# Social Roles and Women's Health: Need Satisfaction or Normative Satisfaction?

## Anne Marie McMunn Burnett

## University College London

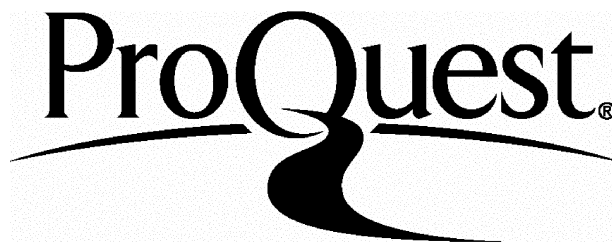## Ph.D., Sociology

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# Abstract

This study identifies three main gaps in current literature on the relationship between social roles and women's health. First, only subjective measures have been used as physical health outcomes. Second, work has mainly been limited to cross-sectional data sets. Third, the concept of role quality remains undeveloped and a-theoretical. This thesis develops a theory of role quality based on a conceptual model that social roles provide opportunities for autonomy need satisfaction. Data on women from the 1998 Health Survey for England and the MRC National Study of Health and Development 1946 birth cohort are used to investigate relationships between social roles and both subjective health and obesity. Analysis of cross-sectional data suggests that both full-time homemakers and unemployed women were more likely to report poor health. Longitudinal analysis of social role histories in the 1946 cohort shows that women who did not follow the normative social role pattern for that cohort of marriage, children and relatively stable employment after a career break for childrearing were more likely to report poor health at age 54, and that women who remained full-time homemakers were more likely to be obese at 53. These relationships are not explained by health selection, early life factors or adult socio-economic circumstances. Two theories of role quality – one based on need satisfaction, the other relating to normative role satisfaction – are operationalised using existing measures in the 1946 cohort data. These explain much of the poor subjective health in middle age of lone mothers and long-term homemakers, but not that of women in non-normative role histories more broadly. Role quality does not explain any of the increased obesity in middle age of long-term homemakers, while parity explains some of the increased risk of obesity in middle age in this group. Increasing diversification of family and work roles, coupled with persistent relationships between social roles and health shown in this study suggests the need for continued focus on relationships between social roles and health.

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Dedicated to John C. McMunn, Ph.D.

# Chapter 1 Social roles and women's health: background literature and an overview of the thesis.

## 1.1 Introduction

Interest in relationships between social roles and health is experiencing a revival which occurs against a backdrop of work critical of a focus on social role occupancy (for example, see Annandale & Hunt 2000). Such criticism partly emanates from the limited theoretical advancement that has been made in research on social roles and health. While most fields within sociology have long shifted away from Parson's structural-functionalism towards the more fluid notions of agency and identity, theory around social roles has not progressed much beyond its historic links with functionalism. This thesis will show that social roles are strongly associated with objective as well as subjective measures of health, and will argue that concepts such as agency and identity are useful in understanding why social roles are important for women's health. More specifically this thesis sets out to test an explanatory hypothesis based on agency or autonomy need satisfaction. However, empirical results suggest that a concept of normative role identity may be more applicable, at least for the particular generation of women studied here.

The purpose of this first chapter is to provide background information that sets the stage for the remainder of the thesis. The first part of this chapter documents changes in British women's social role patterns over the past century, with some discussion of the influences of social class and education on these patterns. We will see that women's family formation patterns became increasingly homogenous up to the first half of the 1960s, followed by a rapid diversification in the final three decades of the century. This chapter also shows that the gap that women took for childbearing declined continuously over the period until a pattern of combining continuous employment with motherhood emerged among highly educated women (who had become more numerous by this time) in the 1980s and 90s. The second part of this chapter reviews previous work investigating the relationship between social roles and women's health which has increased in sophistication over the period, by taking more account of the complex lives within which relationships between social roles and health develop. The final part of this chapter summarises the gaps in existing research into the relationship between social roles and women's health, points to the ways in which this thesis aims to address these gaps, and presents an overview of the remainder of the thesis.

Probably because of patriarchal gender divisions in social roles, work examining social roles has focused mainly on women. This thesis continues this unfortunate tradition, but for pragmatic reasons rather than any notion that social roles do not influence men's health. The focus of this thesis is not gender, in that it is not a comparison of men and women. Rather, it is an investigation of social roles and health, a topic wide in scope. One way to achieve a manageable focus was to limit the study to women for purposes of this thesis.

