| | 2 | 0 | 0.0 | 15 | 9.5 | 2 | 1.3 | 1 | 0.6 | 40 | 25.3 | 1 | 0.6 | 1 | 0.6 | 0 | 0.0 |
| | 3 | 13 | 8.2 | 42 | 26.6 | 22 | 13.9 | 47 | 29.7 | 39 | 24.7 | 30 | 19.0 | 34 | 21.5 | 141 | 89.2 |
| | 4 | 39 | 24.7 | 41 | 25.9 | 94 | 59.5 | 73 | 46.2 | 51 | 32.3 | 30 | 19.0 | 26 | 16.5 | 6 | 3.8 |
| | 5 | 103 | 65.2 | 57 | 36.1 | 34 | 21.5 | 34 | 21.5 | 23 | 14.6 | 94 | 59.5 | 94 | 59.5 | 8 | 5.1 |
| Total | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | |
| V N | 1 | 9 | 9.2 | 11.2 | 9 | 9.2 | 9 | 9.2 | 12 | 12.2 | 10 | 10.2 | 11 | 11.2 | 9 | 9.2 | |
| | 2 | 6 | 6.1 | 7 | 7.1 | 20 | 20.4 | 6 | 6.1 | 7 | 7.1 | 4 | 4.1 | 4 | 4.1 | 4 | 4.1 |
| | 3 | 30 | 30.6 | 55 | 56.1 | 31 | 31.6 | 58 | 59.2 | 62 | 63.3 | 50 | 51.0 | 66 | 67.3 | 73 | 74.5 |
| | 4 | 6 | 6.1 | 6 | 6.1 | 16 | 16.3 | 6 | 6.1 | 4 | 4.1 | 2 | 2.0 | 5 | 5.1 | 2 | 2.0 |
| | 5 | 47 | 48.0 | 19 | 19.4 | 22 | 22.4 | 19 | 19.4 | 13 | 13.3 | 32 | 32.7 | 12 | 12.2 | 10 | 10.2 |
| Total | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | |

Attitude 1 = Strongly negative Attitude 2 = Fairly negative Attitude 3 = Neutral Attitude 4 = Fairly positive Attitude 5 = Strongly positive

HBV: In the CV group, 81.6% have a positive attitude regarding HBV, of which 57.9% believe it is very unlikely to catch the disease after proper vaccination with HBV. There is not a single mother who has a negative attitude. On the other hand, 76.0% of the VV group have positive attitude towards the effectiveness of HBV, with 59.5% believing it is very rare to catch hepatitis after vaccination with HBV. It is possible that most mothers' attitude derived from their experience with vaccine effectiveness. If they have a positive attitude towards a certain vaccine due to positive experience with it, this will ultimately affect their attitude towards all other types of vaccine. Only if they start to acquire negative knowledge or have any other unpleasant experience with any vaccine will they be liable to change their attitude.

As expected, in view of the findings with other diseases, the majority of the VN group (67.3%) do not know how they feel regarding HBV with 15.3% having a negative attitude regarding HBV effectiveness. This is true especially when HBV is not available at the health unit. Again, television campaigns may play a positive role in changing cognitive attitude towards the positive side regarding HBV, as evident by comparing the attitude pattern among the three groups, especially in view of the neutral attitude. As with polio, intervening factors have an insignificant role in mothers' attitude change, as evident by the insignificant difference in attitude level between the VV and CV groups.

Diphtheria: In the CV group, 78.9% have a positive attitude regarding diphtheria vaccine effectiveness, with 44.7% showing a very strong attitude. Again, there is a relatively high percentage of "do not knows" (21.1%). An insignificant less positive percentage among the VV compared to the CV group can be seen (67.7%), with an insignificant higher percentage of "do not knows" (29.7%). This result supports the previous finding regarding the insignificant role of the intervening factors in mothers' attitude change. It also shows the validity of mothers' answers and the research MIS. This also indicates a of television emphasis on the disease by itself rather than on the triple vaccine. The positive attitude in this case may be related to the process of cross-over from other attitudes or the extended attitude. The majority of mothers in the VN group (59.2%) are not sure of their decision regarding vaccine effectiveness,

and only 25.5% have a positive attitude, which is significantly lower than the VV group, demonstrating the positive role of television immunization campaigns on mothers' attitude. However, we should not expect a rapid or dramatic change as there is a high percentage who still have a neutral attitude. This may call for further media efforts in designing messages regarding diphtheria.

TB: As discussed before, most health professionals are reluctant to recommend BCG at their private clinic. Although 42.1% of the CV group have a fairly positive attitude towards the effectiveness of the BCG, the same number (42.1%) admit that they do not know if it is effective or not. In view of this situation it is possible to assume that interpersonal communication, especially with highly credible sources, can be effective in enhancing the determination of the attitude's direction as Sege and Dietz (1994) findings suggest regarding parents' attitude to children's welfare. The situation may differ in the VV group, where 36.1% have a strongly positive attitude towards BCG. This might again be due to the cross-over attitude from other vaccines, on the one hand, and their experience with the vaccine, on the other hand. Health professionals, and health workers at the rural health unit, are more enthusiastic in providing what they should provide to the baby according to the recommended schedule. Consequently, mothers will appreciate this notion. However, disagreement is more obvious where 26.6% admit that they do not know how effective BCG is. This is different to that of the CV group, where experience of some complications e.g. local abscess or local tenderness, may be the factor that pulls the positively charged attitude towards the "do not know" side. With low television coverage of BCG, these results support the effective role of health workers in enhancing the positive effects of television. Again, it is not common in rural areas to suffer from TB, even without a BCG vaccination that can be responsible for the "do not know" results.

More than half of the VN group (56.1%) do not know how effective BCG is, of which only 19.4% are strong believers that TB can be prevented with BCG. These results reflect the role of television messages in creating a general attitude among viewers, which is able to be extended to other diseases. The attitude is directed to vaccination in general as one block, not to individual diseases. This positive attitude can be

enhanced by the positive role of television campaigns or health workers at the units.

Tetanus: In the CV group, 85.5% have a positive attitude towards the effectiveness of tetanus vaccination for protection against the disease, with 73.7% believing it is very unlikely a baby would catch tetanus after proper vaccination. Also, the majority of the VV group (78.5%) show they have a positive attitude towards the effectiveness of tetanus vaccine with 59.5% believing that it is very rare to catch tetanus after proper vaccination. On the other hand, only 34.7% of mothers in VN have a positive attitude regarding the effectiveness of tetanus vaccination. Some 32.7% believe it is very rare to catch tetanus after proper vaccination. The majority of this group (51.0%) admit that they do not know whether tetanus vaccination is effective or not.

It is clear that the television campaign for tetanus vaccination has had a great impact on mothers' attitude to tetanus vaccination. Television can even be the most effective among other variables (e.g. health professionals). This is clear from the insignificant difference in mothers' positive attitude in the CV and VV groups. Furthermore, the high percentage of "do not knows" among mothers in the VN group seems to be related to the difficulty in understanding how a mother receives a vaccine and how her baby will be protected by it. They also wonder why, if tetanus vaccine is recommended after a deep wound, how a young baby can get wounded if his mother is careful enough and if the baby cannot get involved in heavy work. Their frame of reference is limited to only one form of the disease which affects the adult rather than the lesser known neonatal form.

Pertussis: It has the same attitude trend as diphtheria in the three groups. In the CV group, 77.6% have a positive attitude regarding the effectiveness of pertussis vaccine with 43.4% believing it is very rare to catch pertussis after proper vaccination. Again, as with tetanus and diphtheria, there is not a single case of negative attitude. Although 46.9% of the VV group have a positive attitude regarding the effectiveness of pertussis vaccine, they are significantly fewer than those of CV. As with diphtheria, the majority believe that it is fairly rare for a child to have pertussis after proper vaccination. On the other hand, the majority of the VN (63.3%) are not sure

whether it is an effective vaccine or not (as with diphtheria) with only 17.4% having a positive attitude. As expected, mothers still believe that pertussis is a kind of cough and they are not sure that a vaccine can stop the child from coughing. Television campaigns can play an important role in positively changing attitude towards health, as evident by comparing the attitude pattern in the VV and VN groups.

Table (8:10): Chi-square critical value and level of significance for the difference in mothers' cognitive attitude level towards the effectiveness of each vaccine between each two groups

| Vaccine | | Groups | Chi-square | | |
|--|---------------------|--------|------------|----|--------------|
| | | | Value | DF | Significance |
| The negative + neutral cognitive attitudes compared with the positive cognitive attitude | Polio | VV/VN | 42.68993 | 1 | 0.0000 |
| | | VV/CV | 0.04869 | 1 | 0.82554 |
| | | CV/VN | 27.52602 | 1 | 0.0000 |
| | Tuberculosis | VV/VN | 32.30812 | 1 | 0.0000 |
| | | VV/CV | 3.74198 | 1 | 0.05306 |
| | | CV/VN | 10.02262 | 1 | 0.00155 |
| | Measles | VV/VN | 47.33275 | 1 | 0.0000 |
| | | VV/CV | 6.21150 | 1 | 0.01269 |
| | | CV/VN | 45.62086 | 1 | 0.0000 |
| | Diphtheria | VV/VN | 43.15044 | 1 | 0.0000 |
| | | VV/CV | 3.16471 | 1 | 0.07525 |
| | | CV/VN | 48.91779 | 1 | 0.0000 |
| | Whooping cough | VV/VN | 22.95637 | 1 | 0.0000 |
| | | VV/CV | 19.83837 | 1 | 0.0001 |
| | | CV/VN | 63.23574 | 1 | 0.0000 |
| | Tetanus | VV/VN | 49.08322 | 1 | 0.0000 |
| | | VV/CV | 1.63988 | 1 | 0.20034 |
| | | CV/VN | 45.09977 | 1 | 0.0000 |
| | Infective hepatitis | VV/VN | 83.5007 | 1 | 0.0000 |
| | | VV/CV | 0.94094 | 1 | 0.33204 |
| | | CV/VN | 71.24284 | 1 | 0.0000 |

Green flower: All the CV group do not know this disease and they do not know the effectiveness of its vaccine. This shows that mothers give highly valid answers and that their attitude needs a strong cognitive background. At the same time, 89.2% of mothers in the VV group do not know how effective the vaccine is. The 8.9% of mothers who have a positive attitude have the same attitude to all other diseases regardless of the amount or type of knowledge they have, or even the type of disease. The majority of the VN (74.5%) do not know how effective the vaccine for this disease is, with 13.3% having a negative attitude. This is another example of the extended or cross-over attitude. The same type of attitude, whether positive or negative, is expected to apply to all other diseases, regardless of any other factors. This means that mothers usually have a certain attitude towards vaccination in general but not towards any particular vaccine, although it should be derived from a certain vaccine and spread to all other vaccines. Those mothers differ from well-educated mothers, as in CV, where attitude tends to depend on their knowledge.

3:8:3:3 Vaccination's side-effects (tables 8:11; 8:12&8:13):

(Could you tell me the main disadvantage of immunization? Question "12A").

Mothers fear numerous side-effects related to vaccination, such as:

- 1) Common side-effects, such as soreness, pain, and redness at the site of the vaccination injection. Also, fever, malaise, and rash may occur after vaccination, especially with a measles vaccine;
- 2) Side-effects due to a poor administration technique, such as local abscess at the site of injection. This is mainly after BCG injection. It requires long-term treatment (around nine months) with anti-tuberculous drugs. Other abscesses arising from contaminated needles are also not uncommon and need surgical drainage. Furthermore, mothers may believe that paralysis can be caused by careless hitting of a nerve, or the vaccine itself, especially if the child's body is amenable to paralysis;
- 3) Side-effects arising from the nature of the vaccine. A mother may believe that the body should build its immunity gradually and naturally. By giving the child an artificial immunity, the body will lose its power to develop immunity and will depend

all his/her life on artificial immunity or drugs i.e. "the child will be a routine customer of health professionals". This may suggest the need to design a health message that can explain the physiology of the immune system in general, as well as the function and the mechanism of the vaccine.

Furthermore, a mother may think that vaccines can be inactive and have no function as a result of failure at any stage of their processing, packing, transportation, storage, injection, and so on. Any break in one of the processes will lead to an ineffective vaccine. Mothers are not sure of the intention of the health workers to take all these steps. This may imply that a health message is not just medical information, it is also awareness of the quality of the available health services. This may demand political and social support to improve the quality of the health services as a whole.

Additionally, whenever a child has been immunized against a disease (or is believed to have been immunized against it, especially if more than one dose is required or different vaccines should be administered) and then later contracts it, mothers' confidence in immunization in general will be shaken. It is not uncommon for children to catch measles after measles vaccination. The judgment, if that happens, will be that the vaccine was not effective and therefore all vaccines are ineffective as well. A health message should explain and demonstrate the reality of the vaccine's effectiveness for each disease and the precautions that must be followed to achieve the highest effectiveness of immunization e.g. repetition of the oral polio vaccine after two weeks if the child vomits immediately after the vaccination.

A mother may believe that as long as the child is healthy, there is no need to approach any health services. They may not see any logical reason to expose the baby to fever and other sorts of complications. This form of complication is an indication that the body rejects it. She may even believe that it is a subtle form of contraception. A health message should deal carefully with the local slogans and beliefs.

Mothers may believe that each body is unique and different from other bodies and what works for someone may not work for others. Drugs are the best example of this

rule. If that is so, vaccination should be the same. Yet all children with different ages and health statuses, receive the same dose of the same vaccine. This may also imply the importance of demonstrating the function and the physiology of the vaccine as well as the body's reaction to it. Mothers should also understand the concept of a preventive vaccine. Sometimes they believe that any vaccine, like any other drug, is curative rather than preventive and therefore should be administered only during the acute stage of the disease.

An extremely negative belief regarding vaccination side-effects is that vaccination can cause death. This belief arises in cases, such as when the body is too weak for the vaccination, or an overdose is given. It is common to describe vaccines as "health injections". This means that it is very powerful and it is not suitable when the body is weak or when administered in the wrong dose. Also, they believe death may be possible when the vaccine is out of date; badly processed; wrongly administered; or when the child is ill. More seriously, a mother fears that it is a lethal injection to restrict the number of children in a family (as a way to overcome overpopulation).

By analysing beliefs regarding vaccines' side effects in the three groups we note that 25.0% of the CV group believe that there are no any side-effects, while 31.6% of the VV group believe that immunization is completely safe. On the other hand, 45.9% of mothers in the VN group believe that there is no complication at all. Again, the insignificant difference between the CV and the VV groups points to the insignificant effect of the intervening factors on mothers' attitude. Reporting side-effects confirms mothers' experience with immunization, but the most important is mothers' feeling towards these side-effects as we discussed before.

Table (8:11): Frequency table showing mothers' cognitive attitude towards the vaccination's side-effects

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|----------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Negative | 57 | 75.0 | 108 | 68.4 | 53 | 45.1 |
| Positive | 19 | 25.0 | 50 | 31.6 | 45 | 45.9 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Table (8:12): Chi-square critical value and level of significance for the difference in mothers' cognitive attitude level towards the vaccines' side-effects between each two groups

| Attitude | Groups | Chi-square | | |
|---|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Some complications compared with no complications | VV/VN | 5.27949 | 1 | 0.02158 |
| | VV/CV | 1.08998 | 1 | 0.29648 |
| | CV/VN | 8.05512 | 1 | 0.00454 |

In the CV group, 56.6% feel that vaccinations have common side-effects. The second most common complication reported (15.8%) is the fear of ineffectiveness of the vaccine. Some mothers (11.8%) still believe that it may affect natural immunity to disease and make their children liable to catch other diseases easily. At least the child should receive booster doses regularly to keep his/her body immune. Medical professionals here have a major role to play as a routine instruction is "mild fever will follow in one or two days. Just use any anti-pyretic, such as Novalgin, for example, and do not worry". It is a two-sided message which suits them and keeps the positive affective attitude towards the side-effects.

Common side-effects constitute the main complication for the VN group (22.5%). The second most common complication is the occurrence of local abscess (13.3%), or paralysis (8.2%). Mothers commonly do not have enough relevant knowledge. The vaccine should be completely safe to vaccinate their children to be in a consistency state. Mild fever is not a complication for them. They may even value this fever or local tenderness as a sign of a successful vaccination. This may explain the higher level of positive cognitive attitude in the VN than CV group. A one-sided message can be appreciated in that case. Most of the VV group (57.6%) believe vaccinations have common side-effects. Local abscess is the second most common complication (15.2%). Some mothers believe they may cause paralysis or even death. They represent an intermediate stage between the VN and the CV groups, with the gradual change in mothers' belief regarding immunization complications.

Table (8:13): Frequency table showing mothers' beliefs regarding vaccination side-effects

| SIDE-EFFECTS | Cairo viewers | | | | | | Village viewers | | | | | | Village non viewers | | | | | |
|---------------------|---------------|-------|--|--------|-------|--|-----------------|-------|--|--------|-------|--|---------------------|-------|--|--------|-------|--|
| | First | | | Second | | | First | | | Second | | | First | | | Second | | |
| | Count | % | | Count | % | | Count | % | | Count | % | | Count | % | | Count | % | |
| Common side-effects | 43 | 56.6 | | 0 | 0.0 | | 91 | 57.6 | | 2 | 1.3 | | 22 | 22.5 | | 1 | 1.0 | |
| Local abscesses | 3 | 3.9 | | 2 | 2.6 | | 12 | 7.6 | | 24 | 15.2 | | 6 | 6.1 | | 13 | 13.3 | |
| Paralysis | 0 | 0.0 | | 0 | 0.0 | | 2 | 1.3 | | 6 | 3.8 | | 12 | 12.2 | | 8 | 8.2 | |
| Death | 0 | 0.0 | | 0 | 0.0 | | 3 | 1.9 | | 1 | 0.6 | | 6 | 6.1 | | 5 | 5.1 | |
| Dependency | 9 | 11.8 | | 9 | 11.8 | | 0 | 0.0 | | 2 | 1.3 | | 1 | 1.0 | | 3 | 3.1 | |
| Ineffectiveness | 2 | 2.6 | | 12 | 15.8 | | 0 | 0.0 | | 13 | 8.2 | | 6 | 6.1 | | 1 | 1.0 | |
| No answer | 0 | 0.0 | | 34 | 44.7 | | 0 | 0.0 | | 60 | 38.0 | | 0 | 0.0 | | 22 | 22.4 | |
| Not applicable* | 19 | 25.0 | | 19 | 25.0 | | 50 | 31.6 | | 50 | 31.6 | | 45 | 45.9 | | 45 | 45.9 | |
| Total | 76 | 100.0 | | 76 | 100.0 | | 158 | 100.0 | | 158 | 100.0 | | 98 | 100.0 | | 98 | 100.0 | |

* The mother acknowledges the complete safety of the vaccines.

3:8:4 MOTHERS' CONATIVE ATTITUDES:

This is the third component of mothers' attitude. It is the measurement of what mothers intend to do regarding immunization. It is composed of a behavioural component, i.e. whether she will immunize her child for the next campaign or not, and an affective component, i.e. what opinion she will give when discussing immunization.

3:8:4:1 The behavioural component:

(Which of the statements most closely match your opinion? Question "21").

Table (8:14): Frequency table showing mothers' conative attitude (behavioural component) towards immunization

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 6 | 3.8 | 18 | 18.4 |
| Fairly negative | 0 | 0.0 | 1 | 0.6 | 3 | 3.1 |
| Undecided | 0 | 0.0 | 4 | 2.5 | 12 | 12.2 |
| Fairly positive | 4 | 5.3 | 27 | 17.1 | 19 | 19.4 |
| Strongly positive | 72 | 94.7 | 120 | 75.9 | 46 | 46.9 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Table (8:14) shows the following:

- 1) All mothers in the CV group show their readiness to vaccinate their children once it is indicated.
- 2) In the VV group, 93.0% have a positive intention to vaccinate their children once indicated. This compared with 66.3% of the VN group who have the same intention. This significant difference between the VV and the VN groups, as shown in table 8:15, can be attributed to exposure to the television campaigns.

Table (8:15): Chi-square critical value and level of significance for the difference in mothers' conative attitude level (behavioural component) towards immunization between each two groups

| Attitude | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| The negative + neutral behavioural attitudes compared with the positive behavioural attitude | VV/VN | 30.32001 | 1 | 0.00000 |
| | VV/CV | 5.55214 | 1 | 0.01846 |
| | CV/VN | 31.58142 | 1 | 0.00000 |

3:8:4:2 The affective component (tables 8:16&8:17):

(Would you recommend your friend to immunize her child? Question "25").

This component is related to how mothers are going to talk about immunization with their friends (in favour or against). Table 8:16 shows the following:

1) The CV group show less tendency to talk with others about immunization as 64.5% have a positive attitude and will talk in favour of immunization, yet only 17.1% have a strongly positive attitude, and another 35.5% are undecided as to whether they can talk or not. However, there is not a single mother who has a negative attitude.

2) In the VV group, 85.5% have a positive attitude, with 49.4% having a strongly positive attitude. They will definitely talk positively in favour of immunization. Only 10.1% admit that they do not know if they will talk or not and another 4.4% have a negative attitude. On the other hand, 63.2% of the VN group have a positive attitude, while 41.8% have a strongly positive attitude. However, 22.4% of mothers are undecided whether they will talk or not, either in favour or against immunization.

These results can be explained by:

a- The general characteristics of mothers living in town, where they are relatively independent and move as individuals not as a group. They are not anti-immunization but they believe that health professionals are the people to be asked. They also believe that each case is different so it could be dangerous to give wrong advice or to talk about these sophisticated medical matters.

Table (8:16): Frequency table showing mothers' conative attitude (affective component) towards immunization

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 1 | 0.6 | 9 | 9.2 |
| Fairly negative | 0 | 0.0 | 6 | 3.8 | 5 | 5.1 |
| Undecided | 27 | 35.5 | 16 | 10.1 | 22 | 22.4 |
| Fairly positive | 36 | 47.4 | 57 | 36.1 | 21 | 21.4 |
| Strongly positive | 13 | 17.1 | 78 | 49.4 | 41 | 41.8 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

b- Mothers in the villages live in small communities where they all move as a group or a few groups. They share all the group characteristics, including information. They accept information from others and transmit information to others as well. They depend on their experience more than, or at least to the same extent as, health professionals. "Ask an expert but not a physician," is a common saying among mothers in the villages.

c- Mothers in the villages who are undecided as to whether to talk or not are commonly those who have a negative attitude towards immunization. This means that their negative attitude is mainly personal and not an extended one.

d- Mothers who have a negative attitude are those who believe that vaccines have severe side-effects (e.g. paralysis, death, and so on).

Table (8:17) showing Chi-square critical value and level of significance for the difference in mothers' conative attitude level (affective component) towards immunization between each two groups

| Attitude | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative + neutral conative attitudes compared with positive conative attitude | VV/VN | 16.77410 | 1 | 0.00004 |
| | VV/CV | 13.42978 | 1 | 0.00025 |
| | CV/VN | 0.02706 | 1 | 0.86934 |

3:8:5 SUMMARY OF MOTHERS' ATTITUDE:

For any media intervention, attitude change in the pre-planned direction is an ultimate objective. In this chapter, the impact of television immunization campaigns on mothers' attitude is examined. All the items that were used formed a scale to measure mothers' attitude towards each disease and its vaccine, as well as towards vaccination in general. Let us first summarize mothers' attitude towards each vaccine and relate the results to the degree of media (television) attention.

3:8:5:1 Attitude towards each vaccine (table 8:18):

Polio: It is a disease that attracts much media attention, has a high level of correct knowledge, and the maximum level of positive attitude among the three groups (98.6%, 92.4%, and 70.9% of the CV, VV, and VN groups respectively), which shows positive attitude towards polio vaccination. Polio directly affects the most prominent dimension of health, which is the physical dimension. It leaves the child handicapped, which can easily be identified by mothers and hence the consequences of that disease can easily be learned by watching what happens to others. This process of social learning is more prominent in a small society like a village where everyone is well known to others and an experience with a single case can be accessible to all mothers' perception in a very positive context (e.g. it is a very serious disease). From this finding we may claim that indirect experience with the disease (through exposure to television) may have a role for acquiring and sustaining a positive attitude towards positive health, as demonstrated by the gap existing between the levels of negative attitude among mothers in the VV and the VN groups (3.4% and 16.3% respectively). The negligible difference between the CV and VV groups can exclude the role of the intervening factors, such as the level of education, occupation, social class, and so on.

Measles: It demonstrates another form of experience which leads to the acquiring of a positive attitude. Mothers in villages gain their attitude about measles through both

indirect and direct experience, which act as a powerful determinant of their attitudes. This is evident from the high level (66.8%) of positive attitude among mothers in the VN group. Yet, 20.1% of the same group still have a negative attitude. They believe that measles is not a preventable disease.

Although mothers in the VV group are supposed to share the same experience, only 4.0% of mothers have a negative attitude. This change from the negative to the positive side of the spectrum may be related to exposure to the immunization campaigns which confirm that measles can and should be prevented. This kind of information is dissonant with the expectations held by mothers about measles beforehand. This can also be demonstrated further by the difference on the positive side between mothers in the VV and VN groups, where 90.6% of the VV group show positive attitude towards measles compared to 66.8% of the VN group. These findings are consistent with other research findings, yet in a different context, done by Crocker et al., (1984) and Stroebe et al., (1988).

If experience can explain the high level of positive attitude among mothers in both the VV and VN groups, it cannot explain the very high level of positive attitude among mothers in the CV group where 94.7% show a positive attitude. Their experience is not as prominent as in the village, as evident by the lower level of correct knowledge regarding the symptoms or signs of the disease. Television campaigns can be a source of this highly positive attitude, as evident by the negligible difference between the CV and VV groups, which can be referred to the negligible role of the intervening factors in shaping mothers' attitude towards measles. In fact, including the CV group helped to control these intervening factors, and revealed the positive impact of the television, on both the advantaged and the disadvantaged mothers.

From these findings, we can conclude that experience, whether direct or indirect, is a powerful stimulus for attitude formation or change. Television can have a role in changing attitude or reinforcing it as long as there is room on the attitude spectrum to practise its impact. If experience is lacking, television and other credible sources of information will take the upper hand.

Table (8:18): Frequency table showing mothers' attitude towards each vaccine

| ATTITUDE | Polio | | TB | | Measles | | Diphtheria | | Pertussis | | Tetanus | | Hepatitis | |
|-------------------|-------|-------|-------|-------|---------|-------|------------|-------|-----------|-------|---------|-------|-----------|-------|
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Fairly negative | 0 | 0.0 | 2 | 2.9 | 1 | 0.7 | 0 | 0.0 | 1 | 0.9 | 0 | 0.0 | 0 | 0.0 |
| Undecided | 1 | 1.4 | 13 | 17.3 | 3 | 4.6 | 9 | 12.0 | 1 | 13.4 | 2 | 3.1 | 4 | 5.7 |
| Fairly positive | 13 | 17.1 | 19 | 25.2 | 24 | 31.1 | 12 | 15.4 | 16 | 20.6 | 6 | 8.1 | 12 | 15.4 |
| Strongly positive | 62 | 81.5 | 42 | 54.6 | 48 | 63.6 | 55 | 72.6 | 49 | 65.1 | 68 | 88.8 | 60 | 78.9 |
| Total | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |
| Strongly negative | 4 | 2.3 | 4 | 2.4 | 4 | 2.6 | 4 | 2.3 | 4 | 2.5 | 4 | 2.3 | 4 | 2.3 |
| Fairly negative | 2 | 1.1 | 6 | 3.6 | 2 | 1.4 | 3 | 1.7 | 12 | 7.3 | 2 | 1.7 | 2 | 1.6 |
| Undecided | 7 | 4.2 | 19 | 12.2 | 9 | 5.4 | 23 | 14.6 | 24 | 15.1 | 14 | 8.7 | 16 | 10.1 |
| Fairly positive | 25 | 16.1 | 32 | 20.4 | 50 | 31.9 | 35 | 22.2 | 36 | 23.1 | 25 | 15.7 | 26 | 16.3 |
| Strongly positive | 120 | 76.3 | 97 | 61.4 | 93 | 58.7 | 93 | 59.2 | 82 | 52.0 | 113 | 71.6 | 110 | 69.7 |
| Total | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 |
| Strongly negative | 11 | 11.5 | 12 | 11.9 | 11 | 11.5 | 11 | 11.5 | 13 | 13.1 | 12 | 12.2 | 12 | 11.9 |
| Fairly negative | 5 | 4.8 | 5 | 5.6 | 8 | 8.6 | 6 | 6.1 | 14 | 14.4 | 4 | 4.6 | 5 | 4.9 |
| Undecided | 13 | 12.8 | 29 | 29.6 | 13 | 13.1 | 31 | 31.6 | 28 | 28.6 | 25 | 25.5 | 29 | 30.1 |
| Fairly positive | 9 | 9.7 | 10 | 9.6 | 18 | 18.3 | 9 | 9.1 | 7 | 7.5 | 10 | 9.6 | 11 | 11.6 |
| Strongly positive | 60 | 61.2 | 42 | 43.3 | 48 | 48.5 | 41 | 41.8 | 36 | 36.4 | 47 | 48.1 | 41 | 41.5 |
| Total | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

TB: It is a disease that suffers from a lack of experience in the three sample groups. Health professionals are also less enthusiastic to influence mothers' attitude regarding this disease and its vaccine, leaving only the television campaigns as the most active variable. By controlling the role of the health professionals and experience, mothers in both the VV and the CV groups show almost the same level of positive attitude towards TB and its vaccination, where 81.8% and 79.8% of the VV and CV groups respectively show their positive attitude. These findings again clarify the influence of television on mothers' attitude regardless of the other intervening factors. This effect on mothers' attitude can be demonstrated further by comparing mothers' positive attitude level in both the VV and VN groups (81.8% and 52.9% respectively), which is significantly in favour of the viewer group.

Infective hepatitis: This is also a disease that has a low level of correct knowledge in both the VV and VN groups. In the same way, HBV suffers from a shortage of supply in the local health unit. However, both the CV and the VV groups show almost the same high level of positive attitude (94.3% and 86.0% respectively). Health professionals and educational media can be influential factors that affect mothers' attitude in the CV group. This is not completely true in the VV group, where there is a lack of influence of interpersonal communication with health professionals, together with the absence of the positive role of experience. Mothers in the VV group depend mainly on the immunization campaigns, which are responsible for their high level of positive attitude. This positive effect of television is more evident by comparing attitude level in the VV and the VN groups (where only 53.1% of mothers show a positive attitude). This again demonstrates the role of the television campaigns in changing mothers' attitude towards the positive side, as well as the limited effect of the intervening factors.

A noticeable finding in these data is that mothers show more positive attitude than correct knowledge. It seems that mothers who are pro-vaccination have blind faith in vaccinating their children. They categorise immunization under one category, towards which they have one common attitude. They make connections between experiences with different vaccines which are close together in time, circumstances, or techniques

and build a common attitude. This point of association becomes more evident by noting the positive attitude towards vaccination against the fake "green flower disease" and how mothers evaluate its vaccine positively, despite the fact that they lack knowledge about it. They associate their attitude towards it with the original attitude towards immunization.

DPT: This triple vaccine suffers from misconceptions and sometimes wrong diagnoses of its three related diseases. Diphtheria is commonly misdiagnosed as tonsillitis and vice versa. Pertussis is commonly confused with other kinds of cough and vice versa. Tetanus is also wrongly believed to affect only adult persons, not very young babies. Furthermore, most respondents were unable to name all the diseases against which DPT offered protection and were uncertain about the exact timetable of vaccines included. Yet, both the CV and the VV groups show a considerably high level of positive attitude towards these three diseases and their vaccines; 81.4%, 75.1%, and 87.3% of the VV group show positive attitudes towards immunization against diphtheria, pertussis, and tetanus respectively. This compares with slightly higher levels of positive attitude among mothers in the CV group towards diphtheria, pertussis, and tetanus (88.0%, 85.7%, and 96.9% respectively). The highest level among the two groups is for the tetanus vaccination. This is consistent with the concentrated television campaigns for tetanus as an isolated disease. Again, the negligible difference between the CV and VV groups points to the negligible impact of intervening factors, such as social class, educational level, occupation, and so on, on mothers' attitude towards DPT, leaving the television immunization campaigns as a rival factor for modifying mothers' attitude.

Mothers in the VN group show a lower level of positive attitude, where 50.9%, 43.9%, and 57.7% of mothers show positive attitudes towards diphtheria, pertussis and tetanus, respectively. Although these levels are lower than in both CV and VV, which supports the conclusion of the positive television effect, these findings are also higher than expected concerning the level of correct knowledge for these diseases. This can also be explained in the same way as for hepatitis, in which mothers categorize immunization under one category with one common attitude.

3:8:5:2 Attitude towards immunization (table 8:19):

Table (8:19): Frequency table showing mothers' attitude towards immunization (in percentages)

| ATTITUDE | Cairo viewers | Village viewers | Village non viewers |
|----------|---------------|-----------------|---------------------|
| Negative | 0.6 | 5.0 | 18.8 |
| Neutral | 8.2 | 10.0 | 24.5 |
| Positive | 91.1 | 85.5 | 56.6 |
| Total | 100.0% | 100.0% | 100.0% |

Table 8:19 shows the following:

- 1) The CV group demonstrate the highest level of positive attitude among the three groups studied. This positive attitude may be related to:
 - a) The positive impact of the media campaigns on mothers' attitude. They helped them to understand immunization, its function, side-effects, and so on. Casiro et al., (1994) also point to the positive role of television campaigns on the peoples' affective attitude, which is based on proper understanding of the seriousness of drinking alcohol during pregnancy. Television also presents positive models, as Suarez et al., (1993) concluded, an stimulates positive interpersonal conversation especially in a small community (Drakshayani and Venkata, 1994);
 - b) The positive impact of communication with credible health professionals, which helps in intellectual evaluation and analysis of immunization. health professionals also help in fighting the inherited and deeply rooted misbelief as Hyler et al., (1991) concluded. Education can also be considered a positive intervening factor that enhances the television's impact. It stimulates the need for and understanding of more complex information;
 - c) The perceived consequences of contracting the disease and the effectiveness of each vaccine in protecting the child from these serious diseases, as well as the perceived safety of the vaccines;
 - d) The positive effect of the high level of correct knowledge regarding the target diseases and their vaccines. This goes with Biblarz et al.,'s (1991) conclusion that

cognition and knowledge can change attitude towards violence. Brook and Kishon (1993) also concluded that increasing knowledge leads to more positive attitude; and e) The positive effect of the highly positive immunization behaviour on mothers' attitude to keep consistency between mothers' behaviour, knowledge, and attitudes.

2) The VV group demonstrates a very high level of positive attitude (almost the same level as the CV group). The positive attitude can be attributed to the following:

- a) Exposure to the educational immunization campaigns;
- b) The positive impact of mothers' knowledge and experience with the target vaccines;
- c) The inclusion of all attitudes in a single extended attitude towards immunization;
- d) The effect of the positive behaviour on mothers' attitude, to achieve a consistency state and avoid dissonance.

It is also possible to note the higher level of positive attitude than of correct knowledge in both the CV and VV groups. This may demonstrate the trigger effect of knowledge to a wider attitude. On the other hand, the negligible difference between the CV and VV groups points to the negligible effect of intervening factors, such as educational level, occupation, social class, and so on, in changing mothers attitude. They can only be enhancing factors to the television's effects. The consistency in this result points also to the high reliability of the research MIS.

3) Mothers in the VN group show the lowest level of positive attitude among the three groups studied. This low level may be related to:

- a) Lack of exposure to the television immunization campaigns;
- b) The existence of local rumours and misconceptions regarding immunization and its complications through negative interpersonal communication;
- c) The very low level of correct knowledge with a consequence of a low attitude level;
- d) Mere experience to some diseases and not others.

Television campaigns can have a major role to counteract all the negative factors. This is more evident when the levels of correct knowledge and positive attitude in both the VV and VN groups are compared, and comparing the CV with the VV group.

3:8:6 STABILITY OF THE MOTHERS' ATTITUDE:

(Here there are some statements of obstacles which can prevent a mother from vaccinating her child. Indicate your own opinion to each of them. Question "26").

Attitude by itself is not a simple entity but an interconnected complex system. This complicated system is either a stable and a strong one that can resist any antagonistic motives or competing factors or, on the other hand, unstable and a weak, and liable to any change in the direction of consistency. There are some competing factors that are capable of shaking a mother's attitude and pulling it to the negative side of the attitude spectrum. The more stable the attitude is, the more resistant it is to these factors. The most important competing factors that can face mothers are:

3:8:6:1 Distance to the vaccination point:

Tables 8:20&8:21 show the following points:

1) Distance cannot affect attitude in the CV group. Each mother has at least one family car, and lives in a very modern area with modern streets. Transportation is not a problem, which can explain their highly stable attitude (100.0%).

2) Transportation can be a problem for a mother living in a rural area. She has to walk on foot through different rough tracts. It can be too sunny, too cold, or too muddy, for example. However, most mothers (89.3%) in the VV group have a positive attitude, with 49.4% having a strongly positive attitude. Those who have a negative attitude already have a negative attitude towards immunization (for the same or other reasons). They admit that they would never immunize their children, even if the health unit were next door. On the other hand, 60.2% of the VN group have a positive attitude. This relatively low percentage is mainly due to the larger number of mothers who do not immunize their children, as well as those who have a neutral attitude towards immunization in general.

Table (8:20): Frequency table showing mothers' attitude towards immunization with distance to the vaccination point as a competing factor

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|--------------|-----------------|--------------|---------------------|--------------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 4 | 2.5 | 14 | 14.3 |
| Fairly negative | 0 | 0.0 | 2 | 1.3 | 12 | 12.2 |
| Undecided | 0 | 0.0 | 11 | 7.0 | 13 | 13.3 |
| Fairly positive | 0 | 0.0 | 63 | 39.9 | 34 | 34.7 |
| Strongly positive | 76 | 100.0 | 78 | 49.4 | 25 | 25.5 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

3:8:6:2 Quality of the health services:

Health units in rural areas are the cornerstone of any immunization campaign or any other health services. Health workers are the people upon whom mothers rely. Mothers need to trust them. The problem is usually a lack of trust. "With so many children to vaccinate, I cannot trust them. They never have the time or even show any interest to inquire about my child's health either before or after vaccination. Last time, my child was vaccinated and was feverish for four days. This can be an indication that they were careless and the vaccine was wrong."

Table (8:21): Chi-square critical value and level of significance of the difference in mothers' attitude levels towards immunization between each two groups with the distance to vaccination point as a competing factor

| Attitude | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative + neutral attitudes compared with positive attitude | VV/VN | 29.83949 | 1 | 0.00000 |
| | VV/CV | 8.81783 | 1 | 0.00298 |
| | CV/VN | 38.98231 | 1 | 0.00000 |

Table (8:22): Frequency table showing mothers' attitude towards immunization competing with the health services quality

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 4 | 2.5 | 16 | 16.3 |
| Fairly negative | 0 | 0.0 | 8 | 5.1 | 14 | 14.3 |
| Undecided | 0 | 0.0 | 15 | 9.5 | 24 | 24.5 |
| Fairly positive | 2 | 2.6 | 57 | 36.1 | 25 | 25.5 |
| Strongly positive | 74 | 97.4 | 74 | 46.8 | 19 | 19.4 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Health services can motivate mothers for immunization (impressing them by a clean health unit, co-operative and responsible health personnel, adequate facilities, and so on); or otherwise can discourage mothers from going to the health unit and consequently give less motivation to immunize their children (long queues, a hot and dirty unit, insufficient vaccine, and so on). Tables 8:22&8:23 show that the CV group do not care about the quality of the health services and the health unit. They usually go to private paediatricians where they can get the best quality of services. That is why attitude for almost all mothers (97.4%) is a strongly positive one.

The situation is different in the VV group, where mothers depend on the health unit for immunization and other health services. 82.9% of mothers have a positive and stable attitude towards immunization, regardless of the quality of the health services, with 46.8% have a strong positive attitude. "Why should the health services be my business. I am not going to live inside the health unit, nor marry the health workers. All that I need is to vaccinate my child". On the other hand, only 44.9% of mothers in the VN group have a positive attitude, with only 19.4% of mothers showing a strongly positive attitude. This is accompanied by an increase in neutral attitude (24.5%). Intervening factors may be responsible for the significant difference between the CV and VV groups. They create other alternatives for the offered services.

Table (8:23): Chi-square critical value and the level of significance of the difference in mothers' attitude levels towards immunization between each two groups with the quality of health services as a competing factor

| Attitude | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative + neutral attitudes compared with positive attitude | VV/VN | 40.40864 | 1 | 0.00000 |
| | VV/CV | 14.68134 | 1 | 0.00013 |
| | CV/VN | 60.72245 | 1 | 0.00000 |

3:8:6:3 Facing other competing priorities:

Mothers in the CV group have a systematic way of life e.g. limited working hours. From this perspective, there are usually no essential competing priorities. Again, all mothers (100.0%) have a positive attitude, with 92.1% having a strongly stable positive attitude (tables 8:24&8:25).

The VV group shows a high degree of positive attitude (80.3%) but significantly less than the CV group. However, the VN group shows a much lower degree of positive attitude (33.7%), which is accompanied by a higher degree of "do not knows".

Table (8:24): Frequency table showing mothers' attitude towards immunization faced with other priorities

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 5 | 3.2 | 13 | 13.3 |
| Fairly negative | 0 | 0.0 | 3 | 1.9 | 21 | 21.4 |
| Undecided | 0 | 0.0 | 23 | 14.6 | 31 | 31.6 |
| Fairly positive | 6 | 7.9 | 53 | 33.5 | 17 | 17.3 |
| Strongly positive | 70 | 92.1 | 74 | 46.8 | 16 | 16.3 |
| Total | 76 | 100.0 | 98 | 100.0 | 76 | 100.0 |

Table (8:25): Chi-square critical value and level of significance of the difference in mothers' attitude levels towards immunization between each two groups with other priorities as a competing factor

| Attitude | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative + neutral attitudes compared with positive attitude | VV/VN | 56.29663 | 1 | 0.00000 |
| | VV/CV | 17.18850 | 1 | 0.00003 |
| | CV/VN | 80.46808 | 1 | 0.00000 |

3:8:6:4 Family dynamics:

As with the previous three competing factors, the CV group are more independent and are more internally controlled. They trust their abilities, mood, and their own accuracy in taking decisions. They are simply detached from others or have a sense of being free to make their own choices, but stick to their own judgement and standards. In the same way, they may be influenced more by the idea that "no one tells me what to do with my own child". Each mother describes herself as unique, ignoring any external pressure or norms. Consequently, all mothers have a positive attitude (tables 8:26&8:27), and 85.5% of them have a strongly positive attitude towards immunizing their children, despite the opposition of others (mothers, mothers-in-law, husbands, and so on). However, we note with this competing factor a lower level of strongly positive attitude than with other competing factors, indicating that this is the most prominent competing motive.

A lower level (41.2%) of positive attitude in the VV group is shown. Those mothers have a positive attitude towards immunizing their children, even if their husband or their mother oppose immunization, or they face any other sort of family pressure, with 39.9% of "do not knows". This represents the rural environment, where mothers cannot be isolated from the family or be completely independent. There are many influential factors, such as a mother's husband, mother, or mother-in-law.

Table (8:26): Frequency table showing mothers' attitude towards immunization with family-dynamics as a competing factor

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 13 | 8.2 | 27 | 27.6 |
| Fairly negative | 0 | 0.0 | 17 | 10.8 | 38 | 38.8 |
| Undecided | 0 | 0.0 | 63 | 39.9 | 14 | 14.3 |
| Fairly positive | 11 | 14.5 | 20 | 12.7 | 7 | 7.1 |
| Strongly positive | 65 | 85.5 | 45 | 28.5 | 12 | 12.2 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

A mother, in a community like a village with a small population, cannot ignore their opinion or their influence. Family harmony demands a mother's conformity. She is bound with others, enjoying their company and their values. She should have the same attitude as others have. This makes it harder for the mother to deviate from the group. However, there is a significantly lower percentage of positive attitude (19.3%) in the VN group. In fact, the majority have a negative attitude (66.4%). This again represents the difference between a rural family and that of a city.

Table (8:27): Chi-square critical value and level of significance for the difference in mothers' attitude levels towards immunization between each two groups with other family dynamics as a competing factor

| Question | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative + Neutral attitudes compared with positive attitude | VV/VN | 12.98055 | 1 | 0.0031 |
| | VV/CV | 74.23970 | 1 | 0.00000 |
| | CV/VN | 112.21224 | 1 | 0.00000 |

From the above results we can assume that this is a scale to measure the stability or the strength of mothers' attitude. From table 8:29 it may be possible to assume that:

- 1) Both groups of mothers in the village are using the same health facilities in the

same health unit. They also have the same competing priorities as well as the same style of social life. The difference in their attitude strength can be attributed to the difference in exposure to the television campaigns with a corresponding difference in the levels of knowledge regarding the target diseases. Consequently, the effect of exposure to television is very prominent in swinging mothers' attitude towards the positive side of the scale. This is more evident when the attitude levels in both the VV and the VN groups are compared, where 73.4% in the VV group have a positive attitude towards immunization compared to only 39.8% in the VN group, who have the same attitude under the same competing factors;

2) When the attitude levels in both groups are compared without and with competing factors, a remarkable drop in the level of positive attitude can be seen among mothers in the VN group from 56.6% to 39.8% (table 8:28) compared to the drop in mothers' attitude levels in the VV group when faced with competing factors. This point shows exposure to television health messages can not only induce change in attitude towards positive health but can also make it more stable and resistant to competing motives;

3) The big difference in the mothers' attitude level for those in the VV group compared the VN group regarding family dynamics may indicate extended television effect in reforming and reshaping social dynamics within a family through a process of re-socialisation. This again indicates the importance of directing the health message at all family members rather than at the mother alone and of creating a common consensus within a family.

Table (8:28): Frequency table showing mothers' attitude with competing motives

| ATTITUDE | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 7 | 4.4 | 18 | 18.4 |
| Fairly negative | 0 | 0.0 | 7 | 4.4 | 21 | 21.4 |
| Undecided | 0 | 0.0 | 28 | 17.7 | 20 | 20.4 |
| Fairly positive | 5 | 6.6 | 48 | 30.4 | 21 | 21.4 |
| Strongly positive | 71 | 93.4 | 68 | 43.0 | 18 | 18.4 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

3:8:7 CONCLUSIONS:

1) A mother should recognize a health hazard in her surrounding environment to form her attitude towards it. This initial step of attitude formation can be acquired through experience with the disease, whether direct (one of her family or she herself had the disease before) or indirect (she has heard about the disease). According to her experience, the mother estimates the degree of seriousness of the disease and its effect on her child's health and builds her attitude towards that disease. Commonly, the physical dimension of health is the most prominent to attract a mother's attention. Then, a mother evaluates the vaccine's effectiveness in preventing the disease and the importance of vaccinating her child, and weighs those factors against the vaccine's side effects in order to estimate the overall balance of gain or loss. Misconceptions can affect the attitude negatively (e.g. "it is bad to prevent measles"). The net result of this personal evaluation of the disease and its vaccine leads to an intention to vaccinate the child or not to do so;

2) Television supplies the mother with a logical interpretation of her experience or may even supply her with the necessary experience in an indirect way. It helps to form an intellectual frame to explain her surrounding environment and related child health and make it possible for the mother to interpret and value more complex information. This means that a mother is ready to expose herself to more challenging information to reach a state of consonance. From this point of view, the researcher claims that a change in a mother's knowledge stimulates a change in her attitude which in turn stimulates her to update her knowledge (which is supposed to be a biased and selective process). The end result is a stable attitude that can overcome surrounding competing motives;

3) From the above perspective, we may be able to demonstrate the important role of television in triggering the process of attitude change in a pre-planned direction in favour of child health and in producing stability of the new attitude, which is a crucial element for its maintenance and sustainability. Television achieves this high potential through the creation of new public opinion in favour of child health, not only among

the target population but also among all segments of the community to encourage them to set health services at the top of their agenda;

4) A mother's attitude is more general than the more specific knowledge. She classifies all types of vaccines under one category towards which almost a single attitude is directed. Consequently, television can change attitudes to different types of vaccines for the mass population who usually do not look for much information;

5) To achieve a maximum persuasive impact on attitude, health educationalists should design their messages in mothers' own idioms and expressions to explain the surrounding environment or correct current misconceptions. They should stress the gain from the proposed action and how this gain can be achieved for a positive consistency state. It should also expand her sense of being a good mother, of distinctive thoughts, feelings, and actions towards her child's health. Her compliance enhances personal achievement and power within the family and society, as well as enhancing her freedom from strict medical rules. The source of the message should be powerful, attractive, and similar to the target population to be an ideal model to follow and to change her attitude in the desired direction. The most important is that force can never substitute education for attitude change;

6) To support attitude change, television may be able to elicit a positive attitude from health professionals and health workers, as well as other family members. It should also alert policy makers to overcome the barriers that may oppose change in attitude, like the quality of health services' for example.

It is possible then to conclude that:

- There is a positive relationship between promotion of immunization by television campaigns and mothers' attitude change;
- Using television for mothers' education regarding child immunization helped to change mothers' attitudes to make them more positive and to promote child health;
- Positive changes in mothers' knowledge regarding immunization are followed by positive changes in mothers' attitudes towards better health practices.

CHAPTER NINE

MOTHERS' BEHAVIOUR

3:9:1 INTRODUCTION:

In this chapter the third dependent variable of this research (mothers' immunization behaviour) is analyzed. To demonstrate the effect of television campaigns, mothers' current and past immunization behaviour is examined with exploration of the television's influence on mothers' behaviour. Furthermore, the television campaigns are analyzed from the mothers' point of view, together with factors that may affect mothers' immunization behaviour. In addition, comparing mothers' behaviour among the three groups studied can demonstrate further the role of exposure to television health messages on child health promotion.

3:9:2 GENERAL IMMUNIZATION BEHAVIOUR:

(Have you ever had your child immunized? Question "13")

A mother either accepts the idea of immunization and immunizes her child (a positive behaviour), or shows a negative behaviour and rejects immunization. Table 9:1 shows mothers' current immunization behaviour, regardless of the vaccines' type or number of vaccinations, as follows:

Table (9:1): Frequency table showing mothers' general immunization behaviour

| BEHAVIOUR | Cairo Viewer | | Village Viewer | | Village Non Viewer | |
|------------------|--------------|-------|----------------|-------|--------------------|-------|
| | Count | % | Count | % | Count | % |
| Did not Immunize | 0 | 0.0 | 7 | 4.4 | 23 | 23.5 |
| Immunized | 76 | 100.0 | 151 | 95.6 | 75 | 76.5 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

1) All the CV group show positive behaviour. It may be important to stress that this represents mothers' general immunization behaviour rather than a specific behaviour such as vaccination against measles, which will be discussed soon. It gives a basic line for the researcher regarding whether the mother immunizes her child or not, which is followed by some eventuality questions e.g. if a mother shows a negative behaviour, questions such as if she follows the immunization schedule will not be asked. Also, a mother may show a positive immunization behaviour although she does not follow the schedule. Even though her behaviour is different to a mother who does not immunize her child at all. Consequently, it is expected for a small group like the CV group, who may represent the elite of the society, rather than the whole population, with the maximum access to child care services, shows a maximum positive behaviour. The CV mothers have the ability to make decisions and to gain control over actions related to their environment, not only on a personal level, but also at a community level to improve their children's health.

A maximum positive behaviour is also expected as one of the main objectives for immunization campaigns, and the political declaration of making the decade (1989-1999) for the protection and development of the Egyptian child, is eradication of new outbreaks of polio and tetanus neonatorum mortality by 1994. Also, it matches the recent reports of immunization coverage (table 9:2) and the announcement of the president of the High Council of Motherhood and Childhood Care that immunization reached almost 95% of the total population (Mhanna, 1995; Gohar, 1996). As discussed before, the researcher inspected the child immunization record during the interview (refer to question "17") to achieve a high validity for the results.

Table (9:2): Immunization coverage (%) in Egypt¹

| <u>DOSE</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993</u> | <u>1995</u> ² |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------------------|
| BCG | 77% | 84% | 80% | 83% | 89% | 92% | 92% | 94% | 85% |
| OPV-3 | 79% | 82% | 89% | 90% | 87% | 86% | 89% | 85% | 83% |
| DPT-3 | 80% | 81% | 87% | 90% | 87% | 86% | 89% | 85% | 82% |
| MEASLES | 87% | 86% | 85% | 92% | 87% | 89% | 89% | 85% | 82% |
| TT-2 | 11% | 09% | 73% | 66% | 61% | 71% | 69% | 63% | 52% |

2) Almost all mothers in the VV group (95.6%) show positive behaviour, which confirms the CV results. It may also be important to remember (as discussed in Chapters Five and Six) that the three groups know that the researcher is a paediatrician. The comparative nature of the research design naturalizes any researcher's influence on mothers' answers as his effects will be the same on the three groups. Surely, this would be a problem if it were a one group design. Furthermore, the insignificant difference between the CV and VV groups (table 9:3) can exclude the role of intervening factors, such as health professionals, educational level, occupation and so on, on mothers' general immunization behaviour leaving exposure to immunization campaigns, as a common factor between the two groups for further investigation, which can be explored by comparing both the VV and VN groups with a high significant difference in favour of the viewer group. This demonstrates the importance of including the CV group as a third pillar for the study.

3) In the VN group 76.5% show positive behaviour and 23.5% of mothers show negative behaviour. This is the highest percentage of negative behaviour among the three groups. It can be possible to refer the significant positive change in mothers' immunization behaviour in the VV group to the effects of television immunization messages, regardless of other intervening factors.

¹ MoH (1994).

² WHO (1996a)

Table (9:3): Chi-square critical value and level of significance for the difference in mothers' current general immunization behaviour between each two groups

| Behaviour | Groups | Chi-square | | |
|---|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Negative behaviour compared with positive behaviour | VV/VN | 21.19249 | 1 | 0.00000 |
| | VV/CV | 3.47092 | 1 | 0.06246 |
| | CV/VN | 20.55359 | 1 | 0.00001 |

3:9:3 PAST IMMUNIZATION BEHAVIOUR:

(Did you immunize your other children? and Why? Question "18")

The positive immunization behaviour in the CV group can possibly be described as a stable one because mothers who have more than one child demonstrate a positive past behaviour with immunization (table 9:4). They immunized all their older children with the recommended vaccines. They explained this positive behaviour (table 9:5) by a conviction that immunization protects their children from different diseases. It may also be possible to assume that the high positive attitude towards immunization, which has been built on correct knowledge, ultimately ensures stable behaviour to achieve consistency. The combined positive effects of the media, health professionals, and other intervening factors may have a role in this behavioural stability.

In the VV group, 89.0% of the mothers who have more than one child (adjusted data), showed positive past behaviour, with only 50.3% immunizing all their older children. They wanted to protect them from dangerous diseases. Another 38.6% admit that they actually immunized only some of the children. They were lacking awareness or the proper attitude and knowledge of immunization.

Table (9:4): Frequency table showing mothers' past immunization behaviour

| BEHAVIOUR | Cairo Viewers | | Village Viewers | | Village Non Viewers | |
|-------------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Never immunized before | 0 | 0.0 | 16 | 10.1 | 25 | 25.5 |
| Incomplete immunization | 0 | 0.0 | 56 | 35.4 | 39 | 39.8 |
| Complete immunization | 56 | 73.7 | 73 | 46.2 | 25 | 25.5 |
| Not applicable* | 20 | 26.3 | 13 | 8.2 | 9 | 9.2 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

* A mother who has only one child

Because most mothers have, on average, three or four children (the mean is 3.7 children per family in the VV group, as in table 9:6) it may be possible to assume that mothers' behaviour started to change (with the disappearance of the significant difference between the CV and the VV, as shown in tables 9:3 and 9:7) six to eight years ago i.e. after broadcasting of the television immunization campaigns. The researcher may also assume that this process of change in behaviour is a slow one. This can be demonstrated by comparing the 11.0% of mothers who admit that they had negative past immunization behaviour with only 4.4% of mothers who are currently still showing this negative behaviour. As we discussed before, those mothers (who are still showing negative immunization behaviour) do not extend their negative attitude and in fact some have a neutral attitude towards immunization which means that their attitude is mostly personal and liable to incongruent change. Consequently, it may be possible to expect a further lowering in the level of negative behaviour in future by keeping the immunization issue at the top of the public agenda.

Most of the VN group have positive past behaviour regarding immunization (71.9% of those who have more than one child) with 24.7% reporting that protection of their children was their main aim. However, only 28.1% immunized all their older children. Another 43.8% admit that they only immunized some of their children.

Table (9:5): Frequency table showing mothers' reasoning for their past immunization behaviour

| REASON | Cairo viewers | | | | | | Village viewers | | | | | | Village non viewers | | | | | |
|-------------------------------------|------------------|-------|-------------------|-------|------------------|-------|-------------------|-------|------------------|-------|-------------------|-------|---------------------|---|-------------------|---|--|--|
| | The first reason | | The second reason | | The first reason | | The second reason | | The first reason | | The second reason | | The first reason | | The second reason | | | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | | |
| | | | | | | | | | | | | | | | | | | |
| Immunization' s side effects | 0 | 0.0 | 0 | 0.0 | 7 | 4.4 | 10 | 6.3 | 22 | 22.5 | 1 | 1.0 | | | | | | |
| Contra-indications for immunization | 0 | 0.0 | 0 | 0.0 | 15 | 9.5 | 15 | 9.5 | 2 | 2.0 | 5 | 5.1 | | | | | | |
| One dose is enough | 0 | 0.0 | 0 | 0.0 | 11 | 7.0 | 3 | 1.9 | 9 | 9.2 | 3 | 3.1 | | | | | | |
| Family disapproval | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 3.2 | 1 | 1.0 | 11 | 11.2 | | | | | | |
| Other priorities | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 10 | 6.3 | 5 | 5.1 | 4 | 4.1 | | | | | | |
| Protection of the child | 56 | 73.7 | 0 | 0.0 | 73 | 46.2 | 0 | 0.0 | 25 | 25.5 | 0 | 0.0 | | | | | | |
| Disease seen as an act of God | 0 | 0.0 | 0 | 0.0 | 6 | 3.8 | 5 | 3.2 | 0 | 0.0 | 22 | 22.5 | | | | | | |
| Lack of proper knowledge | 0 | 0.0 | 0 | 0.0 | 31 | 19.6 | 2 | 1.3 | 22 | 22.5 | 1 | 1.0 | | | | | | |
| Health services quality | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.0 | 7 | 7.1 | | | | | | |
| No answer | 0 | 0.0 | 56 | 73.7 | 0 | 0.0 | 95 | 60.1 | 1 | 1.0 | 35 | 35.7 | | | | | | |
| Not applicable* | 20 | 26.3 | 20 | 26.3 | 13 | 8.2 | 13 | 8.2 | 9 | 9.2 | 9 | 9.2 | | | | | | |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 | | | | | | |

* A mother who has only one child

Table (9.6): Frequency table showing sibling number

| Number of Siblings | Cairo Viewers | | | | Village viewers | | | | Village non viewers | | | |
|--------------------|---------------|-------|-------|------|-----------------|-------|-------|-------|---------------------|-------|-------|-------|
| | Female | | Male | | Female | | Male | | Female | | Male | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| 0 | 18 | 23.7 | 15 | 19.7 | 18 | 11.4 | 11 | 7.0 | 8 | 8.2 | 8 | 8.2 |
| 1 | 36 | 47.4 | 39 | 51.3 | 37 | 23.4 | 58 | 36.7 | 32 | 32.7 | 24 | 24.5 |
| 2 | 21 | 27.6 | 19 | 25.0 | 68 | 43.0 | 51 | 32.3 | 25 | 25.5 | 33 | 33.7 |
| 3 | 0 | 0.0 | 3 | 3.9 | 21 | 13.3 | 28 | 17.7 | 21 | 21.4 | 19 | 19.4 |
| 4 | 1 | 1.3 | 0 | 0.0 | 8 | 5.1 | 9 | 5.7 | 11 | 11.2 | 10 | 10.2 |
| 5 | 0 | 0.0 | 0 | 0.0 | 3 | 1.9 | 0 | 0.0 | 1 | 1.0 | 4 | 4.1 |
| 6 | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 1 | 0.6 | 0 | 0.0 | 0 | 0.0 |
| 7 | 0 | 0.0 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 76 | 100 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 |
| Mean | 1.1 | | 1.1 | | 1.9 | | 1.8 | | 2.0 | | 1.3 | |

Table (9:7): Chi-square critical value and level of significance for the difference in mothers' past immunization behaviour between each two groups

| Behaviour | Groups | Chi-square | | |
|---|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Complete past behaviour compared with incomplete and negative behaviour | VV/VN | 13.28302 | 1 | 0.00027 |
| | VV/CV | 12.75874 | 1 | 0.00027 |
| | CV/VN | 37.54841 | 1 | 0.00000 |

They were scared of the immunization side-effects or lacking the proper knowledge regarding immunization. The significant difference between the VV and VN groups can be explained by the inclusion of more immunized children in the VV group i.e the behaviour change started sometime after electrification of the village. It may be worth mentioning that the occurrence of a case of polio in one area of the village attracted the mothers' attention to the immunization issue and the importance of changing their negative behaviour. Without that case of polio, one would have expected a higher incidence for mothers who do not immunize their children (more than 23.5%) with an increase in the percentage of mothers who have negative past behaviour (more than 28.1%). As the researcher assumes that television campaigns are the main factor for changing mothers' behaviour in the VV group³, experience can be a major determinant for behaviour in the VN group.

3:9:4 SPECIFIC IMMUNIZATION BEHAVIOUR:

(What kind of vaccine your child took before? Please use your child's immunization certificate. Question "17")

After examining mothers' behaviour regarding their current and past general immunization behaviour, the researcher went on to examine mothers' current

³ Soumerai et al (1992) assumed that media warning may successfully change behaviour when the message is simple, acceptable and inexpensive alternatives are available

immunization behaviour for each of the recommended vaccines (tables 9:8 and 9:9). This gives an in-depth view on the positive impact of the television immunization campaigns on mothers' behaviour. It demonstrates some of the factors that may affect television's impact, such as mothers' experience, the health professionals, and mothers' attitude.