## 1.2 Changes in women's social role patterns over the twentieth century.

Much of the twentieth century saw increasing value placed on the nuclear family and the role of women as homemakers within this family form. This normative pattern appears to have reached its zenith in the early 1960s when women's family role patterns reached their most homogenous point (Kiernan & Diamond 1983, Kiernan & Eldridge 1987). After this point the strength of traditional norms regarding family formation began to wane and family role patterns became increasingly diverse. Prior to this shift in family roles women had begun to spend more and more of their lives in paid employment, a trend which continued throughout the second half of the twentieth century. Over this period the social patterning of women's ties to the labour market shifted from being strongest among women in working class families to being strongest among women with high educational qualifications (Joshi & Hinde 1993; Joshi & Paci 1998; Macran, Joshi & Dex 1996). Some argue that changes in family formation patterns were the result of women's increasing labour force participation (see Jensen 1995 and Chafetz 1995).

### 1.2.1 Women's social roles in twentieth century Britain: pre-1970

Cross-sectional studies have shown that the presence of children, and in particular, the age of the youngest child, is a crucial determinant of whether a woman is in paid employment (Joshi 1984, Martin & Roberts 1984). However, we will see that in Britain, for at least the last half century, motherhood has seldom been rejected for a career, and neither has employment often been totally abandoned for motherhood.

### Women's family roles prior to 1970: standardisation towards traditional norms

There is some consensus among family theorists that the nuclear family as the normative family form is relatively recent (Flandrin 1979, Hernandez 1993, Mitterauer & Sieder 1982). Theorists have argued that the nuclear family form derived from the demands of industrial capitalism, and following the Victorian era which reinforced social norms regarding the

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nuclear family (Hernandez 1993). In encouraging the reproduction of the nuclear family, social values prescribed a predictable pattern of social role occupation for women as wife and mother, from early adulthood. As the nuclear family form – and the role of married motherhood for women within that form – grew in normative strength over the first part of the twentieth century, the age at which women married changed dramatically. Each successive cohort of women born between 1920 and 1940 married sooner than the preceding cohort, culminating with cohorts born in the 1940s (Coleman & Salt 1992, Kiernan & Eldridge 1987). Women born in the 1940s had remarkably similar age at marriage patterns, which were the youngest ever recorded since civil registration began. During the twentieth century, marriage never took place so frequently or occurred at such early ages as in the 1960s. Typically 60% of women born in the 1940s married between ages 19 and 23 with 91% married by the age of 30 (Kiernan & Eldridge 1987). In their study of marital ages during this period, Kiernan and Eldridge note, "during the 1960s, when the majority of the 1940s generation married, there were strong societal norms governing the timing of marriage. Marriage was seemingly inevitable and young women were expected to have married by their early twenties" (p.60). The Total Fertility Rate (TFR, the family size a woman would have if she experienced current age-specific fertility rates through her lifetime) in the United Kingdom also reached their highest point in the early 1960s. Since the 1870s, the TFR rate had declined steadily (with a transient increase after World War I) to reach the lowest point recorded up to that point in history in the 1930s. The famous 'baby boom' began in 1946 and TFR reached 2.94 in 1964 (Coleman & Salt 1992). In the 1950s only 4% of births were outside marriage, even fewer than in the days of Victorian Britain – and without its high levels of infanticide and unregistered births (Coleman & Salt 1992).

Although variation from normative family roles was rare among women born in the 1940s, Kiernan and her colleagues (Kiernan & Diamond 1983, Kiernan & Eldridge 1987) have shown that educational differences predicted variation from the norm, even in cohorts for which conformity was strong. In investigations of predictors of age of first birth and age of marriage among a cohort of women born in 1946 (described in more detail in chapter 4, pp. 69-70), lack of educational qualifications emerged as the single most influential predictor of both young marriage and young parenthood. The median age at which women who achieved only a minimum qualification became parents was nearly two and a half years higher than that of women with no qualification. Kiernan (1988, 1989) also showed that women in the same cohort who had never married by the age of 36 were of higher ability, were more likely to be graduates and to be in high status occupations than their

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married counterparts. This was opposed to never married men at 36 who were in the lowest social class occupations or were unemployed. Those women who were childless at age 36 were also more likely than their peers to be highly qualified and have a high status occupation.

## *Women's work roles prior to 1970: decreasing gaps for childbearing and class convergence*

One integral component of traditional social norms regarding women's role in family formation was full-time attention to domestic duties with paid employment only taken up out of financial necessity. In fact, to the extent that this phenomenon of the long-term, full-time homemaker existed on a large scale at all, it was limited to the upper and middle classes for much of this period. Full-time homemaking existed mainly as an aspiration for women in working class families until well into the second half of the twentieth century.

From the late nineteenth into the first half of the twentieth century, female labour-force participation in Britain appears to have been roughly static. Around a third of women aged 20-64 were employed (with temporary exceptions of increased participation during the two World Wars) with women generally exiting the labour market upon marriage. Prior to World War 2 only around 10% of married women were employed (Coleman & Salt 1992). Between the 1950s and 1970s, women increased the time they spent in the labour force by remaining in paid employment until their first birth (as opposed to exiting upon marriage) (Dex, Joshi & Macran 1996), and by earlier and earlier re-entry after a gap in employment for childbirth (Joshi & Hinde 1993). In 1966 over two-thirds of married women were employed (Coleman & Salt 1992). This increasing attachment to paid work of successive generations of British women is illustrated in the British birth cohort data. Mothers of children born in 1946 stayed away from employment longer than the mothers of children born in 1958, and longer than their own daughters (Joshi & Hinde 1993). Joshi (1996) used survival analysis to show that women born in 1946 were three times more likely to return to employment after childbearing than their mothers. Macran and her colleagues (1996) showed that the same women stayed out of employment longer than the cohort of women born in 1958. Joshi and Paci (1998) found that marriage reduced the likelihood of labour force participation for women born in 1946, but not for women born in 1958. For women in both cohorts, the likelihood of participating in the labour market was reduced by having children, but increased with the age of the youngest child.

*Class convergence of women's ties to the labour market*

In Joshi's (1996) analysis, the main reason for the increased likelihood of returning to employment after childbearing among women in the 1946 cohort compared with their mothers was the diminishing influence of the status of their husband's occupation. For women who had children in 1946, it was those in manual class households who worked (Joshi & Hinde 1993). Joshi and Hinde (1993) describe a class convergence among women born in 1946 as the first generation of women for which this class difference disappeared. For women born in 1946, labour force attachment among women in middle class households began to rise alongside decreased willingness of mothers in working class households to work outside the home. Roberts (1995) has presented qualitative work suggesting that working class women in this generation perceived their emancipation as a movement away from outside paid employment and towards domesticity. A far greater proportion of women born in 1946 gained some educational qualification than in their mothers' generation. However, women born in 1946 were born too early to reap the benefits of increased gender equity in educational attainment that would occur over the 1970s and 1980s. In speculating about explanations for this class convergence in women's occupational patterns between the 1950s and 1970s, Joshi and Hinde emphasise that improvements in women's education and own earning power are only a small part of the story. They suggest that mothers employment became more acceptable as types of employment emerged that were more compatible with domestic roles. Joshi and Hinde also emphasise the undoubted improvements in domestic technology over the period, as well as the burgeoning of part-time employment in a growing service sector "where there are modest opportunities for a mother to augment the family budget, whilst neither challenging the role of the main breadwinner, nor neglecting the care of his home and children" (p.224).

### 1.2.2 *Women's social roles in twentieth century Britain: post-1970*

While the gap in employment that women took for childbearing had already been gradually reducing for twenty years, the 1970s saw the beginnings of gender equity in education leading to a rapid strengthening in women's ties to the labour market. This was followed by relatively dramatic changes in women's family role patterns. Chafetz (1995) has argued that both the second wave of feminist activism and family change at this time were the result of expanding opportunities for married mothers in the labour force (through increased demand) and higher education. As women spent a larger proportion of their

lives in the labour market they became more likely to compare their situations with those of their male colleagues.