Polio: The CV group show maximum positive behaviour. All vaccinate their children with complete doses (three doses, and in time). Moving to the rural areas, a decrease in those who complete the three doses of polio vaccine and an increase in incomplete vaccination can be noted.

In the VV group, 84.8% vaccinate their children with complete doses. For the VN group, although mothers showed a very high level of correct knowledge, only 39.8% actually completed the three doses required for polio immunization (as confirmed by inspecting the back of the child birth certificate with the official stamp for each vaccine), with another 29.6% who do not vaccinate their children against polio or who vaccinate their children but with incomplete doses (30.6%). Mothers in the VN group may have the basic knowledge regarding the disease, stemming from their experience, with a sequential development of a simple attitude. Consequently, they develop a simple positive behaviour manifested with incomplete immunization for only one or two doses. To be motivated enough to go to the health unit three times for the same vaccine, a mother has to know that the vaccine is in three doses and the reasons for that compound behaviour. According to this assumption, the difference in the level of positive behaviour between the VV and VN groups can be explained by the difference in exposure to the television immunization messages, which supply the mothers with more information than experience can offer, and the effect of mothers' attitude on the motivation to come back for further doses.

It seems that television has the ability to adjust a mother's experience in such a way as to present a meaning and value. It supplies guidance towards the target measure. In other words, it stabilises the relation between a mother's knowledge, her attitude and her behaviour, whereas a mother in the VN group lacks this function. This may

explain the apparent inconsistency between their highly positive knowledge and attitude, on the one hand, and the low level of observed positive behaviour on the other hand. Mothers in the VN group have basic correct knowledge (e.g. what polio is) but they lack more complicated knowledge (it is what the researcher calls a primary catch-up of knowledge). Television can provide more complex knowledge by helping mothers to analyze this knowledge and then synthesize a conclusion (it is what the researcher calls a secondary catch-up of knowledge). This secondary acquired knowledge (which may be mediated by the acquired attitude) can be more influential on, and consistent with, the expected behaviour than the primary one. Television has to be creative rather than just supplying knowledge (which can be considered as a primary stage of acquiring knowledge) for the secondary catch-up to occur and a change in behaviour to be adopted.

DPT: It has the same pattern and percentage as that of polio in the three groups. If a mother's behaviour is directly related to her knowledge or attitude, a much lower percentage of positive behaviour will be expected among the three groups. However, the observed higher percentage is probably due to the fact that both polio and DPT vaccines are administered simultaneously in one go. This creates what the researcher calls "cross-over behaviour" i.e. the positive behaviour for polio has been transmitted or has extended to other vaccines. It may be possible to imagine the effect of this extended behaviour if the DPT had been administered separately (like the BCG, for example) but not combined with the oral polio drops.

Mothers take the most prominent vaccine (polio vaccine) as a trigger for common behaviour, and are more likely to yield to a request for further immunization, which is influenced by the same situational factors. Being at the health unit for her child's immunization represents a peak of compliance with a moment of highly positive attitude towards immunization. A mother may not know that the oral drops or the injections are for different sets of vaccines. She may believe that both are for polio, which is the most salient for her. Regardless of how much knowledge she has, this compliance represents the main aim of any immunization campaign.

Table (9:8): Frequency table showing mothers' immunization behaviour regarding each disease

| BEHAVIOUR | | Polio | | TB | | Measles | | DPT | |
|-----------|-------|-------|-------|-------|-------|---------|-------|-------|-------|
| | | Count | % | Count | % | Count | % | Count | % |
| C V | 1 | 0 | 0.0 | 52 | 68.4 | 0 | 0.0 | 0 | 0.0 |
| | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | 3 | 76 | 100 | 24 | 31.6 | 32 | 42.1 | 76 | 100 |
| | 4 | 0 | 0.0 | 0 | 0.0 | 44 | 52.9 | 0 | 0.0 |
| | Total | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 | 76 | 100.0 |
| V V | 1 | 10 | 6.3 | 19 | 12.0 | 12 | 7.6 | 10 | 6.3 |
| | 2 | 14 | 8.9 | 0 | 0.0 | 0 | 0.0 | 14 | 8.9 |
| | 3 | 134 | 84.8 | 139 | 88.0 | 52 | 32.9 | 134 | 84.8 |
| | 4 | 0 | 0.0 | 0 | 0.0 | 94 | 59.5 | 0 | 0.0 |
| | Total | 158 | 100.0 | 158 | 100.0 | 158 | 100 | 158 | 100.0 |
| V N | 1 | 29 | 29.6 | 30 | 30.6 | 23 | 23.5 | 29 | 29.6 |
| | 2 | 30 | 30.6 | 0 | 0.0 | 0 | 0.0 | 30 | 30.6 |
| | 3 | 39 | 39.8 | 68 | 69.4 | 12 | 12.2 | 39 | 39.8 |
| | 4 | 0 | 0.0 | 0 | 0.0 | 63 | 64.3 | 0 | 0.0 |
| | Total | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 | 98 | 100.0 |

Behaviour 1 = Never follow the schedule

Behaviour 2 = Sometimes follow the schedule

Behaviour 3 = Always follow the schedule

Behaviour 4 = The child is below the recommended age

This creates another function for television messages, which should be related to the most prominent issue in the mother's frame of reference to achieve the desired behaviour change. At the same time, vaccines should be as infrequent as possible for a mother to make less effort to complete all the vaccination schedule. The triple vaccine contains three different vaccines in one shot. It is also administered with the most salient and easily administered oral drops for polio vaccination, which are not controversial, or associated with any side-effects beyond minor discomfort.

Measles: All the CV group completed measles vaccination (only one dose) at the proper time. In the VV group, 81.6% of children are vaccinated against measles, with only 34.3% of VN group receiving measles vaccine at the correct age. These results show the important function of television as a substitute to mere experience e.g. for those in the CV group who vaccinate their children. It reveals what will happen if a child catches measles and helps to stabilize the relationship between a mother's knowledge, attitude, and behaviour. This may be the function of the secondary catch-up of knowledge.

TB: Only 31.6% of children in the CV group received the BCG injection for tuberculosis. In the VV group, 88.0% of children received the BCG while 69.4% in the VN group received the BCG. This is the only result in which there is a low level of positive behaviour among mothers in the CV group, even lower than those in the VN group which excludes any suggestion that the more educated group gives invalid answers. However, this can be explained as follows:

- a) Television induces ideal positive behaviour changes which may explain the significant difference between mothers in the VV and VN groups. At the same time, the highest level of positive behaviour in the VN group which is for vaccination against the BCG, may be explained by their initial motivation to protect the very young baby. A mother after delivery is mainly concerned about the care of her baby and BCG is the first experience with immunization with little effort, since at this stage visits to the health unit are more common than later, and immunization can take place as a part of routine healthcare. This is consistent with table 9:2 in which vaccination with BCG is the highest. Television should help to keep this initial positive motivation and enthusiasm as high as possible throughout the whole vaccination schedule and to put the issue of child immunization at the top of a mother's agenda.
- b) Health professionals, as a credible source of information, play a major role in directing ultimate behaviour that may antagonise media messages. That is why the CV group do not immunize their children with BCG, in accordance with health professionals' recommendations. Television should attract support from the health professionals who are considered the final step for the delivery of the services. This may mean that media messages should also be directed to the health professionals.

Table (9:9):Chi-square critical value and level of significance for the difference in mothers' immunization behaviour for each disease between each two groups

| Behaviour | | Groups | Chi-square | | |
|---|--------------|--------|------------|----|--------------|
| | | | Value | DF | Significance |
| Complete behaviour compared with negative+ incomplete behaviour | Polio/DPT | VV/VN | 55.93687 | 1 | 0.00000 |
| | | VV/CV | 12.86365 | 1 | 0.00034 |
| | | CV/VN | 69.22946 | 1 | 0.00000 |
| | Tuberculosis | VV/VN | 13.50119 | 1 | 0.00024 |
| | | VV/CV | 77.22059 | 1 | 0.00000 |
| | | CV/VN | 24.55688 | 1 | 0.00000 |
| | Measles | VV/VN | 13.77766 | 1 | 0.00021 |
| | | VV/CV | 1.88501 | 1 | 0.16977 |
| | | CV/VN | 20.20148 | 1 | 0.00001 |

c) Influenced by health professional, other intervening factors such as educational level have no role in achieving a positive behaviour for BCG as evident by the significant difference between the CV and VV groups in favour of the less educated group.

3:9:5 ROLE OF INTERVENING FACTORS ON MOTHERS' IMMUNIZATION BEHAVIOUR:

(To what extent have the mass media, health professionals, family members, and friends played a role in influencing your decision to vaccinate your child or not? Which of these sources do you consider most influential on your decision? Questions "16"&"31" respectively.

Television has to compete with other sources of information to reach its viewers and to motivate mothers towards positive immunization behaviour (decision-making). In this section, the role of the television immunization campaigns, out of other sources, in influencing mothers' behaviour is tested (tables 9:10; 9:11; 9:12; and 9:13).

The CV group:

Health professionals are at the top of the list as 82.9% reported that they play a major role in their immunization decisions. Table 9:10 shows that 98.7% should consult their private doctor who is considered the most influential source. This is expected because private doctors are responsible for vaccinating their children. This supports the point made as regards the important role the private sector of healthcare can play.

Also, 76.3% confirm that mass media have a major role. Table 9:11 shows that television is the most influential source of information within the mass media group (78.9% give this result). A small group (17.1%) show that magazines are the most influential source. Their timetable cannot match viewing health programmes but can accommodate reading a magazine at any time in any place. Not a single mother approves of the role of radio or newspapers. They commonly use the radio for musical programmes, or entertainment in the car. They feel that newspapers have a strong association with a masculine character (e.g. crimes and sports).

The majority of the CV group play down the role of family members. They feel that, although trustworthy, they are lacking knowledge and experience with immunization i.e. they lack the necessary credibility. Another 48.7% feel that family members play only a minor role in affecting their decision regarding immunization.

Table (9:10): Frequency table showing the effect of each health professional group on mothers' immunization decisions

| Health professionals | Cairo viewers | | Village viewers | | Village non viewers | |
|-----------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Health workers | 0 | 0.0 | 73 | 46.2 | 38 | 38.8 |
| Private doctors | 75 | 98.7 | 16 | 10.1 | 13 | 13.2 |
| Health unit's doctors | 1 | 1.3 | 57 | 36.1 | 23 | 23.5 |
| No one | 0 | 0.0 | 12 | 7.6 | 24 | 24.5 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Table (9:11): Frequency table showing the effect of each mass media group on mothers' immunization decisions

| MASS MEDIA | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|--------------|-----------------|--------------|---------------------|--------------|
| | Count | % | Count | % | Count | % |
| Radio | 0 | 0.0 | 7 | 4.4 | 47 | 48.0 |
| Television | 60 | 78.9 | 142 | 89.9 | 0 | 0.0 |
| Magazines | 13 | 17.1 | 0 | 0.0 | 0 | 0.0 |
| None of the above | 3 | 3.9 | 9 | 5.7 | 51 | 52.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Among the family members, 44.7% approve of the role of their husband as the most influential source. This is true as the husband is probably as well-educated as the mother and he may accompany the mother while going to vaccinate their child. His role is mainly sharing the point of view in a democratic manner. Still some mothers/mothers-in-law have some influence where 21.1% show that they can influence their decision.

It is apparent that friends have no role in influencing mothers' immunization decisions. This is approved by 80.3% of mothers, who say that their friends have no role in influencing their decision regarding immunization. Even if mothers have to listen to friends, the final decision will be that of the doctors to relieve any doubt. It may be important for campaign planners to support mothers' positive decision by involving the health professionals and the husbands as a part of their target population.

The VV group:

The situation is different in the VV group where 51.9% say that doctors have no role in influencing their decision regarding immunization. This does not mean that they consider health professionals as non credible people but it is rare for them to pay a visit to a doctor just to ask about immunization. Mothers still feel it is odd to go to a doctor while the child is healthy. Mothers have their children vaccinated in the health unit by a health worker. "He may say go back home, it is not due today, there

is no vaccination for your child or your child is ill or, whatever, so I will go back and that is all", a mother said. 46.2% approve of this result and another 36.1% believe that they may consult the health unit's doctors, yet they are not always available.

Mass media play a major role in affecting the decision regarding immunization as 82.3% of mothers feel that they can play this role. Television is by far the most influential source of information that can affect decisions regarding immunization as 89.9% approve these results. This also confirms the assumption that television is a powerful medium to reach the target population of both the rural and the urban sectors of society. As in the CV group, family members play a minor role in decision-making regarding immunization as only 30.4% show that their husband is the most influential among family members. The husband almost has the same knowledge as his wife, which makes him hesitant to give an opinion but he should be consulted before going to the health unit. Sometimes the outing may affect his daily routine behaviour e.g. a delay in cooking may change his attitude and decision regarding immunization. This should draw attention to the importance of educating the husband as well.

Only 32.3% state that friends have a major role in their immunization decision. Television acts as a standard for the level of correct information. If television is available, friends will have a low influence. It may be possible to assume that exposure to television immunization messages improves mothers' perceived abilities to affect their children's destiny through improving their beliefs towards the outcome of immunization and their ability to immunize their children at the nearby health unit and to use the available health services efficiently, with rejection of the negative ideas or behaviour. In another way, television health messages improve perceived control and influence over the immunization decision and over life events which eventually lead to promotion of the community child health. This assumption is supported by LaVeist's (1992) findings that increased control over external events is positively associated with mental and physical health indicators.

Table (9:12): Frequency table showing the degree of influence of each group on mothers' immunization decision

| ROLE | Cairo viewers | | | | | | | | | | Village viewers | | | | | | | | | |
|------------|---------------|-------|----------------|-------|------------|-------|---------|-------|---------|-------|-----------------|-------|------------|-------|---------|-------|--|--|--|--|
| | Doctors | | Family members | | Mass media | | Friends | | Doctors | | Family members | | Mass media | | Friends | | | | | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | | | | |
| Major role | 63 | 82.9 | 15 | 19.7 | 58 | 76.3 | 5 | 6.6 | 47 | 29.7 | 45 | 28.5 | 130 | 82.3 | 51 | 32.3 | | | | |
| Minor role | 13 | 17.1 | 37 | 48.7 | 18 | 23.7 | 10 | 13.2 | 29 | 18.4 | 62 | 39.2 | 19 | 12.0 | 47 | 29.7 | | | | |
| No Role | 0 | 0.0 | 24 | 31.6 | 0 | 0.0 | 61 | 80.3 | 82 | 51.9 | 51 | 32.3 | 9 | 5.7 | 60 | 38.0 | | | | |
| Total | 76 | 100.0 | 158 | 100.0 | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | 158 | 100.0 | | | | |

Campaign planners should stimulate the mothers and give them the necessary skills to increase personal control and self efficiency which is considered by Flay and Petraitis (1994) as an important mediating variable between knowledge and adopting the preventive practice.

The VN group:

As in the VV group, health workers are the main influential source among the health professionals group, as 38.8 % confirm this finding. This is followed by doctors in health units (23.5%) but this is again only in certain conditions e.g. a recommended child. Private doctors seem to have a very limited role in decision-making. They are rarely visited, only for serious illness, or they are less enthusiastic to add health education efforts (which are not profitable) to their curative efforts. 24.5% show that health professionals have no role at all in their immunization decision indicating their limited ability to use the available health services. On the other hand, mothers have no other choice than radio as a mass medium. This may put some stress on radio as a valuable medium to reach the disadvantaged population.

Where there is no television, it is expected that friends and family members are the most influential factor. 22.4% confirm that their husbands are the most influential in their decision-making, closely followed by mothers. On the other hand, 45.9% show that their friends are the main influential factor. They inform each other and go together to the health unit. They share the responsibility for taking a behaviour or any innovation. This is what Wallach (1962) called diffusion of responsibility. The group in the village which is in favour of immunization tends to take a chance with more vaccines, while the other group which is against immunization tends to be more conservative and takes no action. This is what Burnstein (1983) calls group polarization. Each member of the group is influenced by the decision of the whole group and the local information and rumours and allows the mother to see whether her behaviour is socially accepted or not. This shows the importance of television messages where polarisation will be towards the positive side.

Table (9:13): Frequency table showing the effect of each of the family members or friends on mothers' immunization decisions

| Family members/Friends | Cairo viewers | | Village viewers | | Village non viewers | |
|------------------------|---------------|--------------|-----------------|--------------|---------------------|--------------|
| | Count | % | Count | % | Count | % |
| Friends | 5 | 6.6 | 35 | 22.2 | 45 | 45.9 |
| Mother/Mother in-law | 16 | 21.1 | 31 | 19.6 | 19 | 19.4 |
| Husband | 34 | 44.7 | 48 | 30.4 | 22 | 22.4 |
| Experts | 0 | 0.0 | 0 | 0.0 | 12 | 12.2 |
| No one | 21 | 27.6 | 44 | 27.8 | 0 | 0.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

From the above analysis, it may be possible to assume that television is the most valuable medium, not only for reaching the target population with its credible health messages, but also in affecting their decision positively in favour of child health promotion. This assumption is supported by a crude univariate model of logistic regression, where immunization behaviour is the dependent variable, which shows the risk of having a non immunized child for a mother in the VN group is 6.6 times higher than that of a viewer mother ($P < 0.001$). Cutts et al., (1991) also found that not having a television set is a risk factor for not having a vaccinated child. This positive effect of exposure to the television immunization campaigns on mothers' behaviour differs from one disease to another (knowledge of the disease and its vaccine, as well as attitude towards each disease and its vaccine, regardless of mothers' personal characteristics e.g. educational level, occupation, age, and so forth) as the following basic equations show.

- The risk of having a child not immunized against polio for a mother in the VN group is 8.4 times higher than a mother in the VV group ($P < 0.001$);
- The risk of having a child who is not immunized against DPT for a mother in the VN group is 8.4 times higher than for a mother in the VV group ($P < 0.001$);
- The risk of having a child not immunized against measles for a mother in the VN group is 3.5 times higher than a mother in the VV group ($P < 0.001$).

This assumption can be supported by the following:

- The analysis of mothers' knowledge, attitude, and behaviour among the three groups of the study; as discussed before;
- There is no significant difference among mothers in the three groups regarding some characteristics, as shown in tables 9:14; 9:15; 9:16; 9:18; and 9:19;
- A multivariate logistic regression model which demonstrates that mothers' education, age, religion, and sex of the baby are insignificant intervening factors in affecting mothers' immunization behaviour (models 9:1, 2, 3).

Obviously, from a very superficial inspection of the left side of table 9:17, we may notice the difference in the level of education between the VV and VN groups. In fact this was expected because the VN group is not a matching group but an equivalent control group, as discussed in Chapter Five. At first sight, we notice more difference in the level of education between the CV and VV groups. This also is expected as the first group may represent the cream of society while the second represents a village in the south of Egypt. However, a closer analysis, it is easy to exclude the effect of this intervening factor on the independent research variables by the many pieces of evidence discussed throughout Part Three. For example, if the difference in education can explain the difference in immunization behaviour between the VV and VN groups, with more difference in the educational level between the CV and VV groups, we should have found a significant difference between these two groups, which is not the case in our research, where there is no significant difference in immunization behaviour. This clarifies the importance of including the CV group in the research, and the naturalistic character of the research that gives it the power of generalization. Additionally, in-depth analysis shows that education or other intervening factors do not act independently in real life but rather in a collective manner. For that reason, different logistic regression models were formulated to examine the effects of some of these factors, bearing in mind the main research questions and hypotheses which are concerned with the third stage of the evaluation process rather than exploring the factors that caused or deter the campaigns' effects, which are concerned more with stages one and two of the evaluation scheme.

Table (9:14): Chi-square critical value and level of significance for the difference in mothers' religion and the baby's sex between each two groups

| Variable | Groups | Chi-square | | |
|-------------------|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Mother's religion | VV/VN | 0.20062 | 1 | 0.65422 |
| | VV/CV | 0.17954 | 1 | 0.67177 |
| | CV/VN | 0.59047 | 1 | 0.44224 |
| Baby's sex | VV/VN | 0.86489 | 1 | 0.12872 |
| | VV/CV | 0.64673 | 1 | 0.42128 |
| | CV/VN | 2.307787 | 1 | 0.12872 |

That is why Nair and Varughese (1994) stressed on health campaign even for the areas which have already attained total literacy. This is very logical because if positive immunization behaviour is associated with educational level, the world's population should have achieved a very high level of education before eradication of smallpox. Similarly, we should expect absence of diseases associated with negative behaviour, such as AIDS or drug misuse, among highly educated nations, which is certainly not the case. It is true that education can be an enhancing factor for better comprehension and analysis of information, but not the key factor that determines attitude or behaviour. The same arguments can also be applied to the difference in occupation between the three groups (table 9:18).

Table (9:15): Frequency table showing mothers' age band

| Age Band (in years) | Cairo Viewers | | Village Viewers | | Village non Viewers | |
|------------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| 16-20 | 0 | 0.0 | 22 | 13.9 | 19 | 19.4 |
| 21-25 | 11 | 14.5 | 47 | 29.7 | 38 | 38.8 |
| 26-30 | 20 | 26.3 | 46 | 29.1 | 24 | 24.5 |
| 31-35 | 45 | 59.2 | 32 | 20.3 | 12 | 12.2 |
| 36-40 | 0 | 0.0 | 11 | 7.0 | 5 | 5.1 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Table (9:16): Frequency table showing parents' level of education

| Level of Education | Cairo Viewers | | | | Village viewers | | | | Village non viewers | | | |
|--------------------------------|---------------|-------|---------|-------|-----------------|-------|---------|-------|---------------------|-------|---------|-------|
| | Mothers | | Fathers | | Mothers | | Fathers | | Mothers | | Fathers | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Cannot read or write | 0 | 0.0 | 0 | 0.0 | 68 | 43.0 | 55 | 34.8 | 66 | 67.3 | 49 | 50.0 |
| Read and write only | 0 | 0.0 | 0 | 0.0 | 15 | 9.5 | 20 | 12.7 | 19 | 19.4 | 14 | 14.3 |
| Primary school certificate | 0 | 0.0 | 0 | 0.0 | 13 | 8.2 | 12 | 7.6 | 7 | 7.1 | 10 | 10.2 |
| Preparatory school certificate | 0 | 0.0 | 0 | 0.0 | 19 | 12.0 | 8 | 5.1 | 4 | 4.1 | 13 | 13.3 |
| Secondary school certificate | 0 | 0.0 | 0 | 0.0 | 37 | 23.4 | 44 | 27.8 | 2 | 2.0 | 11 | 11.2 |
| University degree | 70 | 92.1 | 62 | 81.6 | 6 | 3.8 | 19 | 12.0 | 0 | 0.0 | 1 | 1.0 |
| Post graduate degree | 6 | 7.9 | 14 | 18.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 |

Table (9:17): Frequency table showing parents' occupation

| Occupation | Carro Viewers | | | | Village viewers | | | | Village non viewers | | | |
|-----------------------------|---------------|-------|---------|-------|-----------------|-------|---------|-------|---------------------|-------|---------|-------|
| | Mothers | | Fathers | | Mothers | | Fathers | | Mothers | | Fathers | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Housewife/Farmer | 19 | 25.0 | 0 | 0.0 | 127 | 80.4 | 86 | 54.4 | 87 | 88.8 | 58 | 59.2 |
| Trader/Blue collar | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 14 | 8.9 | 10 | 10.2 | 28 | 28.6 |
| Middle class government job | 0 | 0.0 | 0 | 0.0 | 22 | 13.9 | 37 | 23.4 | 1 | 1.0 | 11 | 11.2 |
| High class government job | 26 | 34.2 | 9 | 11.8 | 5 | 3.2 | 16 | 10.1 | 0 | 0.0 | 1 | 1.0 |
| High professional | 31 | 40.8 | 67 | 88.2 | 2 | 1.3 | 5 | 3.2 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 |

Table (9:18): Frequency table showing the baby's sex

| Sex | Cairo Viewers | | Village Viewers | | Village non Viewers | |
|--------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Male | 41 | 53.9 | 94 | 59.5 | 46 | 65.3 |
| Female | 35 | 46.1 | 64 | 40.5 | 34 | 34.7 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Similarly, there are many examples which show that difference in educational level or occupation is not a major obstacle for comparison. Schulz et al., (1995) in examining the effects of participation in voluntary organization and perceived control at multiple level used a comparison design of organization members and non-members. Although there was significant difference between the two groups regarding educational level, income, and age, their results were considered as valid.

Model 9:2 shows that a mother's attitude can be a significant factor in affecting mothers' behaviour. A mother in the VN group who has a negative attitude regarding immunization complications has nine times greater risk of having a non immunized child than a mother in the VV group ($P < 0.001$). In the same way, when a mother in the VN group shows a positive intention towards immunization (see model 10:3) the risk of having a non immunized child falls to 3.4 times that of a mother in the VV group ($P < 0.001$). This may indicate that both variables (exposure to television immunization campaigns and mothers' attitude) are not independent and correlated with the dependent immunization behaviour variable i.e. a mother's positive intention can compensate for the lack of exposure to the television immunization campaigns.

Table (9:19): Frequency table showing mothers' religion

| Religion | Cairo Viewers | | Village Viewers | | Village non Viewers | |
|----------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Muslim | 69 | 90.8 | 146 | 92.4 | 92 | 93.9 |
| Coptic | 7 | 9.2 | 12 | 7.6 | 6 | 6.1 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

significant positive effect of basic knowledge can be overlapped by viewing behaviour ($P < 0.001$) and the mother's attitude ($P < 0.001$) as in model 9:5.

A multivariate model (9:3): Dependent variable immunized/non immunized

| Variables | SE | Wald | DF | Significance | OR |
|---|------|-------|----|--------------|------|
| Non viewer | 0.82 | 2.228 | 1 | 0.136 | 3.42 |
| Mother's positive intention | 1.23 | 24.97 | 1 | 0.000* | 0.00 |
| Mother's education | | 0.538 | 2 | 0.764 | |
| Mother's education (1) | 1.04 | 0.168 | 1 | 0.682 | 0.65 |
| Mother's education (2) | 1.52 | 0.29 | 1 | 0.588 | 2.28 |
| Mother's age | | 2.257 | 2 | 0.324 | |
| Mother's age (1) | 0.94 | 2.25 | 1 | 0.133 | 0.24 |
| Mother's age (2) | 1.07 | 0.402 | 1 | 0.526 | 0.51 |
| Baby's sex | 0.81 | 0.56 | 1 | 0.450 | 0.54 |
| Mother's religion | 1.47 | 0.327 | 1 | 0.567 | 0.43 |
| Negative attitude towards immunization's side-effects | 1.34 | 8.46 | 1 | 0.004* | 0.02 |

Basic knowledge, of polio and measles for example (see section 3:7:3:2), which is most probably acquired through experience with the disease, although correct, has an insignificant effect on immunization behaviour. Viewing behaviour, as well as a mother's attitude, can be a significant factor for predicting a mother's immunization behaviour. In other words, having basic knowledge is not enough to produce positive behaviour. Exposure to television campaigns, is more significant which crystallises this knowledge and gives a meaning to it. It also stimulates acceptance of more relevant information and development of a positive attitude. This can be demonstrated by noticing the lower level of correct knowledge regarding diphtheria compared with the high level of correct knowledge regarding polio, yet mothers have the same risk of having a non immunized child. It may also demonstrate another mechanism for television to influence behaviour i.e. by creating a general attitude and behaviour towards immunization. This may support the previous assumption regarding binding attitudes in one block which develops a single behaviour. This may have a great value in designing health messages, which should transmit very specific but relevant knowledge mainly to change the target population's attitude.

A bivariate model (9:4): Dependent variable immunized/non immunized against diphtheria.

| Variables | SE | Wald | DF | Significance | OR |
|---|------|-------|----|--------------|------|
| Non viewer | 0.31 | 44.08 | 1 | 0.000* | 7.85 |
| Mother's correct knowledge regarding diphtheria | 0.44 | 10.21 | 1 | 0.001* | 0.25 |

SE = Standard Error
OR = Odds Ratio

Wald = Value of Wald test of significance
* = Significant

DF = Degree of Freedom

A multivariate model (9:5): Dependent variable immunized/non immunized against diphtheria.

| Variables | SE | Wald | DF | Significance | OR |
|---|------|-------|----|--------------|------|
| Non viewer | 0.35 | 26.18 | 1 | 0.000* | 6.02 |
| Mother's correct knowledge regarding diphtheria | 0.45 | 2.62 | 1 | 0.105 | 0.48 |
| Mother's positive intention | 0.58 | 29.43 | 1 | 0.000* | 0.04 |

A multivariate model (9:6): Dependent variable immunized/non immunized against polio.

| Variables | SE | Wald | DF | Significance | OR |
|--|------|-------|----|--------------|------|
| Non viewer | 0.35 | 26.86 | 1 | 0.000* | 6.14 |
| Mother's correct knowledge regarding polio | 1.40 | 0.07 | 1 | 0.782 | 0.68 |
| Mother's positive intention | 0.58 | 33.94 | 1 | 0.000* | 0.04 |

A multivariate model (9:7): Dependent variable immunized/non immunized against measles.

| Variables | SE | Wald | DF | Significance | OR |
|--|------|------|----|--------------|------|
| Non viewer | 0.36 | 6.55 | 1 | 0.011* | 2.53 |
| Mother's correct knowledge regarding polio | 0.71 | 0.03 | 1 | 0.867 | 0.89 |
| Mother's positive intention | 1.03 | 6.01 | 1 | 0.014* | 0.08 |

3:9:6 MOTHERS' ABSORPTION OF THE IMMUNIZATION MESSAGES:

(There are some statements about immunization, tick your opinion. Question "29")

Television campaigns presented different health messages. Obviously, mothers who do not receive the message represent an early failure of the campaign's objectives. Throughout this research, it is assumed that the VV group are actually exposed to the campaigns' messages and this exposure is the major determinant for the positive change in the dependent variables, while the VN group are not. In this section, this basic assumption is examined. Five of the main campaigns messages broadcast are examined for both the viewer and the non viewer groups. A sixth message, which has not been tackled by television, is also examined to test the validity of the basic exposure/non-exposure assumption. These messages are as follows:

Message 1: Children's diseases (e.g. measles, polio, and so on) constitute a national health problem:

In the CV group, 89.5% have a positive belief that diseases which can affect children, like polio or measles, are a national health problem (table 9:20). Some mothers are not sure of this message. They believe that, although they are dangerous, diseases like bilharziasis, malnutrition, and gastro-enteritis, or even cancer, are the real health problems. These mothers challenge the one-sided message.

Table (9:20): Frequency table showing mothers' absorption of message "1": Diseases like polio are a national health problem

| Mother's belief | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Definitely untrue | 0 | 0.0 | 7 | 4.4 | 15 | 15.3 |
| Fairly untrue | 1 | 1.3 | 6 | 3.8 | 6 | 6.1 |
| Do not know | 7 | 9.2 | 37 | 23.4 | 55 | 56.1 |
| Fairly true | 16 | 21.1 | 37 | 23.4 | 16 | 16.3 |
| Definitely true | 52 | 68.4 | 71 | 44.9 | 6 | 6.1 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

On the other hand, 68.3% of the VV group have a positive belief, which is significantly lower than the CV group (table 9:25). This difference could be related to the difference in the level of education and mothers' comprehension besides the other intervening factors. However, there are only 22.4% of the VN group who hold this positive belief, with 56.1% who do not know exactly if these diseases constitute a national health problem or not. Their world extends only to the limits of their village or maybe a little further, to the governorate. The highly significant difference between the VV and VN groups demonstrates the positive exposure to the television campaigns on the viewer side⁴. Also, the highly significant difference between the CV and VN groups may demonstrate the importance of the television as a medium to narrow the gap between the advantaged and the disadvantaged populations. These results can be supported by examining the other messages.

Message 2: Every child should be fully immunized during the first year of life: In the CV group, all mothers understand that immunization should be during the first year of the child's life (table 9:21). They all have a strong positive belief in this message. In the VV group, 90.5% understand this message and have a positive belief in it. This compares to the 58.1% for those who hold this positive belief in the VN group. The significant difference between the VV and VN groups can be attributed to the differences in exposure to the television as explained before.

Table (9:21): Frequency table showing mothers' absorption of message "2": Immunizations are important for the child in the first year of life

| Mother's belief | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Definitely untrue | 0 | 0.0 | 8 | 5.1 | 13 | 13.3 |
| Fairly untrue | 0 | 0.0 | 0 | 0.0 | 7 | 7.1 |
| Do not know | 0 | 0.0 | 7 | 4.4 | 21 | 21.4 |
| Fairly true | 0 | 0.0 | 16 | 10.1 | 26 | 26.5 |
| Definitely True | 76 | 100.0 | 127 | 80.4 | 31 | 31.6 |
| Total | 76 | 100.0 | 158 | 100.0 | 76 | 100.0 |

⁴ Siska et al. (1992) supported this view with their conclusion that absolute mentions of AIDS as an important national problem increased after viewing AIDS public services announcements.

Table (9:22): Frequency table showing mothers' reaction to a control message "3": It is important to immunize even a slightly sick child

| Mother's belief | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Definitely untrue | 35 | 46.1 | 108 | 68.4 | 70 | 71.4 |
| Fairly untrue | 18 | 23.7 | 18 | 11.4 | 5 | 5.1 |
| Do not know | 18 | 23.7 | 21 | 13.3 | 18 | 18.4 |
| Fairly true | 5 | 6.6 | 8 | 5.1 | 4 | 4.1 |
| Definitely True | 0 | 0.0 | 3 | 1.9 | 1 | 1.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Message 3: Immunization is indicated even if the child is ill:

Mothers in all groups cannot understand or believe that immunization for sick children is indicated in order to prevent the more dangerous diseases such as polio or measles (table 9:22). They all believe that a child should be completely healthy to tolerate the vaccine. Unfortunately, they may have gained this misconception from health professionals. Also, the immunization campaigns broadcast did not stress this point. This may explain the negative belief prevalent among mothers in both the viewer and the non viewer groups. It may also demonstrate the positive impact of the television health messages not only on mothers' knowledge and attitude but also on the health workers and the health professionals as well. This message adds another confirmation to the high validity of not only the exposure/non-exposure design of the research, but also to mothers' answers regardless of their characteristics. It also shows the negligible effect of the intervening factors on the research variables.

Message 4: Immunization protects the child from killer or crippling diseases:

All the CV group (100.0%) have a positive belief that immunization protects from dangerous diseases (table 9:23). Lower than this maximum percentage, 86.1% of the VV group have a positive belief in this message. This compares with the very low percentage (34.7%) of positive belief in this message in the VN group. The largest percentage of mothers confirms their doubt in this fact and they express no opinion.

**Table (9:23): Frequency table showing mothers' absorption of message "4":
Immunization protects the child from dangerous diseases**

| Mother's belief | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|--------------|-----------------|--------------|---------------------|--------------|
| | Count | % | Count | % | Count | % |
| Definitely untrue | 0 | 0.0 | 4 | 2.5 | 15 | 15.3 |
| Fairly untrue | 0 | 0.0 | 1 | 0.6 | 3 | 3.1 |
| Do not know | 0 | 0.0 | 17 | 10.8 | 46 | 46.9 |
| Fairly true | 8 | 10.5 | 33 | 20.9 | 15 | 15.3 |
| Definitely True | 68 | 89.5 | 103 | 65.2 | 19 | 19.4 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Message 5: Immunization should be with a new disposable plastic syringe:

All the CV group believe that immunization should be carried out with plastic disposable syringes (Table 9:24). This is not only for immunization but also for all kinds of injections. Also, there is a very high percentage of mothers in the VV group (86.7%) who have this positive belief. Only 30.6% of the VN group have this positive belief. Generally, mothers do not understand how a non-plastic syringe can affect a vaccine's effectiveness. Again, this difference in the level of positive belief can be attributed to the differences in exposure to immunization campaigns, and the differences in immunization behaviour.

**Table (9:24): Frequency table showing mothers' absorption of message "5":
Immunization should be with a disposable plastic syringe**

| Mother's belief | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|--------------|-----------------|--------------|---------------------|--------------|
| | Count | % | Count | % | Count | % |
| Definitely untrue | 0 | 0.0 | 5 | 3.2 | 3 | 3.1 |
| Fairly untrue | 0 | 0.0 | 3 | 1.9 | 12 | 12.2 |
| Do not know | 0 | 0.0 | 13 | 8.2 | 53 | 54.1 |
| Fairly true | 0 | 0.0 | 14 | 8.9 | 9 | 9.2 |
| Definitely True | 76 | 100.0 | 123 | 77.8 | 21 | 21.4 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Message 6: Immunization against tetanus neonatorum is advised for pregnant women:

Only 47.4% of the CV group have a positive belief that vaccination against tetanus is indicated for a pregnant woman (table 9:25). There is an obvious disagreement among mothers about this fact. This result highlights the reluctance of health professionals to provide this vaccine with their routine health services. At the same time, mothers believe that this is only for mothers who deliver their baby in an unhygienic environment and not for them, as they follow all the necessary instructions. In the VV group, 84.8% have a positive belief in this message. This shows the active role of the health unit in the village besides the positive influence of television. The effect of television can be shown by noting the significantly lower level of mothers (40.8%) in the VN group who have this positive belief yet have the same health unit facilities as mothers in the VV group but no television access. The significant difference between the CV and VV groups, which is in favour of the less educated VV group, shows the significant effects of the private health care on the target population. It also shows that some factors such as education or social class are not always associated with the measured variables. It also, as discussed before, dismisses any suggestion that the more educated group gives invalid answers.

**Table (9:25): Frequency table showing mothers' absorption of message "6":
Every pregnant woman should be vaccinated against tetanus**

| Mother's belief | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|--------------|-----------------|--------------|---------------------|--------------|
| | Count | % | Count | % | Count | % |
| Definitely untrue | 8 | 10.5 | 12 | 7.6 | 17 | 17.3 |
| Fairly untrue | 14 | 18.45 | 5 | 3.2 | 7 | 7.1 |
| Do not know | 18 | 23.7 | 7 | 4.4 | 34 | 34.7 |
| Fairly true | 19 | 25.0 | 12 | 7.6 | 5 | 5.1 |
| Definitely True | 17 | 22.4 | 122 | 77.2 | 35 | 35.7 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

From the analysis of the above six messages, it is possible to conclude that not only are mothers in the VV group actually exposed and comprehended the advertised health messages, while mothers in the VN group are potentially not exposed to such services, but it also reveals the positive effect of television on child health promotion. Intervening factors only enhance these positive effects. This again confirms the validity of the research design.

Table (9:26): Chi-square critical value and level of significance for the difference in mothers' absorption of the broadcast immunization messages between each two groups

| Message | Groups | Chi-square | | | |
|---|--------|------------|----------|--------------|---------|
| | | Value | DF | Significance | |
| Negative and neutral beliefs, compared with positive belief | First | VV/VN | 50.99619 | 1 | 0.00000 |
| | | VV/CV | 12.27730 | 1 | 0.00000 |
| | | CV/VN | 77.00819 | 1 | 0.00000 |
| | Second | VV/VN | 37.02264 | 1 | 0.00000 |
| | | VV/CV | 7.70938 | 1 | 0.00549 |
| | | CV/VN | 41.59767 | 1 | 0.00000 |
| | Third | VV/VN | 0.35712 | 1 | 0.55011 |
| | | VV/CV | 0.01182 | 1 | 0.91342 |
| | | CV/VN | 0.17127 | 1 | 0.67802 |
| | Fourth | VV/VN | 71.58121 | 1 | 0.00000 |
| | | VV/CV | 11.68044 | 1 | 0.00063 |
| | | CV/VN | 78.50983 | 1 | 0.00000 |
| | Fifth | VV/VN | 83.92473 | 1 | 0.00000 |
| | | VV/CV | 11.09717 | 1 | 0.00086 |
| | | CV/VN | 86.56450 | 1 | 0.00000 |
| | Six | VV/VN | 53.77036 | 1 | 0.00000 |
| | | VV/CV | 36.20503 | 1 | 0.00000 |
| | | CV/VN | 0.74698 | 1 | 0.38743 |

3:9:7 TELEVISION IMMUNIZATION CAMPAIGNS:

The researcher in this section evaluates the television immunization campaigns directly by measuring mothers' reaction to them. This can be a confirmation of the researcher's explanation of the measured changes in mothers' dependent variables and can demonstrate the importance of television as a medium for inducing behaviour change in favour of child health promotion.

3:9:7:1 Mothers' viewing behaviour:

(Do you watch television? How frequently do you watch health programmes? What are your favourite health programmes? Questions 2, 3, and 4).

Although confirmation of mothers' exposure to television immunization messages has been established before, in this section further evidence of mother's exposure to television and the exposure/non exposure research design. Table 9:27 shows that the CV group watches television sometimes during the day. There is no single mother who admitted that she never watched television. This behaviour has been reflected on mothers' viewing behaviour for television health programmes. There is a noticeable difference in favour of the VV group who reported watching health programmes regularly. There is not a single mother who admits never watching a health programme on television within the last month.

Table (9:27): Frequency table showing mothers' television viewing behaviour

| Viewing behaviour | Cairo viewers | | Village viewers | | Village non viewers | |
|-------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Regularly | 9 | 11.8 | 32 | 20.3 | 0 | 0.0 |
| Sometimes | 67 | 88.2 | 126 | 79.7 | 0 | 0.0 |
| Never | 0 | 0.0 | 0 | 0.0 | 98 | 100.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

Table (9:28): Frequency table showing mothers' viewing behaviour for the health programmes

| Viewing Behaviour | Cairo viewers | | Village Viewers | |
|-------------------|---------------|-------|-----------------|-------|
| | Count | % | Count | % |
| Regularly | 16 | 21.1 | 31 | 19.6 |
| Sometimes | 60 | 78.9 | 127 | 80.4 |
| Total | 76 | 100.0 | 158 | 100.0 |

To confirm these results, mothers were asked to name a health programme. In the VV group, 83.5% named at least one health programme, which confirms mothers' viewing behaviour. On the other hand, mothers in the VN group admit that they never watch television, although 26% of them have a television set. This is expected as electricity will be connected within the next few months. It may be important to stress again that the main aim of these questions is to confirm validity of the MIS, and the exposure/non exposure design.

Table (9:29): Frequency table showing mothers' favourite television health programmes

| Health Programme | Cairo Viewer | | | | Village Viewer | | | |
|------------------------------|--------------|-------|------------|-------|----------------|-------|------------|-------|
| | The First | | The Second | | The First | | The Second | |
| | Count | % | Count | % | Count | % | Count | % |
| Five minutes for your health | 19 | 25.0 | 0 | 0.0 | 70 | 44.3 | 3 | 1.9 |
| Private doctor | 33 | 43.4 | 3 | 3.9 | 36 | 22.8 | 12 | 7.6 |
| Medical consultation | 17 | 22.4 | 4 | 5.3 | 14 | 8.9 | 68 | 43.0 |
| Channel III clinic* | 2 | 2.6 | 26 | 34.2 | 0 | 0.0 | 0 | 0.0 |
| Others | 4 | 5.3 | 17 | 22.4 | 12 | 7.6 | 19 | 12.0 |
| Do not remember | 1 | 1.3 | 26 | 34.0 | 26 | 16.5 | 56 | 35.4 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 |

* Broadcast only on Greater Cairo network

3:9:7:2 Mothers' awareness of immunization campaigns:

(Are you aware of any particular immunization campaign? Who reminded you about immunization for the last campaign? Questions "27&20" respectively.)

Although there are many sources of health information that can supply knowledge regarding children's diseases, immunization, and so on, there are some particular sources that can be more helpful for awareness of the immunization campaign i.e. mobilizing a large group of mothers within a short time. Obviously, the basic objective of any health campaign is to increase the level of awareness about the issue. Tables 9:30 and 9:31 show the following:

Table (9:30): Frequency table showing mothers' awareness of the immunization campaigns

| Awareness | Cairo viewers | | Village viewers | | Village non viewers | |
|--------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Definitely unaware | 0 | 0.0 | 3 | 1.9 | 6 | 6.1 |
| Fairly unaware | 0 | 0.0 | 4 | 2.5 | 21 | 21.4 |
| Do not remember | 0 | 0.0 | 7 | 4.4 | 40 | 40.8 |
| Fairly aware | 22 | 28.9 | 27 | 17.1 | 30 | 30.6 |
| Definitely aware | 54 | 71.1 | 117 | 74.1 | 1 | 1.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

1) All the CV group are aware of the immunization campaigns. For most of the mothers (76.3%), television is the main source of awareness regarding immunization campaigns. As a second source of awareness, 35.5% reported it is their paediatricians, and another 31.6% state that it is their family members. This demonstrates the importance of television in raising the level of awareness regarding health issues even among the high social class. Its main advantage is to reach the whole population at the same time, within a short time and with the same message.

2) In the VV group, 91.2% are aware of the recurrent advertised immunization

campaigns. There are only 4.4% of mothers who admit that they are not aware of these campaigns. Announcement over loudspeakers (street megaphones) is the main reminder of immunization during the campaign for mothers in the village, as 54.4% depend on the street megaphones for the call to immunization (either the Mosque's megaphone, used normally by religious leaders, or the mobile megaphone used by health workers). Television follows the street megaphone as the main reminder (32.9%). As a second reminder, television is the main source (31.0%).

3) This is compared to the VN group, where 27.6% are unaware of these immunization campaigns and only 31.6% are aware of the issue. Interestingly enough, there is only one mother (1.0%) who is definitely sure about the occurrence of immunization campaigns. Like the VV group, 70.4% say that street megaphones are the first source they depend upon for the call to immunize. This is followed by friends (50.0%) in second place, instead of television as in the VV group. These results are very logical, as a street megaphone is not used in the city as a reminder. Television is the main source of health information, as well as other media (such as magazines for example). In a village, a street megaphone is more direct than television. A megaphone's message can reach all homes at the same time, even with the doors shut and windows closed, an advantage that eludes television. If we consider street megaphones as outdoor mass media, this will reflect the importance of mass media in general for stimulating mothers to immunize their children.

4) From these findings, it is possible to note the wide difference between the degree of awareness of the VV group and the VN group. By relating the level of awareness to its sources, it is possible to elaborate the positive role of the television immunization campaign in raising the level of awareness regarding the issue. This may lead to the assumption that, when television is not available, friends will do its job. The negligible difference between the CV and VV groups again shows the limited role of the intervening factors.

Table(9:31): Frequency table showing two sources of awareness of the immunization campaigns

| Source | Cairo viewers | | | | Village viewers | | | | Village non viewers | | | |
|-----------------|---------------|-------|------------|-------|-----------------|-------|------------|-------|---------------------|-------|------------|-------|
| | The first | | The second | | The first | | The second | | The first | | The second | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % |
| Television | 58 | 76.3 | 9 | 11.8 | 52 | 32.9 | 49 | 31.0 | 0 | 0.0 | 0 | 0.0 |
| Megaphone | 0 | 0.0 | 0 | 0.0 | 86 | 54.4 | 35 | 22.2 | 69 | 70.4 | 0 | 0.0 |
| Friends | 2 | 2.6 | 5 | 6.6 | 12 | 7.6 | 27 | 17.1 | 0 | 0.0 | 49 | 50.0 |
| Family members | 3 | 3.9 | 24 | 31.6 | 1 | 0.6 | 17 | 10.8 | 2 | 2.0 | 13 | 13.3 |
| Doctors | 13 | 17.1 | 27 | 35.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Not applicable* | 0 | 0.0 | 0 | 0.0 | 7 | 4.4 | 7 | 4.4 | 27 | 27.6 | 27 | 27.6 |
| No answer | 0 | 0.0 | 11 | 14.5 | 0 | 0.0 | 23 | 14.6 | 0 | 0.0 | 9 | 9.2 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 |

* A mother who is not aware of any immunization campaign

3:9:7:3 Mothers' evaluative belief:

(How useful was the campaign? and why? Question "28")

Immunization messages are presented throughout the day in different styles e.g. health programmes, health spots, interviews, drama, and so on. Generally, mothers feel that television immunization campaigns are useful for them. Table 9:33 shows that 72.4% of the CV group, and 89.9% of the VV group show their positive attitude. These results demonstrate not only the significant difference between the two groups ($\chi^2 = 11.813$ $P < 0.001$) but also the importance of the educational television health campaigns, especially for the disadvantaged, in influencing mothers' knowledge and attitude regarding immunization. Mothers have this positive attitude towards television immunization messages because (table 9:32) they feel that they supply them with accurate knowledge regarding:

- a) The immunization issue. This is confirmed by 59.2% of the CV group, and 86.7% of the VV group;
- b) Diseases that may endanger their children's health, as 28.7% of the CV group show that immunization campaigns supply them with correct knowledge regarding their children's health, as well as different diseases that may affect their health, with another 34.2% of the VV group also confirming this point.

Negative or neutral evaluation of television campaigns is mainly due to mothers' belief that television is not a suitable source. Some mothers in the CV group feel that television presents a very superficial idea of a complex issue and in a rough, indigestible way. They complain about the unsuitable time of health programmes or other public announcements. They also feel that it can be of some value for housewives only, as the programmes do not meet their viewing hours. On the other hand, mothers in the VV group feel that television presents diseases that can affect urban people not villagers. "People on television wear suits and differ in their way of talking, eating, living, as well as their complaints", one mother said.

Table (9:32): Frequency table showing mothers' opinion of the role of televised immunization campaign

| Reason | Cairo viewers | | | | Village viewers | | | |
|--|---------------|-------|------------|-------|-----------------|-------|------------|-------|
| | The first | | The second | | The first | | The second | |
| | Count | % | Count | % | Count | % | Count | % |
| Supply knowledge about immunization | 45 | 59.2 | 2 | 2.6 | 137 | 86.7 | 2 | 1.3 |
| Supply knowledge about children's diseases | 12 | 15.8 | 22 | 28.9 | 4 | 2.5 | 54 | 34.2 |
| Encourage health practice | 7 | 9.2 | 0 | 0.0 | 3 | 1.9 | 70 | 44.3 |
| Prefer other source of information | 5 | 6.6 | 1 | 1.3 | 1 | 0.6 | 6 | 3.8 |
| Not suitable source | 7 | 9.2 | 10 | 13.2 | 13 | 8.2 | 1 | 0.6 |
| No answer | 0 | 0.0 | 41 | 53.9 | 0 | 0.0 | 25 | 15.8 |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 |

Table (9:33): Frequency table showing mothers' evaluative beliefs of the televised immunization campaigns: How useful was the campaign?

| ATTITUDE | Cairo viewers | | Village viewers | |
|-------------------|---------------|-------|-----------------|-------|
| | Count | % | Count | % |
| Strongly negative | 0 | 0.0 | 7 | 4.4 |
| Fairly negative | 5 | 6.6 | 6 | 3.8 |
| Undecided | 16 | 21.1 | 3 | 1.9 |
| Fairly positive | 35 | 46.1 | 42 | 26.6 |
| Strongly positive | 20 | 26.3 | 100 | 63.3 |
| Total | 76 | 100.0 | 158 | 100.0 |

3:9:8 FACTORS THAT MAY AFFECT IMMUNIZATION BEHAVIOUR:

Immunization behaviour, like any other behaviour, is influenced by multiple elements. In this section, some of the factors that may affect the ultimate immunization behaviour of the target population are investigated, especially in rural areas like Kolosna village. This may form another dimension for designing a persuasive health message. These factors are as follows:

3:9:8:1 Social norms:

(Whose responsibility is it to take your child to the health unit? Question "23".

As far as immunization is concerned, it is the mother who plays the key role for immunization behaviour. She is the one who is responsible for taking the baby to the vaccination point. Table 9:34 shows the following:

1) In the CV group, 52.6% believe that immunization is a shared responsibility with 47.4% believing that it is mainly the mother's role to take care of the child. These results are similar to Mennie at al's., (1994) findings regarding shared responsibility for taking a decision about antenatal screening. However, no single mother believes it is mainly the father's role. This is a fact for all the three groups in the study, indicating the deeply rooted norm in the society. There is usually a reason for the father to take his child to be immunized (e.g. other priorities or illness of the mother).

Table (9:34): Frequency table showing social norms: child care responsibility

| RESPONSIBILITY | Cairo viewers | | Village viewers | | Village non viewers | |
|-----------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Purely mother's | 36 | 47.4 | 147 | 93.0 | 98 | 100.0 |
| Shared responsibility | 40 | 52.6 | 11 | 7.0 | 0 | 0.0 |
| Purely father's | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

2) In the VV group, 93.0% believe that it is purely a mother's role. Only 7.0% believe that it is a shared responsibility. This is similar to the VN groups, where all mothers also believe that it is purely a mother's role. This indicates that mothers are actually the main users of vaccination. They take their children to be immunized every time. The negligible difference between the VV and VN groups confirms the high validity of the study design.

It is possible to assume that, especially in rural areas, it is always expected that a mother is the person who should provide healthcare for the family and she is always motivated to comply with these expectations. This helps in identifying the target population for designing messages concerned with family health. However, there are some priorities in mothers' agenda that compete with the desired behaviour such as:

1) A mother's day is usually overloaded with other priorities apart from going to the health unit for child immunization. This is especially true of a poor family and for those in rural areas. Such a family tends to depend on day-to-day work. A mother has to prepare food for the family, do domestic chores, work on the farm, care for children and animals, and many other necessary tasks that are considered more important and essential than immunization.

2) A family in a rural area is an extended family. If a mother wants to go to the health unit, she has to match her time with the time of other mothers in the family or neighbours to go together. Obligations towards this extended family can also be a

major competing factor. These obligations create a burden that prevents mothers from attending the health unit at the recommended time.

3) A mother has to walk on foot to the health unit, taking her other children, and carrying her baby as well. She has to take care of all of them all the way to the health unit. If the health unit itself is not a pleasant place for any child, it will be a hard task for the mother to have them all at the health unit just to vaccinate the baby.

3:9:8:2 Health delivery system:

(Is there a health unit in your area? Do you usually go to the unit? How do you usually go there? How much does it cost you to immunize your child? Questions 39, 40, 41, and 42).

The health unit is the main supplier of health services in an Egyptian village e.g. child immunization, family planning services, maternal care, examination and so on. As tables 9:35, 36, 37, and 38 show, all the VV and VN groups are aware of the local health unit, which is within their catchment area. This is an expected result as both groups belong to the same village. It is also important to mention that the health unit is a part of a complex that services the village population e.g. veterinary clinic, centre for agriculture planning and consultation, and the police point. This can be an a factor for the maximum awareness of the health unit among the village population.

This situation is different for mothers in the CV group who live in a big city with a complex structural system. They do not use the health services offered by the local health unit (table: 37). Only 9.2% use the health unit because they believe that vaccines are fresher than the private sector has. The other 90.8% vaccinate their children in a private paediatric clinic as shown in table 9:43, where they have to pay an average of 40 Egyptian pounds per vaccination, not like in a village, where vaccination is free. Nevertheless, there are some aspects that a mother has to face to use the health services such as:

Table (9:35): Frequency table showing the cost for each immunization visit

| Pound | Cairo viewers | | Village viewers | | Village non viewers | |
|-------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| 0 | 7 | 9.2 | 157 | 99.4 | 98 | 100.0 |
| 5 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 |
| 25 | 11 | 14.5 | 0 | 0.0 | 0 | 0.0 |
| 35 | 36 | 47.4 | 0 | 0.0 | 0 | 0.0 |
| 50 | 22 | 28.9 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

1) Health workers may be indifferent or even hostile, poorly trained or most commonly trained for another job. With an overcrowded health unit, especially during the time of campaigns, health workers have neither much time, nor the necessary knowledge, to undertake counselling or guidance. Most of the time, when information materials are available, they remain locked up in cupboards and barely used. The tragic thing is that the health workers themselves may have all sorts of misconceptions about immunization e.g. a child should be completely healthy to withstand the vaccine. In the routine daily activities of the unit, health workers often fail to explain to the mother the actual date to return for the next injection. They just write the date of the next vaccination on the back of the child's vaccination certificate and never consider that a mother may be illiterate. Even if they draw the mother's attention to the next visit, the mother might forget the date, which is usually 45-60 days later.

2) The mother may go to the health unit at the recommended date but the unit may be over-crowded, the vaccine may not be available, she may be required to buy a disposable plastic syringe from a distant pharmacy, or any other factor that delays the vaccination date. Sometimes, when there is low attendance at the health unit, health workers may refuse to give the vaccine for just one or two children and thereby spoil the whole vial. Consequently, she has to come later. If the mother believes that she can come later, there will be no point in following the schedule. On the other hand, if a mother misses the proper time of vaccination, she may never come back for fear of health workers' criticism and punishment.

Table (9:36): Frequency table showing mothers' awareness of the health unit

| Awareness | Cairo Viewers | | Village Viewers | | Village non Viewers | |
|-----------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Aware | 55 | 72.4 | 158 | 100.0 | 98 | 100.0 |
| Not Aware | 21 | 27.6 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

3) Generally, mothers do not know how many vaccines or doses their children have to take and what is left. This is more complicated with different immunization campaigns which are out of the schedule (e.g. the polio campaign and measles campaign). They feel that it is too problematic and complicated. This could be solved easily by just following the instructions of health workers or their friends.

4) A mother may have an unpleasant experience at the health unit e.g. long waiting times, no toilet facilities available, thefts in the long queues, and so on. Little wonder that she goes to the health unit only for serious illness.

It is possible to say at this stage that there is no doubt that both the VV and VN groups belong to a homogeneous society, sharing the same social norms, health services, competing priorities, and so on. This further confirms our previous conclusion regarding the validity of the research design.

Table (9:37): Frequency table showing mothers' attendance at the health unit

| Attendance | Cairo Viewers | | Village Viewers | | Village non Viewers | |
|-----------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Never | 48 | 63.2 | 7 | 4.4 | 5 | 5.1 |
| Always | 0 | 0.0 | 142 | 89.9 | 74 | 75.5 |
| Sometime | 7 | 9.2 | 9 | 5.7 | 19 | 19.4 |
| Not applicable* | 21 | 17.6 | 0 | 0.0 | 0 | 0.0 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

* A mother who is not aware of the local health unit.

Table(9:38): Frequency table showing the way to reach the local health unit

| Way | Cairo Viewers | | Village Viewers | | Village non Viewers | |
|-----------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| On foot | 3 | 3.9 | 151 | 95.6 | 83 | 84.7 |
| By Car | 4 | 5.3 | 0 | 0.0 | 0 | 0.0 |
| Not Applicable* | 69 | 90.8 | 7 | 4.4 | 15 | 15.3 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

* A mother who is not a user of the local health unit.

3:9:8:3 Beliefs for the schedule:

(Do you follow the schedule of vaccination? Why? Question "15").

This forms a third dimension in the analysis of mothers' behaviour, for exploring television's role in achieving ideal behaviour. As shown in tables 9:39, 9:40, and 9:41, the majority of the CV group (86.8%) strictly follow the schedule. No single mother admits that she does not follow the schedule. Mothers do not show any factor that denies immunization according to the schedule, with 55.3% admitting that they just follow the orders of their paediatrician. Health professionals usually stress the time of vaccination, otherwise the mother has to pay for another visit. Besides imparting knowledge, they can also regulate the pre-planned behaviour.

Table (9:39): Frequency table showing mothers' immunization behaviour according to the recommended schedule

| BEHAVIOUR | Cairo Viewers | | Village Viewers | | Village Non Viewers | |
|-------------------------------|---------------|-------|-----------------|-------|---------------------|-------|
| | Count | % | Count | % | Count | % |
| Never follow the schedule | 0 | 0.0 | 5 | 3.2 | 12 | 12.2 |
| Sometimes follow the schedule | 10 | 13.2 | 49 | 31.0 | 34 | 34.7 |
| Always follow the schedule | 66 | 86.8 | 97 | 61.4 | 29 | 29.6 |
| Not applicable* | 0 | 0.0 | 7 | 4.4 | 23 | 23.5 |
| Total | 76 | 100.0 | 158 | 100.0 | 98 | 100.0 |

* Child is not immunized

Table (9:40): Chi-square critical value and level of significance for the difference in mothers' immunization behaviour according to the recommended schedule between each two groups

| Behaviour | Groups | Chi-square | | |
|--|--------|------------|----|--------------|
| | | Value | DF | Significance |
| Following the schedule compared with incomplete and negative behaviour | VV/VN | 72.08767 | 1 | 0.00000 |
| | VV/CV | 43.32702 | 1 | 0.00000 |
| | CV/VN | 11.22178 | 1 | 0.00081 |

Only 31.6% reported that they followed the schedule to obtain the maximum protection for their children. Most of the VV group (64.2% of those who immunize their children) always follow the schedule. This is significantly lower than those in the CV group. There are only 3.3% who admit that they never follow the schedule. 32.9% admit that they just follow the instructions. They believe that if they miss the day, they may miss it for ever. Another 27.8% show that they follow the schedule to achieve the maximum protection for their children. Other priorities are the main reason for not following the schedule (22.8%). There is great disagreement among the remaining 41.8% who have a second reason. Contra-indications (12.0%) and forgetting the date of vaccination (10.8%) are the main two reasons that act as secondary factors that can affect vaccination behaviour.

A total of 38.7% of the VN group immunize their children and follow the schedule regularly, while 16.0% admit that they never follow the schedule. 27.6% show that they just follow instructions. Another 23.5% reported that there are other competing priorities, with 15.3% aware that, for maximum protection, they should follow the schedule, but this is a secondary reason after following instructions. This order is very similar to that in the VV group as they already belong to the same village with the same environmental factors, social norms, competing priorities, and health services, but they differ in exposure to immunization campaigns. For both groups, competing motives are the main reason for negative behaviour regarding the schedule,

while following the instruction is the main reason for the positive behaviour. The higher percentage for those who reported achievement of maximum protection by following the schedule in the VV group compared to the VN group, can easily be related, as we discussed before, to the positive effect of exposure to television. Consistency of the findings confirms the research hypotheses, answers the research questions, and shows the validity and reliability of the research design.