***Women's family roles after 1970: rapidly increasing diversity***
One significant change in social role patterns since the 1970s has been a dramatic reversal in marriage behaviour. Fewer and later marriages corresponded with an increase in living singly or cohabiting. Bartley and colleagues (1999) examined differences in women's social roles between the 1980s and the 1990s using two nationally representative cross-sectional data sets and found that the proportion of women who were married had decreased from 78% in the 80s to 67% in the 90s. Similarly, divorce/separation, cohabitation and living singly had all increased. Looking at national statistics, until very recently, there was a steady downward trend in the number of marriages each year, culminating in an all-time low figure in 2000 (ONS 2002). In their analysis of partnerships and parenthood in the British birth cohorts, Ferri and Smith (2003) note that it is not yet wholly clear how far this decline represents a delay in embarking upon committed relationships (especially among the growing numbers experiencing higher education and prolonged career establishment) or a principled rejection of more formal and traditional ties. The authors show that women born in 1970 were much less likely than those in the earlier cohorts to have entered their first partnership at a very young age. Just over a quarter of the 1970-born women had lived with a partner by the time they were 20. This compared with four out of ten women born in 1958, while 40% of women in the 1946 cohort were *married* by age 20.

National statistics also show that the annual divorce rate more than doubled during the 1960s and doubled again between 1970 and 1972 (due to the Divorce Reform Act of 1971) to 9 per thousand married couples. The divorce rate continued its upward path throughout the 1970s (Population Trends 2000). Ferri and Smith (2003) show that twice as many of those born in 1970 had been in at least one partnership which had ended by the time they were 30, compared with women born in 1958. Women born in 1970 were more likely to experience multiple cohabitations rather than multiple marriages. Almost a fifth of the women in the 1958 cohort had been divorced by age 33 compared with only 8% of women in the 1970 cohort at age 30 (Ferri & Smith 2003). Cohabitation was still relatively uncommon in Britain in the 1970s but became much more common by the end of the century (Population Trends 2000). Ferri and Smith (2003) show that, whilst cohabitation was virtually unreported among the 1946 cohort at age 31, about a quarter of the 1970 cohort and a third of those born in 1958, were cohabiting at age 30. Further, about a third

of people who were married at age 30 in the 1958 cohort had lived with their spouse before marrying, while among the 1970 cohort this figure had risen to over 70%. Increases in both cohabitation and lone parenthood meant a substantial increase in the proportion of births outside marriage in the final few decades of the twentieth century. The proportion of births registered outside marriage quadrupled over the period from 9% in 1976 to 38% in 1998 (Population Trends 2000). Also, births outside marriage shifted from being accidental or unwanted births to births to cohabiting couples, as inferred from the increase in joint registration (Coleman & Salt 1992).

Another change in family roles over the last several decades of the twentieth century was a marked shift towards later childbearing (Dale & Egerton 1995), with a growing minority declaring that they wished to remain childless, mainly reflecting preferences among highly-qualified women to increase their career prospects. Fertility rates fell for women in their twenties and rose for women in their thirties during this period (Lesthaeghe & Williams 1999, Sporton 1993). For women in their early twenties the fertility rate began to fall in the 1980s while for women in their late twenties, the rate increased in the 1980s and began to decrease in the early 1990s. Women in their thirties experienced increasing fertility rates from the mid-1970s through to the end of the century. The increase was less marked for women in their early forties (Population Trends 2000). In 1976, 69% of live births were to women in their twenties, but this proportion had fallen to 48% in 1998. In contrast, the proportion of births to women in their thirties rose from 20% of all births in 1976 to 42% in 1998 (Population Trends 2000). This trend in delaying childbirth was reflected in the mean age at childbearing, which rose from 26.4 years in 1976 to 28.9 years in 1998 (Population Trends 2000). Ferri and Smith (2003) show that, by age 30, a little over half of the women in the 1970 cohort had had their first child compared with two thirds of women born in 1958 and 92% of women born in 1946. Despite this trend towards later parenthood, the authors found much less difference between the 1958 and the 1970 cohorts in the number who had become parents at a very young age: about one in ten of women in each cohort had their first child at 20 or younger. For women born in 1946, the figure was nearly one in four. Childlessness also increased in the United Kingdom over the twentieth century from one in 10 women born in 1940 remaining childless compared with one in five born in the late 1950s (Population Trends 1999). The fertility rate for the UK dropped dramatically in the early seventies from 2.4 in 1970 to 1.8 (below the 2.1 replacement level) in 1975 and has remained constant at 1.8 since that time (Brewster & Rindfus 2000). However, at least up to the end of the eighties, it was mainly delayed childbearing rather than the

abandonment of parenthood that caused most of the fall in fertility rates (Coleman & Salt 1992).