Television messages can have the ability to change behaviour (regarding the schedule) to the positive side, especially for the disadvantaged group. This is evident by comparing the positive behaviour of the VV and those in the VN groups. Television not only supplies knowledge, it also guides people to ideal behaviour, as recommended by credible health professionals. Following the schedule may represent more complex information or behaviour for the VN group. This may support the previous assumption that television health messages supply the mothers with adjusting information (secondary catch-up). This last step can be the major difference between the viewer and the non viewer groups. We can also notice the importance of health professionals or health workers in guiding the mothers towards positive behaviour. With their support, television can have a great effect on mothers' behaviour. At the same time, the social mobilization, to support a mother's new behaviour and to improve child care, helps her to emerge with the desired positive health behaviour. This gives a new dimension for television to act through.

A health message is not only carrying health information, it should prepare the ground for the new idea to be implanted and grown. For example, a health message should stimulate both parents, not only the mother who is already overloaded with other responsibilities including health care of all the family members. This necessitates a change in the social norms of the community. Another important role of television is to direct the public's and policy makers' attention to the importance of improving the quality of health services, including the availability of updated knowledge to the health professionals and the health workers regarding the health issue. A health message should clarify the way forward and highlight undermined factors. This is where television's power can be seen.

Table (9:41): Frequency table showing mothers' reasoning for their immunization behaviour in relation to the recommended schedule

| REASON | Cairo viewers | | | | | | Village viewers | | | | | | Village non viewers | | | | | |
|-------------------------|------------------|-------|-------------------|-------|------------------|-------|-------------------|-------|------------------|-------|-------------------|-------|---------------------|---|-------------------|---|--|--|
| | The first reason | | The second reason | | The first reason | | The second reason | | The first reason | | The second reason | | The first reason | | The second reason | | | |
| | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | Count | % | | |
| Competing priorities | 0 | 0.0 | 2 | 2.6 | 36 | 22.8 | 2 | 1.3 | 23 | 23.5 | 4 | 4.1 | | | | | | |
| Forgetting the time | 2 | 2.6 | 0 | 0.0 | 4 | 2.5 | 17 | 10.8 | 9 | 9.2 | 8 | 8.2 | | | | | | |
| Health system's quality | 0 | 0.0 | 0 | 0.0 | 10 | 6.3 | 7 | 4.4 | 5 | 5.1 | 7 | 7.1 | | | | | | |
| Maximum protection | 24 | 31.6 | 0 | 0.0 | 44 | 27.8 | 8 | 5.1 | 1 | 1.0 | 15 | 15.3 | | | | | | |
| Vaccination problems | 0 | 0.0 | 0 | 0.0 | 2 | 1.3 | 3 | 1.9 | 3 | 3.1 | 1 | 1.0 | | | | | | |
| Follow the orders | 42 | 55.3 | 0 | 0.0 | 52 | 32.9 | 10 | 6.3 | 27 | 27.6 | 1 | 1.0 | | | | | | |
| Contra-indications | 8 | 10.5 | 0 | 0.0 | 2 | 1.3 | 19 | 12.0 | 0 | 0.0 | 10 | 10.2 | | | | | | |
| Not important | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.0 | 1 | 1.0 | | | | | | |
| No answer | 0 | 0.0 | 74 | 97.4 | 1 | 0.6 | 85 | 53.8 | 5 | 5.1 | 28 | 28.6 | | | | | | |
| Not applicable* | 0 | 0.0 | 0 | 0.0 | 7 | 4.4 | 7 | 4.4 | 23 | 23.5 | 23 | 23.5 | | | | | | |
| Total | 76 | 100.0 | 76 | 100.0 | 158 | 100.0 | 158 | 100.0 | 98 | 100.0 | 98 | 100.0 | | | | | | |

* A mother who showed negative immunization behaviour

3:9:9 SUMMARY OF MOTHERS' BEHAVIOUR:

The pivotal aim of this chapter is to pinpoint the influence of exposure to television immunization campaigns on mothers' behaviour. This has been examined through four main dimensions, as follows:

1) Mothers' immunization behaviour.

To demonstrate the change in mothers' behaviour, the researcher examined it in relation to the following:

a) Past immunization behaviour: There is a significant difference between mothers' past behaviour in the VV and the VN groups. The positive change in mothers' behaviour in the VV group most probably started after broadcasting the health instructions on television. On the other hand, mothers in the CV group show the maximum positive past behaviour, with highly significant differences compared to the VV group. With an average of two children for each family in the CV group but three to four children for a family in the VV group i.e. some children were born before starting immunization campaigns or at least before electrification of the village, television immunization instructions can be considered one of the determining factors to produce such a high level of positive past behaviour.

b) Current immunization behaviour: There is an insignificant difference between the CV and VV group. This may exclude the influence of intervening factors that might act as an alternative explanation for the relation between exposure to television instructions and the positive change in behaviour. It also shows the importance of television, in compensating for most of these factors for the less advantaged population. This assumption is supported by the previous finding regarding mothers' past behaviour, as they are the same mothers. On the other hand, there is a significant difference in mothers' immunization behaviour between the VV group and the VN

group. This process of comparison can demonstrate not only the actual change in mothers' behaviour, but also the positive relation between exposure to television instructions and immunization behaviour. Moreover, reported new knowledge of immunization and a change in attitudes created by the campaigns are the factors most clearly associated with self-reported behaviour change.

c) Immunization behaviour for each disease: There is a significant difference in immunization behaviour against polio or DPT between the CV group and the VV group. This difference can be explained as the role of some intervening variables, such as the health professionals for example who encourage the mothers to vaccinate their children with complete doses. At the same time, there is a significant difference between the VV and VN groups which demonstrates the change towards the positive side as a consequence of exposure to television immunization instructions, yet factors such as health professionals can only potentiate the change.

The role of the health professionals is shown by examining mothers' vaccination behaviour against TB in the CV group, where mothers show a low level of positive behaviour that can be attributed to the negative influence of the health professionals. The VV (the less educated) group show a high level of positive behaviour with a significant difference from the CV (the more educated) group which can confirm the positive role of exposure to the television health messages on mothers' behaviour, especially for the disadvantaged population, as evident by the highly significant difference between the VV and VN groups.

Examining mothers' immunization behaviour regarding measles helps to play down the effects of intervening factors, such as health professionals or educational level, leaving exposure to immunization campaigns as the greatest rival factor in inducing positive change. This is evident by the absence of any significant difference between the CV and VV groups on one hand, and the highly significant difference between the VV and VN groups. Vaccination against measles can be seen as a simple behaviour, where the vaccine is administered only once, and sometime after the ninth month of age, compared to the more complex three dose polio vaccine, where a mother should

return later at fixed times. Intervening factors, especially health professionals, can have a role in a more complex behaviour.

Vaccination with DPT represents a different role for exposure to television health instructions. It has the same pattern of immunization behaviour as polio vaccine. The high level of positive behaviour can be explained by the concurrent administration of both vaccines. This means the positive behaviour (that has been created by the positive influence of the exposure to the television immunization instructions) can be extended to other vaccines which share the same situational factors.

d) Immunization behaviour according to the schedule: Television may change mothers' behaviour towards the positive side, which is not enough. It should also be in full doses and in time, according to the recommended schedule. This constitutes an ideal immunization behaviour. Television immunization messages can influence behaviour to be ideal. This can be demonstrated by the significant difference between mothers who vaccinate their children regularly, according to the recommended schedule in the VV group, and those in the VN group. Health professionals can have a role in regulating immunization behaviour, as evident in the significant difference between mothers in the CV and VV groups.

2) Role of different influential sources on mothers' behaviour:

In a mother's surrounding environment, there are many sources that can influence her decision regarding immunization:

- Within the health professionals group, private doctors are the main influential factor on mothers' decisions in the CV group. On the other hand, health workers are the main influential factor on mothers' decisions in both the VV and the VN groups;
- Within the mass media group, television is the most influential source on mothers' immunization decision for the viewer groups;
- Family members or friends have a minor role in influencing mothers' decision in both the CV and the VV groups but, for the VN group, they can have a great

influence on mothers' decisions. A husband can have an influence on a mother's behaviour in both the CV and the VV group. On the other hand, friends and husbands can have an effective role in influencing mothers' decision within the VN group.

These results demonstrate the positive role of television as a mass medium to reach and motivate the target audience towards the desired behaviour and empowering them to show positive behaviour. This assumption is supported by logistic regression models which show that non exposure to television health instructions is a risk factor for having a non immunized child (6.6 times higher than for a viewer). These models also show the insignificant effect of mothers' characteristics such as religion, age, education, and the child's sex on mothers' behaviour, which is expected as the same mothers show different knowledge, attitude, and behaviour towards different diseases, or vaccines. Mothers' knowledge can be a significant factor in expecting certain behaviour. However, mothers' attitude is more significant in this respect.

3) Mothers' absorption of health messages:

To support the basic assumption of the viewer/non viewer comparative research design, the researcher directly examined the effect of five different immunization messages, which were presented on the television during the campaigns, among the three groups studied. There are significant differences among the viewer and the non viewer groups which can be attributed to the difference in exposure to television health instructions. This may confirm that the viewer group, were exposed to the television immunization instructions but not the non viewer group ensuring a high validity for the research design, which is also ensured by the consistency in the research findings for the different diseases and vaccines. To test the validity further, a controlled message is also examined which showed an insignificant difference among the three groups.

4) Educational television campaigns:

Evaluation of mothers' reaction to the television immunization campaigns broadcast is the other side of the research coin. It demonstrates the importance of using television for public health. It can also demonstrate the possible positive relation between the research dependent and independent variables. This has been done as follows:

a) Mother's awareness of immunization campaigns: There is a maximum level of mothers' awareness of immunization campaigns among the CV group. They attribute this high awareness to the active role of television. However, the VV group relate their high awareness to another, but smaller-scale form of media i.e. the street megaphones. Television is in second place after the street megaphones. On the other hand, in the VN group there are fewer mothers than in the VV group who are aware of the recent immunization campaign. They attribute their awareness to the street megaphones (i.e. a form of mass media as well).

b) Mothers' attitude towards immunization campaigns: Generally, mothers have a positive attitude towards the televised health instructions. They feel that television health messages can supply them with the necessary information regarding immunization and the nature of the diseases that may endanger their children's health. Because mothers feel that television is a credible medium, the majority of them have a positive intention to follow the instructions broadcast and are ready to immunize their children accordingly.

3:9:9 CONCLUSION:

1) Exposure to television health instructions can stimulate a change in a mother's behaviour towards better child health, regardless of her educational level, age, social class, sex of the baby, religion, and so on. It can reach the whole population and

mobilize them to practise the desired behaviour at the same time.

2) The positive effects of exposure to television instructions on a mother's behaviour can be related to the following factors:

- Increase of mothers' awareness and knowledge regarding the immunization issue. With analysis and estimation of different choices of behaviour, it guides the mother to the proper health measure that should be taken and which should be consistent with the new positive attitude and knowledge;
- Increase of mothers' efficiency to use the available health services, and of mothers' perceived control over their children health destiny. It also improves the belief that immunization leads to a desired outcome and the belief that mothers can easily immunize their children and should do so.
- Setting the immunization issue at the top of a mother's agenda. This stimulates the mother not only to an initial positive behaviour, but also to an ideal immunization behaviour. It can also promote the mother to discuss the immunization issue with her friends, family, and so on. This exerts pressure on both the private and the public health care sector to update their knowledge and to respond to the mothers' need for better health services. This is an indirect way for television to have positive effects on mothers' behaviour.

3) Among different mass media, television is the most influential medium on a mother's decision regarding child immunization. It overlaps with the role of friends or family members. In its absence, friends and family members will be the main sources of influence which keep the misconceptions and unhealthy behaviour passing from one generation to the next. Television, with its credible health instructions, can break this negative transmission of beliefs. This may be of special importance in a village, as it might be the only credible source of information.

4) Exposure to television immunization instructions can create a common behaviour towards vaccination in general. This means that, with a single message towards a salient behaviour, this behaviour can be extended to the whole set of vaccines. This could be helped by decreasing the effort which the mother should make e.g.

decreasing the number of vaccinations.

5) A mother's attitude is an important factor in changing her behaviour. Therefore, a persuasive health message should be designed according to a good theory and directed mainly at its target population's attitude rather than a simple transmission of medical knowledge. With a positive change in knowledge, more positive change in attitude is expected with more probability of a positive change in behaviour.

6) Television instructions should be directed mainly at a specific segment of the population i.e. the mothers. This calls for careful audience segmentation which is not only on demographic characteristics but also on social level e.g. current value, beliefs, and knowledge as Hawthorne (1994) and Bettinghaus (1992) argue regarding audience segmentation to reach the audience if a significant impact on behaviour and optimum use of the available health services is to be obtained. Nevertheless, the health messages should also include other influential forces, such as the husband, family members, private health professionals, and so on.

7) Educating the mother for health and child health care should be started as early as possible to utilise her initial enthusiasm and motivation for child care while it is at a sufficiently high level to complete the vaccination schedule. It also protects the mother from the surrounding misconceptions at an early stage. Additionally, vaccination should be as infrequent as possible to minimize the effort to complete the schedule. Also, vaccines should have an easy and descriptive name to help the mother to remember and to learn.

8) Television health messages can be very effective in their persuasive impacts. However, the ultimate behaviour can be aborted by some other external factors, such as competing motives, which have more importance in a mother's daily activity, the quality of the health services, misconceptions regarding immunization, and so on. These factors necessitate special treatment in designing a health message for child health promotion.

CHAPTER TEN

CONCLUSION AND RECOMMENDATIONS

3:10:1 INTRODUCTION:

Health is a subjective sense of well-being. Because it is subjective in quality, a health educationalist should explore the underlying factors which can affect the target population's perception and achievement of well-being, and which may influence their decision to practise or not to practice certain behaviour. The new information must be formulated according to their needs and aspirations and should facilitate the voluntary adoption of the recommended behaviour to maintain or improve their well-being. There are two main approaches, complementary to each other, which a health educationalist can follow to achieve the goal of health education. The first is the educational approach, which stresses the need to arm the target population with the correct information, motivating them to take an informed decision regarding target behaviour, as well as facilitating execution of the behaviour and its transformation into a habit. The second approach is by persuading the target population to think and act according to the health educationalist's recommendations. This requires an effective strategy for persuasion which should be designed according to a pre-established theory. Basic to both approaches, an effective channel of communication with the target population should be identified. The research argues that television, with its audio-visual potential, can be an effective tool for health education, especially for rural

areas in a developing country like Egypt. It examines the effects of television immunization campaigns on mothers' knowledge, attitude, and behaviour regarding immunization.

3:10:2 CONCLUSION:

1) Television, as a sort of mass media, is a valuable tool in transmitting health instructions to the target population, in both rural and urban areas. It has the power, when used intelligently, to stimulate changes in the target population's attitude and behaviour towards the health problem presented, as well as to increase their level of correct knowledge regarding the health issue. It can fill the gap that exists between the rapidly increasing health information on one hand and the level of awareness of these findings among the target population on the other.

2) Television is considered to be the main source of health information, including immunization, for most viewers. It makes them aware of the existing health problems and supplies them with the available options to counteract the threats, including those that cannot be fully controlled by conventional care. With its credible messages, it can extend the viewers' latitude of uptake and acceptance of new information not only basic health information, but also more complex, related information and skills.

3) Television health messages can influence viewers' beliefs regarding the likelihood of someone falling a victim to the current health problem, the seriousness of the disease, as well as the effectiveness of the action recommended to avoid such a threat. By guiding the viewers' interpretation and analysis, television health messages can influence the audience to value health positively, in all its dimensions, and promote a feeling of responsibility for the viewer's own health care.

4) With better understanding and reorganization of the value system, television tends

to create psychological tension among the audience's cognitive elements. This tension encourages the audience to change their attitude towards the health problem and return to a consistency state, which is a basic and pleasurable condition. Consequently, the audience will be ready for more selective exposure and attention to credible and positive health messages (including those from other sources of information besides television, which is considered the trigger for the process of change). This incongruent change in attitude occurs gradually, representing the gradual absorption of the educational health messages and the relevance of repeating the message. At the same time, forced compliance is a poor technique of attitude change and legalisation cannot be a substitute for education.

5) With its persuasive power, the audience considers television a credible source of information related to the health problem. At the same time, the television message urges the audience to conduct, or not to conduct, a certain action. To be in a balanced state, the audience develops favourable attitude towards the recommended action. The attitude generated can even mushroom to include all related health matters. For example, a persuasive campaign urging the mothers to vaccinate their children against polio may generate a favourable attitude not only towards oral polio drops, but also towards other types of vaccines, modern medicine, or even towards the health services and efforts made by the government to save their children's lives. This ability to extend the attitude generated may be an important difference between television and other types of communication e.g. interpersonal communication. This mushrooming function of the television message may be the factor responsible for inducing stability of the attitude against different negative motives and putting the recommended action at the top of the audience's agenda.

6) With its power to reach most people at the same time with the same message, television can create public opinion in favour of health which facilitates change in the normative system and makes it acceptable for the society to express the new attitude and resist external negative pressure for the new health decision to be executed. It is the role of the television to explore negative social influences and defeat them in favour of a sound health decision. For example, although mothers are the ideal targets

for immunization messages, they are commonly overloaded with other responsibilities besides health care. Television should encourage the husband or the other family members to share in the family health care. Furthermore, national leaders may feel that they can move more promptly and decisively to manage the provoked health problem when its impact is well and widely understood. Television can also present to most of the population an ideal example to be followed and to be imitated. It provides a common model which leads to mass change in attitude in a certain direction. On the other hand, in absence of television modelling, there will be many models to be followed with different attitude outcomes.

7) Positive change in knowledge regarding the health problem leads to a positive change in, and more extended, attitude, which is followed by a positive change in behaviour to keep a balanced state. Television presents a standard which act as a guide to suitable behaviour and expresses the need to achieve that standard. Television can guide the audience not only to the behaviour required to avoid the health threat, but also to a ideal behaviour and the skills it necessitates. For example, television helps the mother to vaccinate her child regularly according to the recommended schedule. The positive behaviour can be extended to cover related and similar health behaviour. For example, mothers vaccinate their children with DPT by associating it with the polio vaccine. This association of behaviour can be a result of the formation of an extended attitude. It may also be responsible for the consistency and stability of the behaviour when facing other conflicting motives. This may indicate the central role of attitude in keeping a balanced state.

8) In the absence of television, friends or family members will be the source of health information, as well as the source of influence on decision-making. People share experience and knowledge. This shows the importance of word of mouth in transmitting health information from generation to generation. Nevertheless, their experience with the health problem is usually superficial and may be based on misconceptions and outdated information. Television can substitute experience and give an answer to what will happen if the health problem affects the audience's well-being. However, this may constitute a new challenge for television health education.

Direct experience with the health problem will subside and may be perceived as belonging to a previous generation with a consequent lessening of attitude. It is the function of television, as an important source of credible health information, to continue feeding the audience with indirect experience with the health problem and to keep the initial positive attitude transmitted from one generation to another.

9) Medical doctors in advantaged areas and health workers in less advantaged areas, can potentiate or obstruct the penetration of the health messages. Furthermore, health services (both quality and quantity) can facilitate the development of the desired behaviour or abort it at its early stage.

3:10:3 RECOMMENDATIONS:

1) Carrying out health education using television has great potential provided that its scope and limitations are fully understood and the necessary skills developed. Effective and efficient use of television requires good pre-established and practical theory. This calls for the training of health professionals for the effective use of television in educating the public in favour of health, and for the effective collaboration with media professionals to achieve shared goals and to meet future challenges.

2) A television campaign should be part of an integrated plan of activities. The initial positive impact of the campaign on the public should be followed up by longer term educational efforts e.g. improvement of the available health services, both in quality and quantity; involvement of the private health sector in the campaign objectives; collaboration with influential social groups; and so on.

3) Formative research is important to identify the potential audience and its current knowledge, fear, and beliefs, misconceptions, values, attitude, socioeconomic status,

and so on. A campaign should develop from the community to the community.

4) In the absence of television, health education should be directed towards the use of local media e.g. street loudspeakers. Influential people could be used as an indirect way to communicate with the disadvantaged and inaccessible population.

5) A multi-media approach is usually more effective and influential in its impact on the audience. Face-to-face communication with health professionals can be an effective ally to the television health message. Also other types of media, such as magazines or radio, can be used in conjunction with the television according to the audiences habit of media usage.

6) A health message should be as simple as possible with a style suitable to both the audience and the health issue. For example, a highly educated audience requires a double sided message. More complex information can create avoidance and resistance. The message should also be repeated enough times for attitude change to occur. It should also be related with a prominent and effective health measure. For example, linking immunization in general to immunization against polio will benefit the other, less well known or less popular vaccines e.g. DPT.

7) Audience segmentation is a very effective technique to reach the target audience and to avoid dilution of the media effects. Nevertheless, media messages should also be addressed to the relevant others. They should orient health professionals and health workers regarding government policy and objectives, as well as regarding correct and unified knowledge. Television messages should also encourage them to practise their role as local health educators. The same can be applied to other members of the family, where each member identifies him/herself with other members of the family, or even the local community.

8) To facilitate the behavioural intention to emerge, the gain from the proposed action should outweigh the effort to be expended. For example, the inclusion of different vaccines in a single shot makes it easier for the mother to vaccinate her child in one

visit to the health unit. Also, the less painful the vaccine, the more its value, as in the case of oral polio vaccine. The vaccine itself should have an easy descriptive name to be remembered by e.g. the oral drops for polio; or the nine-month injection; or the measles injection.

9) With the massive lowering in the price of computers and video games, it may be cost-effective for health educationalists to keep up with advanced information technology and explore the use of the new media in favour of health.

10) The overall role of media, especially television, should be investigated through more media research in the field of health to understand what can work and what cannot, as well as its cost effects. This sort of research should receive a high priority for government funding, otherwise the media campaign will continue to be, as Hindson (1985) called it, "little more than short-term propaganda exercises, having little impact on the world's major health problems".

11) Until health educationalists and media professionals can provide each other with objectives, evidence for the effect on the controversial media material, health campaigns will have a superficial impact only. Because each health problem has its unique feature, and each medium has its unique characteristics, the research endorses the evolution of a science of media health promotion. This science will be an intersecting point for public health, community medicine, social psychology, communication science, education, and many other subjects.

3:10:4 LIMITATIONS OF THE STUDY:

The positive findings on television's effects and its uses in child health promotion, should have been augmented by additional research on its effects, particularly in Egypt or developing countries. Other sources and media, particularly radio may be

considered. Nevertheless, there have not been many previous examples research conducted regarding television and its effect on child immunization.

Although this study provides an insight into the potential impact of the television on mothers' knowledge, attitude, and behaviour, part of the apparent effect may have been artificial. For example, some mothers in the control group (VN) could have moved from the study area and contacted the experimental group. Also, besides the lack of pre-campaign information regarding the target population, it was impossible to use a real comparative data gathering design in order to assess the campaigns' effects. This forced the researcher to be reluctant to make a causal attribution regarding the extent to which an immunization television campaign was the stimulant to change.

It is beyond the scope of this study to examine the effect of television immunization campaigns on child health in Egypt e.g. health policy, health services, infant mortality and morbidity, and so on. Likewise, it is not the aim of this study to explore the technique of the campaigns e.g. the contents, style, or appeal of their message, and so on.

3:10:3 LOOKING AHEAD:

The positive assessment of the role of television on child immunization naturally leads us to wonder whether the phenomenon can be generalized to other health behaviour problems. Health educationalists still need to know the factors related to the successes and failures of selling and advertising health behaviour, as well as the barriers to the communication of health risks and benefits. In depth study of each disease and its vaccine may help to demonstrate these factors. However, the techniques to explore the role of television still required refining to increase their reliability and validity. This could be the major challenge in the research field.

The role of other media in health promotion is also an important area of research. The results of this research can be used as a baseline for future research on mothers' attitude, knowledge and behaviour. For example, the part of the village which was not supplied with electricity, is now supplied with electricity. The next step would be to identify the change in these dependent variables in that part of the village by measuring them and comparing them with the current research data.

The relation between attitude and behaviour still needs more analysis and a reliable theory. The research assumption of the positive relation between knowledge, attitude and behaviour needs more sophisticated examination and verification.

BIBLIOGRAPHY

- Ajuwon, A.J.; Brieger, W.R.; Oladepo, O.; and Adeniyi, J.D. (1995) Indigenous surgical practices in rural south Western Nigeria: implications for diseases prevention. *Health Education Research: Theory and Practice*, 10(3), 379-384.
- Ajzen, I. (1988) *Attitudes, Personality, and Behaviour*. Milton Keynes: Open University Press.
- Ajzen, I. (1987) Attitude, traits and actions: dispositional prediction of behaviour in personality and social psychology. *Advances in Experimental Social Psychology*, 20, 1-63.
- Ajzen, I.; and Madden, T. J. (1986) Prediction of goal directed behaviour: attitudes, intentions and perceived behavioural control. *Journal of Experimental and Social Psychology*, 22, 453-47.
- Ajzen, I.; and Fishbein, M. (1980) *Understanding Attitudes and Predicting Social Behaviour*. New Jersey: Prentice Hall.
- Al-Ahram Newspaper (1994) President Mubark receives United Nation population prize. *Al-Ahram Newspaper*, Cairo, Egypt, February 26, Page 1.
- Allen-Meares, P.; and Lane, B.A. (1990) *Social Work Practice: Integrating Qualitative and Quantitative Data Collection Techniques*. New York: Wiley.
- Aronson, E.; Fried, C.T. and Stone, J. (1991) Overcoming denial: increasing the intention to use condoms through the induction of hypocrisy. *American Journal of Public Health*, 18, 1636-1640.
- Ashley, J.M.; and Jarvis, W.T. (1995) Position of the American Dietetic Association: food and nutrition misinformation. *Journal of American Dietetic Association*, 95(6), 705-707.
- Backett, K. (1990) Image and reality: health enhancing behaviour in middle-class families. *Health Education Journal*, 29, 61-3.
- Bailey, K.D. (1983) *Methods of Social Research*, 2nd edn. New York: Free Press. Page 100.
- Baker, E.A. (1993) *The Role of Control in the Occupational Stress Process*. Doctoral dissertation, University of Michigan, Ann Arbor. MI.
- Baker, T.L. (1988) *Doing Social Research*. New York. Graw-Hill.
- Bandura, A. (1990) Perceived self-efficacy in the exercise of control over AIDS infection. *Evaluation and Program Planning*, 13, 9-17.
- Bandura, A. (1986) *Social Foundations of Thought and Action*. Englewood, NJ: Prentice-Hall.
- Baranowski, T.; Bee, D.; Rassin, D.; Richardson, J.; and Palmer, J. (1990) Expectancies toward infant feeding methods among mothers in three ethnic groups. *Psychology and Health*, 5, 59-75.
- Bargh, J.A.; Chaiken, S.; Covender, R.; and Pratto, F. (1992) The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology*, 62: 893-912.
- Baric, L. (1970) Recognition of the "At-Risk" role: a means to influence health behaviour. In *Behaviour Change Through Health Education: Problems of Methodology*. Reports on fundamental research in health education presented

- at the International Seminar on Health Education (March 1969, Hamburg.), Federal Centre for Health Education, FRG.
- Baron, R., A.; and Byrne, D. (1994) *Social Psychology: Understanding Human Interaction*, 7th edn. Boston: Allyn and Bacon.
- Baron, R.A.; Rea, M.S.; and Daniels, S.G. (1992) Effects of indoor lighting (illuminance and spectral distribution) on the performance of cognitive tests and interpersonal behaviours: the potential mediating role of positive affect. *Motivation and Emotion*, 16, 1-33.
- Battersby, M.; Ben-Tovim, D.; and Eden, J. (1993) Electroconvulsive therapy: a study of attitudes and attitude change after seeing an educational video. *Australian and New Zealand Journal of Psychiatry*, 27(4), 613-619.
- Bauer, R.A. (1964) Abstinent audience. *American Psychologist*, 19, 319-328.
- Baxter, D.N. (1990) Improving immunization uptake in the United Kingdom. *Public Health*, 104, 267-274.
- Bedford, H.E. (1998) The importance of professional advice in achieving high immunization uptake. *Health Visitor*, 61, 286-287
- Bentley, E.M.; and Mackie, I.C. (1993) A qualitative investigation into general-practitioners views on prescribing sugar-free medicine for children prior to a dental-health education campaign. *Health Education Research: Theory and Practice*, 8(4), 519-524.
- Brehm, S.S.; and Brehm, J.W. (1981) *Psychological Reactance: A Theory of Freedom and Control*. New York: Academic Press.
- Berk, R.A.; and Rossi, P.H. (1990) *Thinking About Programme Evaluation*. Nebury Park and London: Sage.
- Bettinghaus, E.P. (1992) Defining and targeting an audience for cancer-prevention messages. *Monograph of National Cancer Institute*, 12, 159-61.
- Biblarz, A.; Brown, R.M.; Biblarz, D.N.; Pilgrim, M.; and Baldree, B.F. (1991) Media influence on attitudes towards suicide. *Suicide and Life Threatening Behaviour*, 21(4), 374-384.
- Blumoff, T.Y. (1990) The third best choice: an essay on law and history. *The Hastings Law Journal*, 41, 537-576.
- Borg, W.R.; and Gall, M.D. (1989) *Educational Research: An Introduction*, 5th edn. New York: Longman.
- Borg, W.R.; and Gall, M.D. (1983) *Educational Research: An Introduction*, 4th edn. New York: Longman.
- Bornstein, R.F. (1989) Exposure and affect: overview and meta-analysis of research, 1968-1987. *Psychological Bulletin*, 106, 265-289.
- Bortolotti, F.; Stivanello, A.; Noventa, F.; Forza, G.; Pavanello, N.; and Bertolini, A. (1992) Sustained AIDS education campaigns and behavioural changes in Italian drug abusers. *European Journal of Epidemiology*, 8(2), 264-267.
- Breakwell, G.M.; Hammond, S.; and Fife-Schaw, C. (1995) *Research Methods in Psychology*. London: Sage.
- Breckler, S.J. (1984) Empirical validation of affect, behaviour and cognition as distinct components of attitude. *Journal of Personality and Social Psychology*, 47, 1191-205
- Brink, S.G.; Basen-Engquist, K.M.; O'Hara-Tompkins, N.M.; Parcel, G.S.; Gottlieb, N.H.; and Lovato, C.Y. (1995) Diffusion of an effective tobacco

- prevention program. Part I: evaluation of the dissemination phase. *Health Education Research: Theory & Practice*, 10(3), 283-295.
- British Medical Journal (1985) Egypt's triumph with oral rehydration. *British Medical Journal (BMJ)*, 291, 1249.
- Brody, N. (1983) *Human Motivation: Commentary on Goal-Directed Action*. New York, Academic Press.
- Brook, U. and Kishony, Y. (1993) Knowledge and attitude of healthy high school students towards bronchial asthma and asthmatic pupils. *Chest*, 103(2) 455-457.
- Brown, M.E. (1990) *Television and Women Culture: The Politics of the Popular*. London: Sage.
- Brown, L.K.; Barone, V.J.; Fritz, G.K.; Cebolloero, P.; and Nassau, J.H. (1991) ADIS education: the Rhode Island experience. *Health Education Quarterly*, 18(2), 196-206.
- Bryman, A.; and Cramer, D. (1990) *Quantitative Data Analysis for Social Scientists*. London: Routledge.
- Budd, R.J.; and Spencer, C. (1985) Exploring the role of personal normative beliefs in the theory of reasoned action: the problem of discriminating between alternative path models. *European Journal of Social Psychology*, 15, 299-313.
- Burnstein, E. (1983) Persuasion as argument processing. In M. Brandstatter; J.H. Davis; and G. Stocker-Kriechgauer (eds), *Human Decision Process*. London: Academic Press.
- Cacioppo, J.T.; and Petty, R.E. (1984) Central and peripheral routes to persuasion : the role of message repetition, In: A. Mitchell; and L. Alwitt (eds), *Psychological Process and Advertising Effects*. Hillsdale, N.J.: Erlbaum.
- CAPMAS (Central Agency for Public Mobilization and Statistics) (1989) *The Situation of Children in Upper Egypt*. Cairo, Egypt.
- CAPMAS (Central Agency for Public Mobilization and Statistics) (1988) *The State of Egyptian Children*. Cairo, Egypt.
- Casiro, O.G.; Stanwick, R.S.; Pelech, A.; and Taylor, V. (1994) Public awareness of the risks of drinking alcohol during pregnancy: the effects of a television campaign. Child Health Community, Manitoba Medical Association. *Canadian Journal of Public Health*, 85(1), 23-27.
- Cheung, F.M. (1990) People against the mentally ill: community opposition to residential treatment facilities. *Community Mental Health Journal*, 26, 205-212.
- Chongsuvivatwang, V.; Bujakorn, L.; and Treerateng, R. (1993) Control of neonatal tetanus in Southern Thailand. *International Journal of Epidemiology*, 22(5), 931-935.
- Coolican, H. (1994) *Research Methods and Statistics in Psychology*, 2nd edn. London: Hodder and Stoughton.
- Cooper, J.; and Scher, S.J. (1992) Actions and attitudes: the role of responsibility and aversive consequences in persuasion. In T. Brock; and S. Shavitt (eds), *The Psychology of Persuasion*. San Francisco: Freeman.
- Cooper, J.; and Fazio, R.H. (1984) A new look at dissonance theory. *Advances in Experimental Social Psychology*, 17, 229-266
- Crocker, J.; Fiske, S.T.; and Taylor, S.E. (1984) Schematic bases of belief change. In J.R. Eiser (ed.), *Attitudinal Judgement*. New York: Springer.

- Cutts, F.T.; Diallo, S.; Zell, E.R; and Rhodes, P. (1991) Determination of vaccination in an urban population on Conakery, Guinea. *International Journal of Epidemiology*, 20(4), 1099-1106.
- Dan, B.B. (1992) TV or not TV: communicating health information to the public. *Journal of American Medical Association*, 268(8), 1026-1027.
- Dan, B.B. (1987) One minute medicine. *Journal of American Medical Association*, 257, 2798.
- Daws, R.M. and Smith, T.L. (1985) Attitude and opinion measurement. In G. Lindzey and E. Aronson (eds), *Handbook of Social Psychology*, 3rd edn. New York: Random House. Vol.1, Pp 504-566.
- Deaux, K.; Dane, F.; and Wrightsman, L. (1993) *Social Psychology in the 90s*. Pacific Grove, Cal.: Brooks-Cole. Pp 144-164.
- DeJong, W.; and Atkin, C.K. (1995) A review of national television PSA campaigns for preventing alcohol-impaired driving, 1987-1992. *Journal of Public Health Policy*, 16(1), 59-80.
- Delamont, S.C. (1992) *Fieldwork in Educational Settings: Methods, Pitfalls and Perspectives*. London: Falmer.
- Dickerson, C.A.; Thibodeau, R.; Aronson, E.; and Miller, D. (1992) Using cognitive dissonance to encourage water conservation. *Journal of Applied Social Psychology*, 22, 841-854.
- Dickinson, R. (1995) Two cultures-one voice: problems in broadcaster/health educator co-operation. *Health Education Research: Theory and Practice*, 10(4), 421-430.
- Dimbleby, R.; and Burton, G. (1995) *More Than Words: An Introduction to Communication*, 2nd edn. London: Routledge.
- Dingman, R.B. (1994) Say no to health care price controls. *Postgraduate Medicine*, 95(7), 33-35.
- Drakshayani, D.K.; and Venkata, R.P. (1994) A study on menstrual hygiene among rural adolescent girls. *Indian Journal of Medical Science*, 48(6), 139-143.
- Eagly, A.H.; Chaiken, S.; and Wood, W. (1981) An attribution analysis of persuasion. In J. Harvey; W.J. Ickes; and R.F. Kidd (eds), *New Directions in Attribution Research*. Hillsdale, NJ: Erlbaum. Vol.III, Pp 41-65.
- Elliman, D. (1990) Vaccination and professional confusion. *British Medical Journal*, 301, 551.
- El-Rafie, M.; Massoud, W.A.; Hirshhorn, N.; Loza, S.; Miller, P.; Nagaty, A.; Nasser, S.; and Riad, S. (1990) Effects of diarrhoeal diseases control on infant and children mortality in Egypt. *Lancet*, 335, 334-338.
- Emde, R.N.; and Harmon, R.J. (1982) *The Development of Attachment and Affiliation Systems*. New York: Plenum.
- Eng. E.; and Parker, E. (1994) Measuring community competence in the Mississippi delta: the interface between program evaluation and empowerment. *Health Education Quarterly*, 21,199-220.
- Eron, L.D. (1982) Parent-child interaction, television violence and aggression of children. *American Psychologist*, 37, 197-211.
- Eron, L.D.; Hesmann, R.; Brice, P.; Fisher, P.; and Mermeslstein, R. (1983) Age trends in the development of aggression, sex typing and related television habits. *Developmental Psychology*, 19, 71-77.

- ERTU (Egyptian Radion and Television Union) (1995/1996) Year book, *The Communication Strategy*, ERTU, Cairo, Egypt.
- ERTU (Egyptian Radion and Television Union) (1993) *A Survey for Audiences and Viewers' Attitudes Towards Radio and Television Programmes Regarding Education for Overpopulation Problem*. ERTU, Cairo, Egypt. Unpublished report.
- Esa, R.; Razak, I.A.; and Jalalludin, R.L (1992) Cross-cultural variation in dental knowledge among antenatal mothers. *Odontostomatologie Tropicale*, 15(1), 19-23.
- Fairclough, N. (1995) *Media Discourse*. London: Hodder Headline PIC.
- Family of The Future (1982) *Final Report*. Pharmacy-Intercept Study. Cairo, Egypt. Unpublished report.
- Faris, R.; and Shouman, A. (1994) Study of the knowledge, and attitude of Egyptian health care workers towards occupational HIV infection. *Journal of Egyptian Public Health Association*, 69(1-2), 115-128.
- Fazio, R.H. (1989) On the power and functionality of attitudes: the role of attitude accessibility. In A.R. Pratkanis; S.J. Breckler; and A.G. Greenwald (eds), *Attitudes Structure and Function*. Hillsdale: N.J. Erlbaum. Pp. 153-179.
- Fazio, R.H.; and Williams, C.J. (1986) Attitude accessibility as a moderator to attitude perception and attitude behaviour relation. *Journal of Personality and Social Psychology*, 51, 505-14.
- Fazio, R.H.; Chen, J.; McDonel, E.C.; and Scerman, S.J. (1982) Attitude accessibility and the strength of the object-evaluation association. *Journal of Experimental Social Psychology*, 18, 339-357.
- Festinger, L. (1957) *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.
- Fishbein, M. (1982) Social psychological analysis of smoking behaviour. In J.R. Eiser (ed.), *Social Psychology and Behavioural Medicine*. Chichester: Wiley.
- Fiske, S.T.; and Neuberg, S.L. (1990) A Continuum model of impression formation, from category-based to individuating processes: influence of information and motivation on attitude and interpretation. In M.P. Zanna (ed.), *Advances in Experimental Social Psychology*. New York: Academic Press.
- Flay, R.B. (1987) Mass media and smoking cessation: a critical review. *American Journal of Public Helath*, 77 (2), 153-160.
- Flay, B.R.; Miller, T.Q.; Hedeker, D.; Siddiqui, Q.; Britton, C.F.; Brannon, B.R.; Johson, C.A.; Hansen, W.B.; Sussman, S.; and Dent, C. (1995) The television, school, and family smoking prevention and cessation project: student outcomes and mediating variables. *Preventive Medicine*, 24(1), 29-40.
- Flay, B.R.; and Petraitis. J. (1994) The theory of triadic influence: a new theory of health behaviour with implications for preventive interventions. In G.L. Albrecht (ed.), *Medical Sociology: A Reconsideration of Models of Health Behaviour Change*. IV. JAI Press, Greenwich, CT.
- Flay, B.R.; McFall, S.; Burton, D.; Cook, T.D.; and Warnecke, R.B. (1993) Health behaviour changes through television: the roles of de facto and motivated selection process. *Journal of Health and Social Behaviour*, 34, 322-335.
- Flay, B.R.; Tiessen, J.E.; and Edison, C.N. (1981) *Mass Media in Health Promotion*. A bibliography. Los Angles, Cal.: University of Southern California.

Manuscript.

- Fletner, R. (1991) *Science, Ideology and the Media*. New York: Transaction.
- Fonnebo, V.; and Sogaard, A.J. (1995) The Norwegian Mental Health Campaign in 1992. Part I: population penetration. *Health Education Research: Theory and Practice*, 10(3), 257-266.
- Fontana, A.; and Frey, J.H. (1994) Interviewing: the art of the science, In N.K. Denzin; and Y.S. Lincoln (eds), *Handbook of Qualitative Rresearch*. Thousand Oaks, Ca.: Sage.
- Forgas, J.P. (1991) Affective influence on partner choice: role of mood in social decisions. *Journal of Personality and Social Psychology*, 61, 708-720.
- Freedman, J.L.; Cunninghamman, J.A.; and Krismer, K. (1992) Inferred values and the reverse-incentive effect in induced compliance. *Journal of Personality and Social Psychology*, 62, 357-368.
- Freimuth, V.S. (1993) Narrowing the cancer knowledge gap between whites and African Americans. *Monograph of National Cancer Institute*, 14, 81-91.
- Gardner D. (1996) *Egypt About To Wage Ware On Illiteracy*. The Financial Time Newspaper. London. March 16, Page 4.
- Gentry, E.M.; and Jorgensen, C.M. (1991) Monitoring the exposure of "America Responds to AIDS" PSA campaigns. *Public Health Report*, 106(6), 651-655.
- Goetz, J.P.; and LeCompte, M.D. (1984) *Ethnography and Qualitative Design in Educational Research*. Orlande, FL.:Academic Press.
- Goher H. (1996) *Health Survey For The Year 1995*. Al-Agkbar Newspaper. Cairo, May 16, Page 12.
- Gordon, H. (1995) Evaluating the measles immunization campaign. Prayer can prevent the end of the world [letter]. *British Medical Journal*, 311(6996), 62.
- Great Britain (1991) *Children and Young Persons (Protection from Tobacco)*, Act 1991: Chapter 23, London: HMSO, 1991.
- Guenther-Grey, C.A.; Schnell, D.; Fishbein, M.; and AIDS Community Demonstration Project (1995) Sources of HIV/AIDS information among female sex traders. *Health Education Research: Theory and Practice*, 10(3), 385-390.
- Hall, J.; Heller, R.; Dobson, A.; Lloyd, D.; Fishe, R.; and Leeder, S. (1988) A cost effective analysis of alternative strategies for the prevention of heart diseases. *Medical Journal of Australia*, 14(8), 273-277.
- Harris, M.B.; James, J.; Chavez, J.; Fuller, M.L.; Kent, S.; Massanari, C.; and Walsh, F. (1983) Clothing: communication, compliance and choice. *Journal of Applied Social Psychology*, 13, 88-97.
- Hasting, G.B. (1987) Infant immunization: do we need a media campaign? *Journal of Royal Society of Health*, 107(3), 88-91.
- Hawthorne, K. (1994) Accessibility and use of health care services in the British Asian community. *Family Practice*, 11(4), 453-459.
- Heider, F. (1958) *The Psychology of Interpersonal Relations*. New York: Wiley.
- Heider, F. (1946) Attitude and cognitive organization. *Journal of Psychology*, 21, 107-112.
- Henry, G.T. (1990) *Practical Sampling*. Newbury Park and London: Sage.
- Himmelweit, H.T.; Humphreys, P.; Jaeger, M.; and Katz, M. (1981) *How Voters Decide: A Longitudinal Study of Political Attitudes and Voting Extending Over Fifteen Years*. London: Academic Press.

- Hooi, L.N. (1994) Case-finding for pulmonary tuberculosis in Penang. *Medical Journal of Malaysia*, 49(3), 223-230.
- House, E.R. (1980) *Evaluating With Validity*. Beverly Hills, CA: Sage.
- Howell, D.C. (1992) *Statistical Methods for Psychology*, 3rd edn. Belmont, Calif.: Duxbury Press.
- Hull, D.; and Nicoll, A. (1984) Immunization misinformation. *Lancet*, 1215-1216.
- Huyer, S.E.; Gabbard, G.O.; and Schneider, I. (1991) Homicidal maniacs an narcissistic parasites: stigmatization of mentally ill persons in the movies. *Hospital and Community Psychiatry*, 42(10),1044-1048.
- Israel, B.A. (1994) *Practitioner-Oriented Approaches to Evaluating Health Education Interventions: Multiple Purposes-Multiple Methods*. Paper presented at the international conference on health education and health promotion, Tampa, FL, April 25.
- Jaccard, J.; Helbig, D.W.; Wan, C.K.; Cutman, M.A.; and Kritz-Silverstein, D.C. (1989) Individual differences in attitude behaviour consistency: the prediction of contraceptive behaviour. *Journal of Applied Social Psychology*, 20, 575-817.
- Janis, I.L. (1983) The role of social support in adherence to stressful decisions. *American Psychologist*, 38, 143-160.
- Jason, J.; Solomon, L.; Celentano, D.D.; and Vlahov, D. (1993) Potential use of mass media to reach urban intravenous drug users with ADIS prevention messages. *International Journal of Addiction*, 28(9), 837-851.
- Johnson, C.A. and Johnson, B.E. (1993) Medicine on British television: a content analysis. *Journal of Community Health*, 18(1), 25-35.
- Johnson, J.A.; Cheek, J.M.; and Smither, R. (1983) The structure of empathy. *Journal of Personality and Social Psychology*, 45, 1299-1312.
- Judd, C.M. (1987) Combining process and outcome evaluation. In M.M. Mark and R.L. Shotland (eds), *Multiple Methods in Program Evaluation: New Directions for Programme Evaluation*. San Francisco, CA: Jossey-Bass.
- Judd, C.M.; Darke, R.A.; Downing, J.W.; and Krosnick, J.A. (1991) Some dynamic properties of attitude structure: context-induced response facilitation and polarization. *Journal of Personality and Social Psychology*, 60, 193-202.
- Karlins, M.; and Abelson, H.I. (1970) *How Opinions and Attitudes are Changes*, 2nd edn. New York: Spring.
- Kasen, S.; Vaughan, R.D.; and Walter, H.J. (1992) Self-efficiency for AIDS prevention behaviours among tenth grad students. *Health Education Quarterly*, 19(3), 187-202.
- Katz, E. (1981) Publicity and pluralistic ignorance: notes on the "spiral of silence." In: H. Baier; H.M. Kepplinger; and K. Reumann (eds), *Public Opinion and Social Change*. Westdeutscher Verlag: Elizabeth Noelle-Neumann. Pp. 28-38.
- Kelly, H.H.; and Thibaut J. (1978) *Interpersonal Relations: A Theory of Interdependence*. New York: Wiley.
- Kelman, H.C. (1958) Compliance, identification, and internalization: three processes of attitude change. *Journal of Conflicts and Resolution*, 2, 51-60.
- Kerlinger, F.N. (1986) *Foundation of Behavioural Research*, 3rd edn. New York: Holt, Rinechart and Winston.
- Kessler, R.C.; and Stipe, H. (1984) The impact of fictional television suicide stories on US suicides. *American Journal of Sociology*, 90, 151-167.

- Kimura, I. (1993) The relationship between drivers' attitude towards speeding and their speeding behaviour in hypothetical situations. *Hiroshima Forum for Psychology*, 15, 51-60.
- Klinge, R.S.; and Aune, K.S. (1994) Effects of day time serial and a public service announcement in promoting cognitions, attitudes, and behaviours related to bone-marrow testing. *Health Communication*, 6(3), 225-245.
- Kothandapani, V. (1971) Validation of feeling, belief, and intention to act as three components of attitude and their contribution to prediction of contraceptive behaviour. *Journal of Personality and Social Psychology*, 19, 321-33.
- Krosnick, J.A.; Betz, A.L.; Jussim, L.J.; and Lynn, A.R. (1992) Subliminal conditioning of attitudes. *Personality and Social Psychology Bulletin*, 18, 152-162.
- Kubey B.; and Csikszentmihalyi, M. (1990) *Television and the Quality of Life: How Viewing Shapes Every Day Experiences*. Hillsdale, NJ: Lawrence Erlbaum Associates. Pp. 69-107.
- Kutlar, P. (1972) A generic concept of marketing. *Journal of Marketing*, 36, 46-54.
- Laflin, M.T.; Moore-Hirschl, S.; Weis, D.L.; and Hyes, B.E. (1994) Use of the theory of reasoned action to predict drug and alcohol use. *The International Journal of Addiction*, 29, 927-940.
- LaPiere, R.T. (1934) Attitude vs actions. *Social Forces*, 13, 230-237.
- LaVeist, T.A. (1992) The political power and health status of urban blacks: mapping a new territory. *American Journal of Sociology*, 97, 1080-1095.
- Leong, S.M.; and Ang, S.H. (1993) The visible hand in marriage: an exploratory assessment of the marriage promotion campaign in singapore. *Advances in Consumer Research*, 20, 559-564.
- Levasseur, G.; Lamperin, J.M.; Le-Neel, H.; and Chambaud, L. (1994) Les sampaniers du quartier de Vi Da (Hue, 1993). Resultats d'une enquete prealable a L'intervention d'une association humanitaire [The sampan dwellers of the Vi Da district (Hue, 1993). Results of a survey preliminary to humanitarian aid intervention]. *Sant.*, 4(6), 433-438.
- Ling, J.C.; Franklin, B.A.; Lindsteadt, J.F.; and Gearon, S.A. (1992) Social marketing: its place in pubic health. *Annual Review of Public Health*, 13, 341-342.
- Livinston, S.M. (1990) *Making Sense of Television: The Psychology of Audience Interpretation*. Oxford: Pergaman.
- Locurto, C.M.; Trrace, H.S.; and Gibbon, J. (1980) *Auto-Shaping and Conditioning Theory*. New York: Academic Press.
- Low, N.; Arauz, R.; Gorter, A.; Guevara, M.; Gonzalez, A.; Sequeira, G.; Morgan, N.; Rocha, R.; Serna, R.; and Gonzalez, A. (1992) Conocimientos cerca del SIDA de la poblacion adulta de Managua [Concepts about AIDS among adults population of Managua]. *Bol. Oficina. Sanit. Panama.*, 112(4), 319-326.
- Lucaire, E. (1985) *Focus on the Consumer: Social Marketing for Change*. Development Communication Report, NY. Page 6.
- Mackie, R.M.; and Hole, D. (1992) Audit of pubic education campaign to encourage earlier detection of malignant melanoma. *British Medical Journal*, 304(6833), 1012-1015.
- Malfait, P.; Jataou, I.M.; Jollet, M.C.; Margot, A.; De-Benoist, A.C.; and Moren,

- A. (1994) Measles epidemic in the urban community of Niamey: transmission patterns, vaccine efficiency and immunization strategies, Niger, 1990 to 1991. *Paediatric Infectious Diseases Journal*, 13(1), 38-45.
- Manoff, R. (1985) *Social Marketing: New Imperative for Public Health*. New York: Praeger.
- Manstead, A.S.R.; Proffitt, C.; and Smart, J.L. (1983) Predicting and understanding mother's infant-feeding intentions and behaviour: testing the theory of reasoned action. *Journal of Personality and Social Psychology*, 44, 657-71.
- Mattson, M.E.; Cummings, K.M.; Lynn, W.R.; Griffn, C.; Corle, D.; and Pechcek, T. (1990-1991) Evaluation plan for the community intervention trial for smoking cessation (COMMIT). *International Quarterly of Community Health Education*: 11: 271-290.
- Mayer, J.A.; Kossman, M.K.; Crooks, C.E.; Slymen, D.J.; and Lee, C.D. (1992) Evaluation of media based mammography program. *American Journal of Preventive Medicine*, 8(1), 23-29.
- McCombs, M.E. (1981) The agenda-setting approach. In D.D. Nimmo; and K.R. Saners (eds), *Handbook of Political Communication*. Beverly Hills, Calif.: Sage. Pp. 121-140.
- McGinnies, E.; and Ward, C.D. (1980) Better liked than right: trustworthiness and expertise as factors in credibility. *Personality and Social Psychology Bulletin*, 6, 467-472.
- McGraw, S.A.; Stone, E.G.; Osganian, S.K.; Elder, J.P.; Perry, C.L.; Johson, C.C.; Parcel, G.S.; Webber, L.S.; and Luepker, R.V. (1994) Design of process evaluation within the child and adolescent trial for cardiovascular health (CATCH). *Health Education Quarterly Supplement*, 2, S5-S26.
- McGreel, C.L. (1996) Meningitis spreads in Africa. *The Guardian Newspaper*. London. March, 16.
- McGuire, W.J. (1985) Attitudes and attitude change. In G. Lindzed; and E. Aranson (eds), *Handbook of Social Psychology*, 3rd edn. New York: Random House. Vol. II, Pp. 233-346.
- McGuire, W.J. (1983) A contextualist theory of knowledge: its implication for innovations and reform in psychology research. In: L. Berkowitz (ed.): *Advances in Experimental Social Psychology*. Vol. 16. New York: Academic Press. Pp. 1-47.
- McGuire, W.J. (1964) Inducing resistance to persuasion. In: L. Ber kowitz (ed.), *Advances in Experimental Social Psychology*. New York: Academic Press. Vol. 1. Pp. 191-229.
- McGuire, W.J.; and Padawer-Singer, A. (1976) Trait salience in the spontaneous self-concept. *Journal of Personality and Social Psychology*, 33, 743-754.
- McQuen, K. (1986) *The Research Act: A Theoretical Introduction to Sociological Methods*, 2nd edn. New York: McGraw-Hill.
- Mead, G.E.; and Turnbull, C.J. (1995) Cardiopulmonary resuscitation in the elderly: patients' and relatives' views. *Journal of Medical Ethics*, 21(1), 39-44.
- Meindl, J.R.; and Lerner, M.J. (1983) The heroic motive: some experimental demonstrations. *Journal of Experimental and Social Psychology*, 19, 1-20.
- Mekhtiev, A.K.; and Fisher, I. (1994) Rol protivotuberkuleznoi propagandy v usilenii rabotty po vyivleniiu bolnykh tuberkulezom [Improvement of detection of

- tuberculosis patients and role of anti-tuberculosis education]. *Probl. Tuberk.*, 6, 13-6.
- Mendelsohn, H. (1973) Some reasons why information campaign can succeed. *Public Opinion Quarterly*, 37, 50-61.
- Mennie, M.E; Liston, W.A; and Brock, D.J. (1992) Prenatal cystic fibrosis carrier testing: designing an information leaflet to meet the specific needs of the target population. *Journal of Medical Genetics*, 29(5), 308-312.
- Mhanna, M. (1995) Sozan Mubarak in a meeting of the National Council for Childhood: lowering infant mortality rate, and raising vaccination coverage. *Al-Ahram Newspaper*, Cairo, November 23, Page 5.
- Mills, J.; and Clark, M.S. (1982) Exchange and communal relationships. In: L. Wheeler (ed.), *Review of Personality and Social Psychology*, Vol. III. Beverly Hills, Calif.: Sage, Pp. 121-144.
- Ministry of Health (MoH) (1994) *Vaccination Coverage in Egypt (1986-1993)*. Child Survival Project, MoH, Cairo, Egypt. Unpublished Report.
- Ministry of Health (MoH); and Unicef (1990) *Meeting the Challenge: Achieving Universal Child Immunization in Egypt*. Cairo, Egypt.
- Ministry of Health (MoH); Faculty of Medicine, Al Azahar University; and Unicef (1989) *Cluster Survey for Vaccination Coverage in Minya Governorate*. Cairo, Egypt.
- Montgomery, K. (1990) Promoting health through entertainment television. In C. Atkin; and L. Wallack (eds), *Mass Communication and Public Health*. London: Sage. Pp. 114-128.
- Montgomery, K. (1989) *Target Prim Time Advocacy Groups and the Struggle Over Entertainment Television*. New York: Oxford University Press.
- Moser, C.A.; and Kalton, G. (1971) *Survey Methods in Social Investigation*, London: Heinemann Educational Books.
- Mullen, K. (1994) Control and responsibility: moral and religious issues in lay health accounts. *The Sociological Review*, 42, 414-437.
- Nair, T.N.; and Varughese, E. (1994) Immunization coverage of infant-rural-urban difference in Kerala. *Indian Paediatrics*, 31(2), 139-43.
- Newcomb, M.D.; Rabow, J.; and Hernandez, A.C. (1992) A cross-national study of nuclear attitudes, normative support, and activist behaviour: additive and interactive effects. *Journal of Applied Social Psychology*, 22, 780-800.
- Newcomb, H.M.; and Hirsch, P.M. (1984) Television as a culture form: Implication for research. In W.D. Rowland; and B. Watkins (eds), *Interpreting Television: Current Research Perspective*. Beverly Hills, Calif.: Sage. Pp.58-73.
- Newton, S.F.; Dawson, P.H.; Cook, J.; Feely, M.; Booth, T.G.; Jerwood, D.; and Calvert, R.T. (1992) The influence of an academic representative on prescribing general practitioners. *British Journal of Clinical Pharmacology*, 33(1), 69-73.
- Oakley, A.; Bendelow, G.; Barnes, J.; Buchanan, M.; Husain, O.A. (1995) Health and cancer prevention: knowledge and beliefs of children and young people. *British Medical Journal*, 310(6986), 1029-1033.
- Oskamp, S. (1988) Television as a social issue. *Applied Social Psychology Annual*, 6, 8.
- Pagel, M.D.; and Davidson, A.R. (1984) A comparison of three social-psychological

- models of attitude and behavioural plan: prediction of contraceptive behaviour. *Journal of Personality and Social Psychology*, 47, 517-33.
- Paik, D.I.; Moon, H.S.; Horowitz, A.M.; Gift, H.C.; Jeong, K.L.; and Suh, S.S. (1994) Knowledge of and practices related to caries prevention among Koreans. *Journal of Public Health Dentistry*, 54(4), 205-10.
- Palumbo, D.J.; and Calista, D.J. (1990) *Implementation and the Policy Process: Opening Up the Black Box*. New York: Greenwood Press.
- Patton, M.Q. (1990) *Qualitative Evaluation and Research Methods*. Newbury Park, CA: Sage.
- Pearl, D.; Bouthilet, L.; and Lazar, J. (1982) Television and behaviour: ten years of scientific progress and implication for the eighties. Vol. 1. *Summary Report*. Washington, DC: Government Printing Office.
- Petty, R.E.; and Cacioppo, J.T. (1986) The elaboration likelihood model of persuasion. In L. Berkowitz (ed.), *Advances in Experimental Social Psychology*. New York: Academic Press. Pp. 123-205.
- Petty, R.E.; and Cacioppo, J.T. (1985) *Communication and Persuasion: Central and Peripheral Routs to Attitude One*. New York: Springer-Verlag.
- Petty, R.E., and Cacioppo, J.T. (1981) *Attitudes and Persuasion: Classic and Contemporary Approaches*. Dubuque: A. William and C. Brown.
- Piotrow, P.; Meyer, R.C.; and Zulu, A. (1992) AIDS and mass persuasion. In J. Mann; D. Tarantola; and T. Netter (eds), *AIDS in the World*. Cambridge, MA: Harvard University Press. Pp. 733-747.
- Popham, W.J. (1993) A Strategy to encourage the evaluation of health education programs. *Evaluation In Health Professions*, 16, 379-384.
- Prochaska, J.O.; Diclemente, C.G.; and Norcross, J.C. (1992) In search of how people change: applications to addictive behaviours. *American Psychologist*, 47(9), 1102-1114.
- Prochaska, J.; and DiClemente, C. (1983) Self change process, self efficiency, and decisional balance across five stages of smoking cessation. In A.R. Liss (ed.), *Advances in Cancer Control: Epidemiology and Research*. New York: Alan R. Liss.
- Raiteri, R.; Fora, R.; Giannini, P.; Russo, R.; Lucchini, A.; Terzi, M.G.; Giacobbi, D.; and Sinicco, A. (1994) Sero-prevalence, risk factors and attitude to HIV-1 in a representative sample of lesbians in Turin. *Genitourinary Medicine*, 70(3), 200-205.
- Reichardt, C.S.; and Cook, T.D. (1979) Beyond qualitative versus quantitative methods. In T.D. Cook; and C.S. Reichardt (eds), *Quantitative and Quantitative Methods in Evaluation Research*. Beverly Hills, CA: Sage.
- Richards, A.; and Waterbury, J. (1990) The impact of rapid population growth. In A. Richards; and J. Waterbury (eds), *A Political Economy of the Middle East: State, Class, and Development*. Boulder: Westview Press.
- Richardson, J.P.; and Knight, A.L. (1992) Tetanus-diphtheria immunizations in a nursing-home population. *Journal of the American Geriatrics Society*, 40(10), 1075.
- Reid, J.A. (1989) Vaccination viewpoints. *Health Visitor*, 62, 121-123.
- Robson, C. (1994) *Real World Research*. Oxford: Blackwell.
- Rodriguez, M.L.; Martinez, C.E.; Machin, V.M.; and Sanchez, D.M. (1994) Influenza

- de los aspectos higienico-culturales del entorno familiar en los patrones dieteticos del niño escolar [The influence of hygiene and cultural characteristics of the family environment on dietary patterns of school children]. *Medicina Clinica Barcelona*, 15, 102(1), 1-4.
- Roediger, H.L.; Ruston, J.P.; Capaldi, E.D.; and Paris, S.G. (1984) *Introduction to Psychology*. Boston: Little Brown. P. 158.
- Rogers, E.M. (1983) *Diffusion of Innovation*, 3rd edn. New York: Free Press.
- Rogers, E.M.; and Singhal, A. (1991) The "Log" story: from concept to often effects. In *Communication 2000 A.D.* Silver Jubilee Communicative Communication. Pp. 17-25.
- Rogers, E.M.; and Storey, L. (1987) Communication campaign. In :Berger, C.; and Chafee, S. (eds), *Handbook of Communication Science*. London: Sage. Pp. 817-846
- Rogers, E.M.; and Shoemaker, F.F. (1971) Woman's utilisation of new birth control procedures. In: E.M. Rogers; and F.F. Shoemaker (eds), *Communication of Innovations: A Cross Cultural Approach*, 2nd edn. New York: Free Press.
- Rokeach, M. (1973) *The Nature of Human Values*. New York: Free Press.
- Rokeach, M.; and Kliejunas, P. (1972) Behaviour as a function of attitude-toward-object and attitude-toward-situation. *Journal of Personality and Social Psychology*, 22, 194-201.
- Ross, G. (1992): Opportunistic "catch up" immunization at entrant school medicals: parental attitudes and uptake. *Public Health*, 106, 143-148.
- Rule, B.G.; Bisanz, G.L.; and Kohn, M. (1985) Anatomy of persuasion schema: targets, goals and strategies. *Journal of Personality and Social Psychology*, 48, 1127-1140.
- Saffin, K; and MacFarlane, A. (1991): How well are parent held records kept and completed? *British Journal of General Practice*, 249-251.
- Sbarbaro, J.A.; and Sbarbaro, J.B. (1994) Compliance and supervision of chemotherapy of tuberculosis. *Seminar of Respiratory Infection*, 9(2), 120-127.
- Scannell, P. and Cardiff, D. (1991) A social history of British broadcasting, 1922-1939. In *Serving the Nation*, Vol.II. Oxford: Blackwell.
- Schramm, W.; and Porter, W. (1982) *Men, Women, Messages, and Media: Understanding Human Communication*. 2nd edn. New York: Harper & Row. Pp. 215-230.
- Schulz, A.J.; Israel, B.A.; Zimmerman, M.A.; and Checkoway, B.N. (1995) Empowerment as a multi-level construct: perceived control at the individual, organizational, and community levels. *Health Education Research: Theory and Practice*, 10(3), 309-327.
- Schuman, H.; and Johnson, M.P. (1976) Attitudes and behaviour. *Annual Review of Sociology*, 2: 161-207.
- Schutz, A. (1993) Self-presentation tactics in a German election campaign. *Political Psychology*, 14(3), 469-491.
- Schwartz, R.; and Capwell, E. (1995) Editorial. Advancing the link between health promotion researchers and practitioners: a commentary. *Health Education Research: Theory and Practice*, 10(3), I-VI.
- Schwarz, N.; Bless, H.; Strack, F.; Klumpp, G.; Rittenauer-Schatka, G.; and Simons, A. (1991) Ease of retrieval as information: another look of the availability

- heuristic. *Journal of Personality and Social Psychology*, 61, 159-202.
- Scott, E.A. (1990) Low immunization rates: fact or fiction? *Public Health*, 104: 275-278.
- Sears, D.O.; Lau, R.; Tyker, T.; and Allen, H.M. (1980) Self-interest versus symbolic politics in policy attitudes and presidential voting. *American Political Science Review*, 74, 670-684.
- Sege, R.; and Dietz, W. (1994) Television viewing and violence in children: the paediatrician as an agent for change. *Pediatrics*, 49(4,2), 600-607.
- Sherman, S.J.; Cialdini, R.B.; Schwartzman, D.F.; and Reynolds, K. (1985) Imagining can heighten or lower the perceived likelihood of contracting a disease: the mediating effect of ease of imagery. *Personality and Social Psychology Bulletin*, 11, 118-27.
- Simon, J.L. (1985) *Basic Research Methods in Social Science*, 3rd edn. New York: McGraw-Hill.
- Simons-Morton, B.G.; Green, W.A.; and Gottlieb, N. (1995) *Health Education and Health Promotion*, 2nd edn. Prospect Heights, IL: Waveland.
- Siska, M.; Jason, J.; Murdoch, P.; Yang, WS; and Donovan, R.J. (1992) Recall of public service announcements and their impact on the ranking of ADIS as a national problem. *American Journal of Public Health*, 82(7), 1029-32.
- Skinner, C. (1990) BCG vaccination in children. *British Medical Journal*, 301, 1275.
- Sleight, G. (1988) Uptake of immunization, Letter. *British Medical Journal*, 297, 66.
- Sogaard, A.J.; and Fonnebo, V. (1992) Self-reported change in health behaviour after a mass media-based health education campaign. *Scandinavian Journal of Psychology*, 2, 125-134.
- Sogaard, A.J.; and Fonnebo, V. (1991) Hjerte for livet-aksjonen 1987. Effekt på helseatferd og atferdsrelaterte faktorer [The heart for Life action in 1987. Effects on health behaviour related factors]. *Tidsskr. Nor. Laegeforen.* 111(27), 3305-3309.
- Solomon, D.S. (1984) Social marketing and community health promotion: the stanford heart disease prevention program. In L. Frederiksen; L. Solomon; and K. Brehony (eds), *Marketing Health Behaviour*. New York: Freundlich. Pp. 115-135.
- Soumerai, S.B.; Ross-Degnan, D.; and Kahn, J.S. (1992) Effects of professional and media warning about the association between aspirin use in children and Raye's syndrome. *Milbank Quarterly*; 155-182.
- Spears, R.; and Manstead, A.S. (1990) Consensus estimation in the social context. *European Review of Social Psychology*, 1, 81-109.
- Spellman B.; Ullman, J.B.; and Holyoak, K.J. (1993) A coherence model of cognitive consistency: dynamics of attitude change during the Persian Gulf War. *Journal of Social Issues*, 49(4),147-165.
- Spruijt-Metz, D. (1995) Personal incentives as determinants of adolescent health behaviour: the meaning of behaviour. *Health Education Research: Theory and Practice*, 10(3), 355-364.
- Stacy, A.; Bentler, F.; and Flay, B. (1994) Attitudes and health behaviour in diverse population: drunk driving, alcohol use, being eating, marijuana use, and cigarette use. *Health Psychology*, 13, 73-85.
- Steckler, A. (1989) The use of qualitative evaluation methods to test internal validity.

- Evaluation in Health Professions*, 12,115-133.
- Steckler, A.; Mcleroy, K.R.; Goodman, R.M.; Bird, S.T. McCormick, L. (1992) Toward integrating qualitative and quantitative methods: an introduction. *Health Education Quarterly*, 19(1), 1-8.
- Steel, C.M. (1988) The psychology of self-affirmation: sustaining the integrity of the self-advances. *Experimental Social Psychology*, 21(3), 261-302.
- Steuart, G.W. (1993) Social and cultural perspectives: community intervention and community mental health. *Health Education Quarterly Supplement*. 20(S1), S99-S111.
- Steuart, G.W. (1969) Planning and evaluation in health education. *International Journal of Health Education*, 12, 65-67.
- Stoneman, Z.; and Brody, G.H. (1981) Press as mediators of television food advertisements aimed at children. *Developmental Psychology*, 17, 853-858.
- Strecher, V.J.; DeVellis, B.M.; Becker, M.H.; and Rosenstock, I.M. (1986) The role of self-efficiency in achieving health behaviour change. *Health Education Quarterly*, 13(1), 73-79.
- Stroebe, W.; and Jonas, K. (1990) Attitudes II: strategies of attitude change. In M. Hewstone, W.; Stroebe; J.P. Codol; and G. Stephenson (eds), *Introduction to Social Psychology: An European Perspective*. Basil Blackwell Ltd. Uk. Pp 167-197.
- Stroebe, W.; Lenkert, A.; and Jonas, K. (1988) Familiarity and breed contempt: the impact of student exchange on national stereotypes and attitudes. In W. Stroebe; A. Kruglanski; A. Bar-Tal; and M. Hewstone (eds), *Theory, Research, and Applications*. New York: Springer.
- Suarez, L.; Nocholes, D.C.; and Brady, C.D. (1993) Use of peer role models to increase Pap smear and mammogram screening in Mexican-American and black women. *American Journal of Preventive Medicine*, 9(5), 290-296.
- Sutton, S. (1992) Shock tactics and the myth of the inverted U. *British Journal of Addiction*, 87(4), 517-519.
- Swaddiwudhipong, W.; Lerdklikanavong, P.; Khumklm, P.; Koonchote, S.; Nguntra, P.; and Chaovakiratiponge, C. (1992) A survey of knowledge, attitude and practice of the prevention of dengue haemorrhagic fever in an urban community of Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 23(2), 207-11.
- Taras, H.L.; Sallis, J.F.; Patterson, T.I., Nadar, P.R.; and Nelson, J.A. (1989) Television's influence on children's diet and physical activity. *Journal of Developmental and Behavioural Paediatrics*, 10 (4), 176-180.
- Theobald, T.; Marks, R.; Hill, D.; and Dorevitch, A. (1991) "Goodbye Sunshine": effects of a television program about melanoma on beliefs, behaviour, and melanoma thickness. *Journal of American Academy of Dermatology*, 24(4), 717-23.
- Thompson, J.B. (1990) *Ideology and Modern Culture: Critical Social Theory in the Era of Mass Communication*. Cambridge: Polity Press.
- Tones, K. (1995) Editorial. The health promoting hospital. *Health Education Research: Theory and Practice*, 10(2), I-V.
- Tuchman, G. (1988) Mass media institutions. In N.J. Smeser (ed.), *Handbook of Sociology*. Newbery Park, Calif.: Sage.

- Turner, R. (1992) Musical message reaches youth in the philippines. *International Family Planning Perspectives*, 18, 29-40.
- Tyler, T.R.; and Schuller, R.A. (1991) Aging and attitude change. *Journal of Personality and Social Psychology*, 61, 689-697.
- Unesco (1991) *Statistical Year Book*. Unesco, Paris.
- Unesco (1980) *Many Voices, One World*. Report by the International Commission for the Study of Communication. Unesco, Paris.
- Unicef (1985) *Universal Child Immunization By 1990: Assignment Children*. Unicef: Geneva.
- Vanbeselaere, N. (1983) Mere exposure: a search for an explanation. In W. Doise; and S. Moscovici (eds), *Current Issues in European Social Psychology*. Cambridge: Cambridge University Press, Paris: Maison des Sciences de L'Homme. Vol. I.
- Van Vuuren, D.P. (1981) *The Impact of Television on Adolescent in South Africa*. Pretoria: Human Sciences Research Council.
- Vargas, N.A.; Lopez, D.; Perez, P.; Toro, G.; and Zuniga, P. (1993) El castigo fisico a los ninos: opinion y conducta de los adultos [Physical punishment in children: opinions and behaviours of adults]. *Rev. Med Chile*, 121(5), 67-573.
- Veroff, J.; and Veroff, J.B. (1980) Social Incentives: *A life-Span Development Approach*. New York: Academic Press.
- Wallach, M.A.; Kogan, N.; and Bem, D.J. (1962) Group influence on individual risk-taking. *Journal of Abnormal and Social Psychology*, 56, 75-86.
- Wallack, L. (1990) Improving health promotion: media advocacy and social marketing approaches. In C. Atkin; and L. Wallack (eds), *Mass Communication and Public Health*. London: Sage. Pp. 147- 163.
- Wallack, L.; and Deforman, L. (1992) Health messages on television commercials. *American Journal of Health promotion*, 6(3), 190-196.
- Wanta, W.; and Hu, Y.W. (1993) The agenda setting effects of international news coverage: an examination of different news frames. *International Journal of Public Opinion Research*, 3, 250-264.
- Warner, E.K. (1987) Television and health education: stay tuned. *American Journal of Public Health*, 77, 2, 140-142.
- Waxer, P.H. (1992) Alcohol consumption in television programming in three English-speaking cultures. *Alcohol-Alcohol*, 27(2), 195-200.
- White, C.J. (1982) *Consistency in Cognitive Social Behaviour: An Introduction to Social Psychology*. Boston: Routledge and Kegan Paul.
- White, G.L.; Henthorne, B.H.; Barnes, S.E.; and Segara, J.T. (1995) Tuberculosis: a health education imperative returns. *Journal of Community Health*, 20(1), 29-57.
- Wilkes, M.S.; and Kravitz, R.L. (1992) Medical researchers and the media: attitudes towards public dissemination of research. *JAMA*, 268(8), 999-1003.
- Wilkinson, J.R. (1985) Measles immunization, contraindications as interpreted by health visitors and clinic nurses. *Public Health*, 99, 198-200.
- Willgoose, C.E. (1985) Health education as a basic. In *Health Education Today*. Boston. Association for the Advancement of Health Education.
- Wilson, E.; and Sherrell, D.L. (1993) Source effects in communication and persuasion research: A meta-analysis of effect size. *Journal of the Academy of Marketing*

- Science*, 21(2), 101-112.
- Wilson, T.D.; Lisle, D.J.; Kraft, D.; and Wetzell, G.G. (1989) Performances as expectation-driven influences: effects of affective expectations on affective experiences. *Journal of Personality and Social Psychology*, 56, 519-530.
- Wood, W.; and Kallgren, C.A. (1988) Communicator attributes and persuasion: Recipients' access to attitude-relevant information in memory. *Personality and Social Psychology Bulletin*, 14(7), 172-182.
- World Health Organization (WHO) (1996) First and foremost, health care reform must lead to better health for people. *Communication and Public Affairs*. Regional office for Europe. Copenhagen.
- World Health Organization (WHO) (1996a) *The World Health Report-Fighting Diseases, Fostering Development*. Geneva.
- World Health Organization (WHO) (1986) A discussion document on the concept and principles of health promotion. *Health Promotion*, 1, 73-78.
- World Health Organization (WHO); and Ministry of Health (MoH) (1984) *Expanded Programme of Immunization/ PHC Programme Review*. Cairo, Egypt.
- World Health Organisation (WHO) (1981) *Global Strategy for Health for All By The Year 2000*. Geneva.
- World Health Organisation (WHO) (1959) First report, expert Committee on health education of the Public, *Tech. Rep. Series*. No. 89, Geneva.
- World Health Organization (WHO) (1947) Constitution of the World Health Organization. *Chronical of the World Health Organization*, 1, 3.
- World Health Organization (WHO); Ministry of Health (MoH); and Unicef (1987) *National Cluster Survey for Vaccination Coverage in Egypt*. Excutive summary, Cairo, Egypt.
- Wright, J.D.; and Pearl, L. (1995) Knowledge and experience of young people regarding drug misuse, 1969-94. *British Medical Journal*, 310(6971), 20-4.
- Yoshida, Y.; Takagi, H.; and Inaba, Y. (1995) Health locus of control and acquisition of health-related information. *Nippon-Koshu-Eisei-Zasshi*, 42(2), 69-77.
- Zillmann, D. (1988) Cognition-excitation inter-dependencies in aggressive behaviour. *Aggressive Behaviour*, 14, 51-64.
- Zimbardo, P.G. (1960) Involvement and communication discrepancy as determinants of opinion conformity. *Journal of Abnormal and Social Psychology*, 60, 86-94.
- Zimicki, S.; Hornik, R.C.; Verzosa, C.C.; Hernandez, J.R.; De-Guzman, E.; Dayrit, M.; Fausto, O.; Lee, .B.; and Abad, M. (1994) Improving vaccination coverage in urban areas through a health communication campaign: The 1990 Philippine experience. *Bulletin of World Health Organisation*, 72(3), 409-422.

Appendix (1):

THE PREVENTABLE DISEASES AND THEIR VACCINES

MEASLES: An acute, highly contagious viral disease caused by the *Measles virus*, with a fatality rate of 5%. It is one of the leading causes of death among Egyptian children under two years of age. The greatest risk of complications and death occurs in infants. Poor nutritional status seems to be the main factor leading to the most severe consequences of measles. The total number of measles cases reported by fever hospitals in Egypt in 1992 was 4,403 cases compared to 1,231 cases in 1991. The year 1992 was one of the epidemic years for measles in Egypt, when the incidence rate reached 7.4 per 100,000 population (MoH, 1994). Obviously, these reports do not reflect the real numbers as most of the cases are diagnosed and managed privately, especially with the local belief that a measles case should be withheld from light, food, and fresh air. Also, mothers may believe that every child has to catch measles once in life, and a sign of recovery is the appearance of the generalised rash all over the body ("*El-Mambrouka*" or the blessed), which occurs at the peak of the fever. Therefore, any medication could be fatal by suppressing the natural course of the disease. A mother may even believe that immunization against measles is ineffective and may be even dangerous. It is, therefore, important to treat these misbelief before targeting a change in mothers' behaviour.

Transmission is by droplet infection through nasal or pharyngeal secretions. Symptoms include conjunctivitis, very high fever, and cough for three to five days, followed by a characteristic rash, which lasts between four and six days. Infection gives permanent immunity. Prevention is through a one dose measles vaccination administered by a subcutaneous injection. In Egypt, where the disease is common and can cause serious complications, it is given at 9 months of age. The vaccine is effective up to 90% if administered in time, and provides long-lasting immunity.

PERTUSSIS: An acute, highly contagious bacterial infection of the respiratory tract, caused by the bacterium *Bordetella pertussis*. It follows measles in mortality rate. Mortality and morbidity are especially high in infants under 6 months age. The incidence rate in Egypt showed an increase in the number of reported cases of pertussis from 0.01 to 0.03 per 100,000 population, probably due to increased reporting (MoH, 1994). Transmission is through droplet infection. Symptoms include coryza, sneezing, fever and persistent cough (catarrhal stage), followed with repeated coughs that are succeeded by prolonged, sudden and inspiratory whoops (paroxysmal stage) which lasts for four to eight weeks. Diagnosis is difficult in the infancy period due to the absence of the characteristic whoop at this age.

Prevention is only by appropriate vaccination. The vaccine is usually available combined with tetanus and diphtheria toxoid adsorbed on an aluminium base known as the triple vaccine or DPT. Infants should receive three doses before 12 months of age. The recommended age for the first dose is four to seven weeks of age. The interval between doses is usually four weeks. Its efficiency is 60-90% after the three doses. There is a marked fall in efficiency four to seven years after vaccination. Fever and local reaction, such as swelling, tenderness and redness follow a large proportion of pertussis vaccine administrations. It may cause convulsions, screaming attacks, collapse, and, very exceptionally, brain damage.

TETANUS: An acute neurological disease caused by the toxins of the *Tetanus bacillus*. Tetanus bacteria reside in soil, so unlike smallpox, there is no hope of eliminating the reservoir of harmful organisms. It is more common in agricultural areas. It is a major killer of infants and is usually caused by unhygienic cutting of the umbilical cord with contaminated tool e.g. a razor or scissors, or the use of contaminated dressing on the cord. The total number of tetanus neonatorum cases reported in 1992 was 1830 compared to 2728 in 1991, a 33% decline. Deaths in 1992 were 1174 which constituted 64% of cases. Males constitute 82% of cases and females 18%, which shows that the reporting of female neonate cases is still incomplete. The initial sign of the disease is inability to feed because of spasm of the jaw muscles which soon extend to involve the whole body with convulsion and

inevitable death. In a village where mothers give birth at home, registration of the newly born is usually delayed. If the baby die early i.e before registration, the parents will bury the dead baby without notification that may expose them to unnecessary problems, from their point of view, related to notification for birth and then notification for death with a consequence delay in burial of the baby for one reason or another. This secret burial is more common in villages and is the main reason for under estimation of the exact incidence of the disease.

Prevention is through appropriate vaccination with tetanus toxoid (TT). Two doses are given to the pregnant women with at least four weeks apart. A third dose is given during the subsequent pregnancy. This provides the newborn with a temporary protection for the first few months of life. Starting from the first six weeks of age, the infant receives three doses of DPT separated by at least a month interval. Swelling and tenderness at the injection' site, with mild fever are common side-effects

DIPHTHERIA: An acute bacterial disease caused by *Corynebacterium diphtheria* of the tonsils, pharynx, nose, and occasionally of other mucus membranes and skin which may lead to muscular and sensory nerve paralysis or affect the heart of the infant with severe myocarditis. Swelling and oedema of the neck may also occur in severe cases. It was one of the major killers of the past, with a fatality rate ranging from 5 to 15%. The total number of diphtheria cases reported in 1992 was 44 cases compared with 55 in 1991. The incidence declined from 1.4 per 100,000 population in 1985 to 0.1 per 100,000 population in 1992, with a 93% decrease in the number of cases (MoH, 1994)). Transmission is through contact with a patient or a carrier. Diphtheria is characterised by patches of greyish membrane with a surrounding dull red inflammatory zone on the pharynx which may cause pharyngeal obstruction.

Prevention is through appropriate immunization with diphtheria toxoid, which is generally administered in combination with pertussis vaccine and tetanus toxoid following the recommended schedule. Infants should receive three doses of the toxoid before their first year of life. The first dose is at the age of two months with a minimum of one month's interval between the subsequent doses. A fourth dose can

be given at 18-24 months of age and a fifth at school entry. The vaccine provides a long-lasting immunity after three successful doses. Sometimes swelling, tenderness and redness at the site of the injection, together with fever, can be observed.

POLIOMYELITIS: An acute viral infection caused by three antigenic types of polio virus. Unapparent infections account for 95% of cases, non paralytic infections for 5% and the paralytic cases for 0.5%. In cases that develop paralytic manifestations, permanent disability may result, with death occurring in 2 to 10% of cases. The total number of reported acute flaccid paralysis in 1992 was 671 cases. The incidence per 100,000 children below 15 years of age was 3.0 compared to 3.3 in 1991. The highest rates were reported in Minya, Assiut, and Matrouh governorate (MoH, 1994). The virus is transmitted through oral-faecal route. The risk of infection is greatest in crowded urban areas although it also exists in rural areas.

In non paralytic infections, there may be fever, sore throat, headache, nausea, diarrhoea, vomiting and stiffness of the neck and back lasting two to 10 days. In the paralytic cases, these symptoms are accompanied by a sudden onset of paralysis of a group of muscles, with a maximum recovery within six months. Protection is through the use of the appropriate polio vaccine, whether the inactivated (IPV) or the live attenuated polio virus vaccine (OPV) which is given orally. It is usually given concurrently with DPT, following the recommended schedule and age of each vaccine. Infants should receive three doses of OPV at a minimum interval of four weeks within the first nine months of life. The first dose is given at the age of six weeks. It provides long-lasting immunity in up to 95% of fully immunized infants.

TUBERCULOSIS: A mycobacterial disease caused by *Mycobacterium tuberculosis* primarily from humans, and *M. bovis* primarily from cattle. TB is particularly high where many people share the same crowded living quarters, which may explain the higher disease incidence urban than rural areas and decreases with the improving standard of living. Transmission is usually through airborne droplets. Cases are infectious as long as the infectious TB bacilli are being discharged in the sputum. Infection by the bovine strains may also occur from drinking raw milk from infected

cows. Improved housing, diet, early detection and uninterrupted treatment (which are very difficult factors to achieve) are all necessary to control the disease.

The initial infection usually goes unnoticed, or may progress directly to pulmonary tuberculosis or spread to other parts of the body. The disease may also spread by the lymphatic route and produce miliary, pulmonary, meningeal, or other extra-pulmonary tuberculosis in children. The general manifestation of the disease as anorexia, loss of weight, and general weakness, is associated with the name of the disease in Arabic which is "Sol". Prevention is by the immunization with the BCG (Bacillus-Calmette-Guerin). BCG is given intradermally as soon as possible after birth and can be given concurrently with other vaccines. There is a controversy over the efficacy of the BCG and the protection conferred has varied markedly in different field trials. Even though BCG remains an important means of protecting many children. A small red swelling appears at the site of immunization after about two weeks which might develop into an abscess or may cause a swelling of the lymph glands.

Table (A:1:1): Schedule of immunization of children in the first year of life

| AGE | RECOMMENDED VACCINE |
|----------------|---|
| First 3 months | BCG in a dose of 0.1 ml to be given in the left upper arm |
| Second month | 1. Immunization against poliomyelitis (1st dose) two drops on the tongue. 2. DPT (1st dose). 0.5 ml Im into the left thigh 3. HBV 0.5 ml Im Antero-lateral right thigh. |
| Four months | 1. Immunization against poliomyelitis (2nd dose) two drops on the tongue. 2. DPT (2nd dose). 0.5 ml Im into the left thigh. 3. HBV 0.5 ml Im, Antero-lateral right thigh |
| Six months | 1. Immunization against poliomyelitis (3rd dose) two drops on the tongue. 2. DPT (3rd dose) 0.5 ml Im into the left thigh. 3. HBV 0.5 ml Im injection, Antero-lateral right thigh. |
| Nine months | 1. Immunization against poliomyelitis (4th dose) two drops on tongue. 2. Immunization against measles . 0.5 ml Sc injection in the right upper arm. |

Table (A:1:2):Vital statistics for Minya Governorate

| Year | Total population | Total number of live birth | Total number of deaths | Number of below one year deaths | Crude birth rate | Crude death rate | Infant mortality rate | Rate of natural growth |
|------|------------------|----------------------------|------------------------|---------------------------------|------------------|------------------|-----------------------|------------------------|
| 1986 | 2658083 | 110925 | 23770 | 6141 | 41.73 | 8.94 | 55.36 | 32.79 |
| 1987 | 2771714 | 118456 | 24809 | 9329 | 42.74 | 8.59 | 78.75 | 33.79 |
| 1988 | 2867861 | 122809 | 28704 | 7233 | 42.82 | 10.00 | 58.90 | 32.82 |
| 1989 | 2867911 | 109116 | 26854 | 6083 | 38.05 | 9.36 | 55.75 | 28.69 |

Source: MoH; High Institute of Public Health, Alexandria University; and Unicef (1990) Cluster survey for vaccination coverage in Minya Governorate. Alexandria University. Egypt

Table (A:1:3):The recorded number of births and vaccination in Minya Governorate (1987-June 1990)

| Year | Births | BCG | 1 st dose DPT&OPV | 2 nd dose DPT&OPV | 3 rd dose DPT&OPV | Booster DPT&OPV | Measles | 1 st dose TT | 2 nd dose TT | 3 rd dose TT |
|------|--------|-------|------------------------------|------------------------------|------------------------------|-----------------|---------|-------------------------|-------------------------|-------------------------|
| 1987 | 118456 | 93593 | 108032 | 101132 | 101171 | 87587 | 90344 | 9659 | 6134 | 2542 |
| 1988 | 122809 | 88126 | 112568 | 110467 | 105866 | 17766 | 10035/ | 20253 | 12770 | 6353 |
| 1989 | 109116 | 96577 | 109467 | 105390 | 103472 | 93360 | 103986 | 18250 | 12785 | 4392 |
| 1990 | 56107 | 52765 | 56149 | 51485 | 47403 | 47839 | 15280 | 10232 | 2002 | — |

Source: MoH; High Institute of Public Health, Alexandria University; and Unicef (1990) Cluster survey for vaccination coverage in Minya Governorate. Alexandria University. Egypt

Table (A:1:4): Type and number of health facilities providing vaccination in Minya Governorate

| District | Health Centre | Rural Hospital | Rural Health Centre | Health Unit | MCH Centre | Health Office | Total |
|--------------|---------------|----------------|---------------------|-------------|------------|---------------|------------|
| El-Minya | 1 | 1 | 6 | 23 | 2 | 3 | 36 |
| Samalout | 1 | 2 | 6 | 23 | 1 | 1 | 34 |
| Matay | 1 | — | 3 | 12 | 1 | 1 | 18 |
| Beni-Mazar | — | 2 | 4 | 16 | 1 | 2 | 25 |
| Maghagha | 1 | 1 | 3 | 18 | 1 | 1 | 25 |
| Edwa | — | 1 | — | 13 | 1 | 1 | 16 |
| Aba-Kormas | 1 | 2 | 5 | 19 | 1 | 1 | 29 |
| Malawy | 1 | 1 | 8 | 19 | 1 | 2 | 32 |
| Der-Mowas | 1 | 1 | 1 | 13 | 1 | 1 | 18 |
| Total | 7 | 11 | 36 | 156 | 10 | 13 | 233 |

Source: MoH; High Institute of Public Health, Alexandria University; and Unicef (1990) Cluster survey for vaccination coverage in Minya Governorate. Alexandria University: Egypt

Table (A:1:5): Vaccination coverage (%) among children age 12-23 months by district in Minya Governorate

| District | Fully vaccinated | Partially vaccinated | Not vaccinated |
|---------------------|-------------------------|-----------------------------|-----------------------|
| Der-Mowas | 91.9 | 5.7 | 2.4 |
| Malawy | 89.1 | 9.5 | 1.4 |
| Samalout | 73.1 | 21.2 | 5.7 |
| El-Minya | 73.6 | 22.7 | 3.7 |
| Matay | 70.6 | 22.9 | 6.4 |
| Beni-Mazar | 85.7 | 12.9 | 1.4 |
| Maghagha | 89.0 | 5.7 | 5.2 |
| El-Edwa | 69.0 | 18.6 | 12.4 |
| Abou-Quorkas | 78.8 | 19.8 | 1.4 |

Source: MoH; High Institute of Public Health, Alexandria University; and Unicef (1990) Cluster survey for vaccination coverage in Minya Governorate. Alexandria University: Egypt

THEORIES OF ATTITUDE CHANGE

Theories of attitude change can generally be classified into four main groups:

1. Cognitive stability group: It depicts the person as a performer of action, driven by a need for cognitive stability. For example

a) *Consistency theory*, which depicts the person as striving to maintain a balanced cognitive system. Any imbalance among the cognitive elements will prompt the person to work hard to bring back the balanced state. Through selective exposure, the person avoids discrepancies among the cognitive elements. The person can also internalize attitude change to justify overt behaviour. A persuasive strategy should stimulate cognitive inconsistency, just forcing the person to change attitude to restore the internal balanced state (White, 1982; Mills and Clark, 1982).

b) *Categorization theory*, which stresses the usage of categories to enable the person to cope with the everyday flood of information by adjusting the reaction not to each situation alone but to a certain category to which the situation belongs. A persuasive strategy should be directed to change a person's way of perception regarding the evoked issue as a whole category. For example, regarding a family planning campaign, one should design his persuasive appeal not to change mothers' attitude directly as they perceive it, but to change the way they perceive family health in general as one category (Katz, 1981; McGuire, 1983).

c) *Interpretation theory*, which stresses the use of information in giving meanings to one's activities and experience. A persuasive strategy should place the target person in a position of a reference situation after receiving the instruction; or stimulate social pressure regarding the desired behaviour (McGuire and Padawer-Singer, 1976).

2. Cognitive growth group: It depicts the individual as striving to achieve a higher level of cognitive complexity and satisfaction. For example,

a) *Excitement theory*, which stresses the person's tendency to look forward to something new, interesting, or unusual. Veroff and Veroff (1980) assume that people are attracted to intermediate levels of interesting information, enough to stretch their preexisting delusional systems a bit, but not out of tolerance. Because of the human's shortness of attention span, together with keenness for change, a persuasive message should be kept short and exciting, and its contents should depict compliance as allowing exciting participation in the preventive campaign, rather than experience of dangerous behaviour.

(b) *Functional theory*, which stresses the person's tendency to maximize gain and minimize cost, and to perceive the self as a competent high achiever (Brody, 1983). A persuasive strategy should associate the compliance with achieving of the desired goal. It calls for exploration of the target population's needs through pre-campaign formative research.

(C) *Autonomy theory*, which stresses the person's need for freedom of control over the own destiny. The person should be able to repel the imposed actions or outcomes that allow no options even if the person should have chooses it as long as other alternatives are available. A persuasive strategy should use the people's need for self control and guide their attitude and behaviour in favour of new ones that are designed to appear more their own (Brehm and Brehm, 1981).

3. Affective growth group: which stresses the existence of affective motivation in which the individual tries hard to attain a more desired feeling state. For example:

a) *Attraction theory*, which depends upon the human needs of affection and the tendency to belong to a group life rather than being alone (Emde and Harmon, 1982). Persuasive messages should be attributed to a liked source or outcomes. Health campaigns might also make more use of altruistic appeals whose efficacy is obvious when a mother who could not give up smoking to save her own health will try hard

to quit smoking when she becomes pregnant (Meindl and Lerner, 1983).

b) *Identity theory*, which stresses the need for a person to play additional roles to elaborate and expand the sense of self via the adoption of distinctive thoughts, feelings, and actions. A persuasive strategy should enhance personal identity creation via pro-social rather than antisocial behaviour (Kelman, 1958).

c) *Contagion theory*, which stresses the gratifications obtained from imitating others, and matching their behaviour (Johnson et al., 1983). Campaigners and health educationalists could use this appeal by demonstrating that other people are already complying and going beyond supporting certain behaviour to modelling exactly how it is performed (Pearl et al., 1982).

4. Affective stability group: It stresses the person's needs for stability rather than affective growth. For example:

a) *Tension reduction theory*, which stresses the individual needs of comfortableness. Hence, the individual will try to reduce arousal by either coping with the problem or putting it out of the mind. This means that a persuasive message should show that compliance will reduce rather than increase tension. Health warnings have to be designed to mediate the tension reduction tendency into problem solving coping responses rather than problem avoidance reactions.

b) *Ego defence theory*, which stresses the need to maintain self-esteem by ignoring the unacceptable aspects of the self. A persuasive strategy should give the person a look into the repressed motivation from which misjudgment arises, and messages should depict the behaviour as a sign of personal strength rather than of weakness (Sears et al., 1980).

c) *Duplication theory*, which stresses the tendency of repeating the same action in the specific situation if gratification was obtained from past performance in a similar situation. This signifies the influence of repeating the persuasive message, and the importance of its presentation in a way that induces a positive experience in the target population (Locurto et al., 1980).

Appendix (3)

MOTHERS' INTERVIEWING SCHEDULE (MIS)¹

I am Dr. Noeman, a paediatrician from El-Demerdash University Hospital and the medical Department of the Radio and Television. I am conducting research on how people feel towards the influence of television in health education, using the national immunization campaigns as example. The outcome of this research will be used by media personnel to evaluate themselves and to improve their services in favour of the viewers. The researcher is not interested in how much you know or anything apart from your feelings and actual information i.e. there are no correct or incorrect answers. Each mother has been chosen entirely arbitrarily using scientific techniques. Certainly, all information given is strictly confidential. The interview will take 30-45 minutes. Thank you very much for your kind cooperation and participation in this scientific research.

¹ This is a translation of the research MIS which was conducted in Arabic. Questions number 3, 4, 16, and 28 were omitted from the non viewer MIS.

| | | | |
|----------------------|--------------|-----------------|-----------|
| Serial Number | Group | <u>Area No:</u> | |
| | CV | VV | VN |

1- What forms of mass media do you have in your home?.... Please rank them according to its importance to you. Number one (1) should be the most important to you.

- Radio Television Video
 Magazine Newspapers Not available

2- Do you watch the Television ? Take the last month as an example and tick (✓).

- Regularly Sometimes Never

3- How frequently do you watch health programmes on television?

- Sometimes Never Regularly

4- What are your favourite television health programmes?

(1) (2)

5- Have you recently seen or heard about any of the following health issues? Please tick (✓) ?

| | Yes | No | Do not remember |
|---------------------|--------------------------|--------------------------|--------------------------|
| Bilharziasis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tuberculosis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Measles | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Polio | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Green flower | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tetanus | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Whooping cough | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Diphtheria | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Infective hepatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dehydration | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vaccination | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

6- If a child is infected with one of the following diseases, how dangerous do you think are the consequences?

| Disease | Not danger | Not so danger | Fairly danger | Great danger | Do not know |
|---------------------|------------|---------------|---------------|--------------|-------------|
| Polio | | | | | |
| Influenza | | | | | |
| Measles | | | | | |
| Green flower | | | | | |
| Dehydration | | | | | |
| Diphtheria | | | | | |
| Pertussis | | | | | |
| Tetanus | | | | | |
| Tuberculosis | | | | | |
| Infective hepatitis | | | | | |

7- Each of the following diseases has its own characteristics and symptoms Could you tell me the main characteristics of each?

- Measles :..... Do not know
- Pertussis :..... Do not know
- Polio :..... Do not know
- Green flower :..... Do not know
- Diphtheria :..... Do not know
- Tuberculosis :..... Do not know
- Dehydration :..... Do not know
- Hepatitis :..... Do not know
- Tetanus :..... Do not know

8- Which of the following sources do you feel are most important as providers of preventive information about diseases (rank two).

- Radio
- Television
- Doctors
- Newspapers
- Magazines
- Family
- Friends
- Health workers

9- Tick a method of choice to protect our children from the following diseases?

| Disease | Proper diet | Keeping in door | Immunization | Do not know | Others |
|---------------------|-------------|-----------------|--------------|-------------|--------|
| Measles | | | | | |
| Polio | | | | | |
| Common cold | | | | | |
| Green flower | | | | | |
| Diphtheria | | | | | |
| Anaemia | | | | | |
| Infective hepatitis | | | | | |
| Tetanus | | | | | |
| Whooping cough | | | | | |
| Tuberculosis | | | | | |

10- In your opinion, how likely is an immunized child to catch any of the following diseases?

| Disease | Very likely | Fairly likely | Do not know | Fairly unlikely | Very unLikely |
|---------------------|-------------|---------------|-------------|-----------------|---------------|
| Polio | | | | | |
| Green flower | | | | | |
| Pertussis | | | | | |
| Infective hepatitis | | | | | |
| Measles | | | | | |
| Tetanus | | | | | |
| Diphtheria | | | | | |
| Tuberculosis | | | | | |

11- How important is it to you to keep immunizing you child against the following diseases?

| Disease | Very important | Fairly important | Do not know | Not so important | Not important |
|---------------------|----------------|------------------|-------------|------------------|---------------|
| Measles | | | | | |
| Polio | | | | | |
| Green flower | | | | | |
| Pertussis | | | | | |
| Diphtheria | | | | | |
| Tuberculosis | | | | | |
| Tetanus | | | | | |
| Infective hepatitis | | | | | |

12- Could you tell me the main disadvantages of immunization?

- There are none (go to "13").
- There are some such as: (1) (2).....

And these disadvantages are:

- Very dangerous Fairly dangerous
- Do not Know Fairly safe
- Completely safe

13- Have you ever had your child immunized?

- Yes (go to "15")
- No

14- In your opinion how can we protect them from catching dangerous disease? (go to "16")

.....

15- Do you usually follow the recommended schedule of vaccination?

- Yes
- Sometimes
- Never

Could you tell me why?.....

16- To what extent have the following played a role in influencing your decision to vaccinate your child or not... please tick (✓)?

| | Major role | Minor role | No role |
|----------------------|--------------------------|--------------------------|--------------------------|
| Mass media | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Family members | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health professionals | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Neighbours/Friends | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

17- Do you remember what kind of vaccine that your child took before? Please use your child's immunization certificate.

| Vaccine | 1st Dose | 2nd Dose | 3rd Dose | Never |
|---------|----------|----------|----------|-------|
| BCG | | | | |
| Triple | | | | |
| Polio | | | | |
| Measles | | | | |

18- Did you immunize your other children?

Yes No Only some

Why?.....

19- Do you know what each of the following vaccination is for?

Shoulder injection :..... Or Do not know
 Oral drops :..... Or Do not know
 Triple vaccine :..... Or Do not know
 9th month vaccine :..... Or Do not know

20- Who reminded you about the immunization for the last campaign?

(1) (2).....

26- If your Friend said that she intended to immunize her child but she had some problems which prevented her from doing it please indicate your own response to each reason with a tick (✓).

- I decided not to immunize my child because the clinic is too far from home.

- Strongly agree Fairly agree No opinion
 Fairly disagree Strongly disagree

- Because the staff of the clinic are not considerate

- Strongly disagree Fairly disagree No opinion
 Fairly agree Strongly agree

-I am very busy

- Strongly disagree fairly disagree No opinion
 Fairly agree Strongly agree

- My family doesn't like immunization

- Strongly agree Fairly agree No opinion
 Fairly disagree Strongly disagree

27- Are you aware of any particular immunization campaign ?

- Definitely aware Fairly aware Do not remember
 Fairly unaware Definitely unaware (If no, go to "29")

28- How useful was the television campaigns ?

- Very useful Fairly useful Do not know
 Fairly not useful Not useful at all

In what sense.....

29- Here there are some statements about immunization, please tick with (✓) your opinion.

- a) Diseases like Polio and Measles are a national health problem
 Definitely true Fairly true No opinion
 fairly false Definitely false
- b) Immunization is important for the baby during the first year of life.
 Definitely true Fairly true No opinion
 Fairly false Definitely false
- c) If my child is mildly ill I can still immunize him/her
 Definitely false Fairly false No opinion
 Fairly true Definitely true
- d) Immunization protects the child from dangerous diseases
 Definitely true Fairly true No opinion
 Fairly false Definitely false
- e) Every pregnant women should be vaccinated against tetanus
 Definitely true Fairly true No opinion
 Fairly false Definitely false
- f) Vaccination should be through a disposable plastic syringe.
 Definitely false Fairly false No opinion
 Fairly true Definitely true

30- Here there are some of the sources for health information. Could you rank three sources according to their successfulness in making you aware of the need for immunization?

- Radio Television Newspapers Magazine
 Doctors Family members Friends Health workers
 No one

31- Which of these sources do you consider most influential on your decision about whether or not to have your child immunized?

Health professionals:

- Private doctors Doctors in the health clinic
 Health workers No one

Family members/friends:

- Mother/Mother in law Husband
 Friends/Neighbours Expertise No one

The media:

- Newspapers Television
 Magazine Radio No one

The effect of mass media and health campaigns could differ from person to other
could you please answer this personal card data:

32- Age: please tick (✓) your age band.

- | | | |
|---|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> Less than 16 years | <input type="checkbox"/> 16-20 years | <input type="checkbox"/> 21-25 years |
| <input type="checkbox"/> 26-30 years | <input type="checkbox"/> 31-35 years | <input type="checkbox"/> 36-40 |

33- Age of your child months

34- Sex of your child Male Female

35- Religion: Muslim Coptic

36- Number of children Girls..... Boys.....

37- Educational level... please tick (✓):

- | You | Your husband |
|--|--|
| <input type="checkbox"/> Can not read or write | <input type="checkbox"/> Can not read or write |
| <input type="checkbox"/> Read and write only | <input type="checkbox"/> Read and write only |
| <input type="checkbox"/> Primary school | <input type="checkbox"/> Primary school |
| <input type="checkbox"/> preparatory school | <input type="checkbox"/> preparatory school |
| <input type="checkbox"/> Secondary school | <input type="checkbox"/> Secondary school |
| <input type="checkbox"/> University degree | <input type="checkbox"/> University degree |
| <input type="checkbox"/> Postgraduate degree | <input type="checkbox"/> Postgraduate degree |

38- Occupation:

You :
Your husband :

39- Is there any health unit in your village or in your area of residency?

- Yes No (go to "41") Do not know (go to "41")

40- Do you usually go to the unit?

- Yes Sometimes No
If no, where do you usually immunize your child?
.....

41- How do you usually go there and to immunize your child?

.....

42- How much does it cost you to immunize your child?

.....

NOTES:-

| |
|---------------|
| Serial Number |
| |

CODING SHEET

| | |
|--|--|
| | |
|--|--|

X- Group (3-12) VV=A (13-16) VN=B
 (1, Maadi & 2, Royal Hunting) CV=C

- 1-** (1) Radio (2) Television (5) Video
 (4) Magazine (3) Newspapers (99) Not available

| | | | | |
|---------|---------|---------|---------|---------|
| 1st (A) | 2nd (B) | 3rd (C) | 4th (D) | 5th (E) |
| | | | | |

- 2-** (2) Regularly (3) Sometimes (1) Never

- 3-** (99) Inapplicable: a mother who does not watch television/VN group
 (3) Sometimes (1) Never (2) Regularly

- 4-** (99) Inapplicable: a mother who belongs to the VN group
 (1) Five Minute for Your Health (2) Private Doctor
 (3) Channel "3" Clinic (4) Medical Consultation
 (5) Others (88) Do not remember

- 5-** (2) Yes (1) No (88) Do not remember

- (J) Bilharziasis (B) Tuberculosis (C) Measles (A) Polio
 (E) Green flower (F) Tetanus (G) Whooping cough (D) Diphtheria
 (H) Hepatitis (I) Dehydration (K) Vaccination

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J | B | C | A | G | T | G | D | H | I | K |
| | | | | | | | | | | |

- 6-** (1) Not danger (2) Not so danger (3) Do not know
 (4) Fairly danger (5) Great danger

- (A) Polio (L) Influenza (C) Measles (E) Green flower (I) Dehydration
 (D) Diphtheria (G) Pertussis (F) Tetanus (B) Tuberculosis
 (H) Hepatitis

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | L | C | E | I | D | G | F | B | H |
| | | | | | | | | | |

7- (1) Wrong (2) Correct (3) Do not know

- (C) Measles (G) Pertussis (A) Polio (E) Green flower
 (D) Diphtheria (B) Tuberculosis (I) Dehydration (H) Hepatitis
 (F) Tetanus

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| C | G | A | E | D | B | I | H | F |
| | | | | | | | | |

8- (1) Radio (2) Television (6) Doctors (3) Newspapers
 (4) Magazines (7) Family (8) Friends (9) Health workers

| | |
|---------|---------|
| 1st (A) | 2nd (B) |
| | |

9- (1) Wrong (2) Correct (3) Do not know

- (C) Measles (A) Polio (L) Common cold (E) Green flower
 (D) Diphtheria (M) Anaemia (H) Hepatitis (F) Tetanus
 (G) Pertussis ((B) Tuberculosis

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C | A | L | E | D | M | H | T | P | T |
| | | | | | | | | | |

10- (1) Very likely (2) Fairly likely (3) Do not know
 (4) Fairly unlikely (5) Very unlikely

- (A) Polio (E) Green flower (G) Pertussis (H) Hepatitis
 (C) Measles (F) Tetanus (D) Diphtheria (B) Tuberculosis

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | E | G | H | C | F | D | T |
| | | | | | | | |

11- (5) Very important (4) Fairly important (3) Do not know
 (2) Not so important (1) Not important

- (C) Measles (A) Polio (E) Green flower (G) Pertussis
 (D) Diphtheria (B) Tuberculosis (F) Tetanus (H) Hepatitis

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| C | A | E | G | D | B | F | H |
| | | | | | | | |

12- **A:** There are none (1) There are some (2)
B: (1) common side-effects (2) local abscess (3) paralysis
 (4) ineffectiveness (5) dependency (6) death
 (88) do not remember/only one disadvantage (99) not applicable

C: They are:

- (1) Very dangerous
(4) Fairly safe

- (2) Fairly dangerous (3) Do not Know
(5) Completely safe (99) not applicable

| | |
|---|---|
| B | C |
| | |

13- (2) Yes (1) No

14- (1) Supernatural power (2) Natural power (3) Do not know
(88) Only one cause (99) Not applicable (if 2 for "13")

15- (99) Not applicable (a mother does not immunize her child i.e. 1 for "13")

A: (2) Yes (3) Sometimes (1) Never

B: (1) competing priorities (2) health system (3) side-effects
(4) contraindications (5) not important (6) forgetting
(7) maximum protection (8) follow the order (88) no answer

| | |
|---|---|
| A | B |
| | |

16- (99) Inapplicable (a mother belongs to VN group i.e. B for X)
(3) Major role (2) Minor role (1) No role

(C) Mass media (B) Family members (A) Health professionals
(D) Neighbour/Friend

| | | | |
|---|---|---|---|
| C | B | A | D |
| | | | |

17- I: (3) Incomplete for age (only one or two doses for polio and DPT)
(2) Complete for age (1) Never

(B) BCG (D) Triple (A) Polio (C) Measles

| | | | |
|---|---|---|---|
| B | D | A | C |
| | | | |

II: (2) Certificate seen (1) Not seen

18- (99) Inapplicable (a mother has only one child)

A: (2) Yes (1) No (3) Only some

B: (1) side-effects (2) one dose is enough (3) contraindications
(4) family criticism, +ve or -ve (5) other priorities (6) protection
(7) health workers (8) God (88) no answer

| | |
|---|---|
| A | B |
| | |

19- (1) Wrong (2) Correct (3) Do not know

(B) shoulder injection (A) oral drops (D) triple vaccine
(C) 9th month vaccine

| | | | |
|---|---|---|---|
| B | A | D | C |
| | | | |

20- (1) television (2) megaphone (3) neighbour/friend (4) family (5) doctors (88) no answer

21- (5) I will definitely make sure that my child had the vaccine. (4) I am not so sure if I want my child to have the vaccine. (2) My child probably would not have the vaccine. (1) My child would not have any of the vaccination. (3) I don't know if my child has to receive the recommended vaccine or not

22- (1) Wrong (2) Correct (3) Do not know
Y: Age in months Z: Vaccine

(A) Polio (B) Tuberculosis (C) Measles (D) DPT (H) Hepatitis

| Y | | | | | Z | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | H | A | B | C | D | H |
| | | | | | | | | | |

23- (1) Mother's (2) Mother's and Father's (shared) (3) Father's

24- (1) Strongly disagree (2) Fairly disagree (3) Undecided (4) Fairly agree (5) Strongly agree

25- (5) Definitely yes (4) May be yes (3) I do not know (2) May be no (1) Definitely no

26- (1) Strongly agree (2) Fairly agree (3) No opinion (4) Fairly disagree (5) Strongly disagree

(A) the clinic is too far from home (B) the staff are not considerate
(C) very busy (D) the family doesn't like immunization

| | | | |
|---|---|---|---|
| A | B | C | D |
| | | | |

27- (5) Definitely aware (4) Fairly aware (3) Do not remember (1) Definitely unaware (2) Fairly unaware

28- (99) Not applicable (a mother is not aware i.e. 1 or 2 for "29" or VN) (88) no other reason

A: (5) Very useful (4) Fairly useful (3) Do not know (1) Completely worthless (2) Fairly worthless

B: (1) knowledge of immunization (3) have other sources (2) knowledge of children diseases (4) not suitable

29- (5) Definitely true (4) Fairly true (3) No opinion (2) fairly false (1) Definitely false (99) Not applicable

- (A) Diseases like Polio and Measles are a national health problem
- (B) Immunization is important for the baby during the first year of life
- (C) If my child is mildly ill I can still immunize him/her
- (D) Immunization protects the child from dangerous diseases
- (E) Every pregnant women should be vaccinated against tetanus
- (F) Vaccination should be through a disposable plastic syringe.

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| | | | | | |

30- (1) Radio (2) Television (3) Newspapers (4) Magazine (6) Doctors (7) Family (8) Friends (9) Health workers (10) No one

(A) 1st (B) 2nd (C) 3rd

| A | B | C |
|---|---|---|
| | | |

31- A: Health professionals: (14) private doctors (9) health workers (15) doctors in the health clinic (10) no one
 B: Family members/friends: (11) mother/in-law (12) husband (13) expertise (8) friends/neighbours (10) no one
 C: The media: (3) newspapers (2) television (4) magazine (1) radio (10) no one
 (d) 1st (e) 2nd (f) 3rd

| A | | | B | | | C | | |
|---|---|---|---|---|---|---|---|---|
| d | e | f | d | e | f | d | e | f |
| | | | | | | | | |

32- (1) Less than 16 years (2) 16-20 years (3) 21-25 years (4) 26-30 years (5) 31-35 years (6) 36-40

33- Age in months

34- (1) Male (2) Female

35- (1) Muslim (2) Coptic

36- (A) Girls (B) Boys

| | |
|---|---|
| A | B |
| | |

37- (1) can not read or write (2) read and write only (3) primary school
(4) preparatory school (5) secondary school (6) university degree
(7) postgraduate degree

A: Mother **B:** Husband

| | |
|---|---|
| A | B |
| | |

38- (1) House wife/Farmer (2) Trader/Blue collar
(3) Middle class governmental job (4) High class governmental job
(5) High professional

(A) Mother (B) Father

| | |
|---|---|
| A | B |
| | |

39- (2) Yes (1) No (88) Do not know

40- **A:** (2) Yes (3) Sometimes (1) No
(99) Inapplicable (a mother who is not aware of the health unit)

B: (1) private doctor (2) At home
(99) Inapplicable (a mother who do not immunize her child)

| | |
|---|---|
| A | B |
| | |

41- (1) On foot (2) By car (99) Inapplicable

42- (1) Free (2) less than 25 LE (3) 26-35 LE
(4) 36-50 LE (5) Over 50 LE
(99) Inapplicable (a mother do not immunize her child)

Date of coding: / /
Date of evacuation: / /

Notes:

MOTHERS' INTERVIEWING SCHEDULE (MIS)
(PILOT STUDY)

1- Please tick (✓) your age band.

- | | | |
|---|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> Less than 16 years | <input type="checkbox"/> 16-20 years | <input type="checkbox"/> 21-25 years |
| <input type="checkbox"/> 26-30 years | <input type="checkbox"/> 31-35 years | <input type="checkbox"/> 36-40 |

2- Age of your child months

3- Sex of your child Male Female

4- Religion: Muslim Coptic Other

5- Number of children Girls..... Boys.....

6- Educational level... please tick (✓):

- | You | Your husband |
|--|--|
| <input type="checkbox"/> Can not read or write | <input type="checkbox"/> Can not read or write |
| <input type="checkbox"/> Read and write only | <input type="checkbox"/> Read and write only |
| <input type="checkbox"/> Primary school | <input type="checkbox"/> Primary school |
| <input type="checkbox"/> preparatory school | <input type="checkbox"/> preparatory school |
| <input type="checkbox"/> Secondary school | <input type="checkbox"/> Secondary school |
| <input type="checkbox"/> University degree | <input type="checkbox"/> University degree |
| <input type="checkbox"/> Postgraduate degree | <input type="checkbox"/> Postgraduate degree |

7- Occupation:

You :
Your husband :

8- Is there any health unit in your village or in your area of residency?

- Yes No Do not know

9- Do you go to the health unit?

.....

10-If yes, Why do you go there?

.....
.....

11- Are you satisfied with the quality of the offered services?

.....

12- Do you have any suggestion to improve the services further?

.....

13- Are you satisfied with the health workers in the unit?

.....

14- How do you usually go there to immunize your child?

.....

15- How much does it cost you to immunize your child?

.....

16- If no, where you do not go there?

.....

17- Where do you immunize your child?

.....

18- How much time does it usually take to immunize your child?

.....

**19- Each of the following diseases has its own characteristics and symptoms
Could you tell me the main characteristics of each?**

| | | | |
|--------------|---|-------|--------------------------------------|
| Polio | : | | Do not know <input type="checkbox"/> |
| Pertussis | : | | Do not know <input type="checkbox"/> |
| Measles | : | | Do not know <input type="checkbox"/> |
| Diphtheria | : | | Do not know <input type="checkbox"/> |
| Hepatitis | : | | Do not know <input type="checkbox"/> |
| Dehydration | : | | Do not know <input type="checkbox"/> |
| Tuberculosis | : | | Do not know <input type="checkbox"/> |
| Tetanus | : | | Do not know <input type="checkbox"/> |

20- In your opinion, how can you protect you child from the following diseases?

- Measles :..... Do not know
- Polio :..... Do not know
- Diphtheria :..... Do not know
- Infective hepatitis :..... Do not know
- Tetanus :..... Do not know
- Whooping cough :..... Do not know
- Tuberculosis :..... Do not know

21- Do you think that the vaccination schedule must be followed strictly otherwise the vaccine will be ineffective?

- Yes No Do not know

22- Who reminded you about the immunization?

- (1) (2).....

23- What kinds of immunization do you think your child needs during his/her first year of life?

| Age in Months | Vaccine |
|---------------|---------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

24- Do you know what each of the following vaccination is for?

- Shoulder injection :.....
- Oral drops :.....
- Triple vaccine :.....
- 9th month vaccine :.....

25- Rank three of the following statements according to your own opinion. Number one should be your first choice.

I am vaccinating my child because:

- () This satisfies my family.
- () There is a penalty to be paid by the mother who doesn't immunize her child
- () I see every mother do so.
- () This gives me a feeling of motherhood
- () To be sure that my child will never suffer from serious diseases.

26-What precautions should you take before going to the unit?

.....

27- Do you know any reason for not immunizing the child?

.....

28- If a child is infected by one of the following diseases, how dangerous do you think are the consequence?

| Disease | Not danger | Not so danger | Fairly danger | Great danger | Do not know |
|--------------|------------|---------------|---------------|--------------|-------------|
| Polio | | | | | |
| Pertussis | | | | | |
| Dehydration | | | | | |
| Diphtheria | | | | | |
| Measles | | | | | |
| Tetanus | | | | | |
| Tuberculosis | | | | | |
| Hepatitis | | | | | |

29- What do you think the immunization effects on the child's health?

.....

30- In your opinion, how likely is an immunized child to catch any of the following diseases?

| Disease | Very likely | Fairly likely | Do not know | Fairly unlikely | Very unlikely |
|---------------------|-------------|---------------|-------------|-----------------|---------------|
| Polio | | | | | |
| Pertussis | | | | | |
| Infective hepatitis | | | | | |
| Measles | | | | | |
| Tetanus | | | | | |
| Diphtheria | | | | | |
| Tuberculosis | | | | | |

31- Could you tell me the main disadvantages of immunization?

.....

32- If there are any, how dangerous are they on the child's health?
.....

32-According to the schedule, are you going to immunize your child against the following:

Measles Polio..... Tetanus.....
Pertussis..... Diphtheria..... TB.....

33- If you discovered that today was the last day on which you could immunize your child, which course of action would you follow ... please circle O?

- 1- I will ask another member of my family/ friends to take my child to the clinic.
- 2- I should go to immunize my child and postpone my other business.
- 3- I will do my duties first and after that, if there is time I will go to the clinic.
- 4- I do not know what I should do.
- 5- I will never do anything.

34- What will be your feeling if you missed the opportunity for vaccination?
.....

35- What will you do then?
.....

36- If your friend said that she could not immunize her child because she had some problems please indicate your own response to each reason with a tick (✓).

- I decided not to immunize my child because the unit is too far from my home.
 - Strongly agree Fairly agree No opinion
 - Fairly disagree Strongly disagree
- Because the staff of the unit are not considerate
 - Strongly disagree Fairly disagree No opinion
 - Fairly agree Strongly agree
- Because of the bad weather condition
 - Strongly agree Fairly agree No opinion
 - Fairly disagree Strongly disagree
- My family doesn't like immunization
 - Strongly agree Fairly agree No opinion
 - Fairly disagree Strongly disagree
- I am very busy
 - Strongly disagree fairly disagree No opinion
 - Fairly agree Strongly agree

37- Please rank two source of information that played a role in influencing your decision to vaccinate your child or not?

(1) (2)

38- Have you ever had your child immunized? and why?

.....

39- When was the last time?

.....

40- Please show me the baby's immunization schedule on the back of his/her birth certificate.

Available Not available Later

41- Did you immunize your other children? and why?

Yes No Only some of them

.....

.....

42- Would you recommend your friend to immunize her child?

Definitely yes May be yes I do not know
 May be no Definitely no

43- To raise the immunization coverage among children here there are some proposals, please tick your opinion.

- Legalisation

Strongly agree Fairly agree No opinion
 Fairly disagree Strongly disagree

- Penalty for not immunizing the child

Strongly agree Fairly agree No opinion
 Fairly disagree Strongly disagree

-Increasing the price for each vaccination

Strongly agree Fairly agree No opinion
 Fairly disagree Strongly disagree

- Intensive media campaigns

Strongly agree Fairly agree No opinion
 Fairly disagree Strongly disagree

44- Whose responsibility is it to take your child to the health unit?

.....

45- Can you remember How many times your husband took your child to the health unit for immunization?

Always Sometimes Never

46- Would you mind if your friend asked you to take her child to the vaccination point? and why?

.....
.....

47- What forms of mass media do you have in your home?.... Please rank them according to its importance to you. Number one (1) should be the most important to you.

(1) (2) (3)

48- How often do you watch television? please tick (✓).

Regularly Sometimes Never

49- What are your favourite television programmes?

(1) (2)..... (3)

50- How often do you listen to radio? please tick (✓).

Regularly Sometimes Never

51- What are your favourite radio programmes?

(1) (2)..... (3)

52- How often do you watch health programmes on television?

Sometimes Never Regularly

53- Why is that

54- Can you chose two ways for delivering health messages through television.

Routine health programmes Soap operas Spot advertising
 Songs

55- Have you recently seen or heard about any of the following health issues on television?Please tick (✓)

| | Yes | No | Do not remember |
|---------------------|--------------------------|--------------------------|--------------------------|
| Bilharziasis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tuberculosis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Measles | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Polio | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Tetanus | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Whooping cough | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Diphtheria | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Infective hepatitis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dehydration | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vaccination | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

56- Are you aware of any particular immunization campaign ?

- Definitely aware Fairly aware Do not remember
 Fairly not aware Definitely not aware

57- How useful was the campaign ?

- Very useful Fairly useful Do not know
 Fairly not useful Not useful at all

58-In what sense.....
.....

59- Could you tell me your impression when you saw the immunozation campaign on television?

.....
.....

60- Which of these sources do you consider most influential on your decision about whether or not to have your child immunized?

Health professionals:

- Private Doctors Doctors in the health clinic
 Health workers No one

Family members/friends:

- Mother/Mother in law Husband
 Friends/Neighbours Expertise No one

The media:

- Newspapers Television
 Magazine Radio No one

61- Here there are some of the sources for health information. Could you rank three sources according to their successfulness in making you aware of the need for immunization?

- Radio Television Newspapers Magazine
 Doctors Family members Friends Health workers

62- Here there are some statements about immunization, please tick with (✓) your opinion.

- a) Diseases like Polio and Measles are a national health problem
 Definitely true Fairly true No opinion
 fairly false Definitely false
- b) Immunization is urgent for the baby during his first year of life.
 Definitely true Fairly true No opinion
 Fairly false Definitely false
- c) Vaccination is safe.
 Definitely true Fairly true No opinion

Mother's Notes:-

Researcher's notes:-