Lone parenthood is a family role combination that is almost exclusively held by women and highlights the continued gender inequality in access to resources. The number of lone parent families in Britain grew continuously over the 1970s, with accelerated growth in the 1990s (Haskey 1998, Population Trends 2000). It is well known that poverty is more prevalent in lone parent families than in two parent families (Arendell 1987, Devillier & Forsyth 1988, Duncan & Hoffman 1985, Everett 1991, Maclean 1991, Shouls et al. 1999). Shouls and colleagues (1999) showed that 80% of lone mother families were dependent on state benefits or were otherwise close to the poverty line. Using data from the British Household Panel Survey (BHPS), Jarvis and Jenkins (1998) showed that marital dissolution was associated with substantial declines in income for women and children, with much less change in incomes for men. There has also been a shift in the work role patterns of lone mothers. Analysis of the British birth cohorts showed that in the 1970s lone mothers were generally more likely to be employed, and employed full-time, than married mothers. At age 32, 70% of lone mothers in the 1946 cohort were employed full-time and 10% part-time compared with 18% and 33% of married mothers. Only 18% of lone mothers aged 30 in 2000 (born in 1970) had full-time jobs and 27% part-time, in contrast to 23% and 29% among partnered mothers (Woods et al. 2003). Changes in the private domains of partnership and family formation are, of course, inextricably linked to women's changing public role, especially in the labour market. Women made spectacular advances in educational and occupational achievement in the last several decades of the twentieth century.

## Women's work roles after 1970: strengthening ties to the labour market and polarisation

In the second half of the twentieth century the proportion of the workforce who were women increased rapidly. The number of men per 100 women in the labour force decreased from 226 in 1950 to 156 in 1982 and then to 129 in 1994 (Joshi & Paci 1998).[1] Analysis of the three British birth cohorts has shown that this growth in employment has been particularly strong amongst mothers of young children. The economic activity rate for mothers of children under 5 increased by 25 percentage points between the 32-year-olds of 1978 (1946 cohort) and the 30-year-olds of 2000 (1970 cohort) (Woods et al. 2003).

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[1] Although this change primarily reflected increased participation by women, it also included some declining participation by men (Joshi & Paci 1998).

Much of this increase also reflects the long-term propensity for British women to combine work and childrearing by taking informal, flexible part-time jobs. Previous work has shown that the increase in women's employment between 1961 and 1991 consisted largely of part-time jobs (Davies & Joshi 1998) so that, by 1991, there were almost as many part-time as full-time jobs for British women (Joshi & Paci 1998). By the 1980s and 90s British women were more likely to delay the birth of their first child and to return to work earlier after childbirth, compared with women in earlier cohorts (Dex 1984, Martin & Roberts 1984, McRae 1991, Joshi & Hinde 1993). It had become more common for women to go back to work between births instead of waiting until they had finished child-bearing and the proportion who never returned, or did so after long gaps declined further and further (Dex, Joshi & Macran 1996). By the late 1980s, continuous employment began to be a more important feature of labour market participation for British mothers (Joshi & Hinde 1993). By the 1990s, the economic activity rate of women had roughly doubled since the post-war period, and that of mothers more so.

The increase in women's ties to the labour market can partly be explained by a number of improved opportunities available to women born in the 1950s that their predecessors did not have. They were among the first to benefit from the extension of school leaving age to 16, and their enrolment in higher education was unprecedented for women. They entered the labour market in the mid-1970s at a time when various equal opportunity laws were coming into force, notably in this context, statutory maternity leave. The increase in levels of women's educational attainments grew further in the 1980s so that by the end of the 80s they had caught up with those of men, reducing gender differences in human capital (Corti, Laurie & Dex 1995; Crompton & Sanderson 1986; Dale & Egerton 1995; Joshi & Hinde 1993). Also, in the late 1980s, employers were introducing further strategies to retain female employees. McRae's (1993) analysis of employer practices suggested that these strategies made a big difference to women's job opportunities following childbirth. A woman's inability to find a suitable job or convenient working hours were, McRae argued, much more important in keeping women out of the labour force than a wish to stay at home.

Jensen (1995) has argued that this increase in female employment, in its quest for female emancipation, has ironically accelerated a gender gap in childrearing caused by family dissolutions. She notes, "Although employment undermines marriage as a provider system, the change in most cases does not imply that women's salary is sufficient when they become single providers in the mother-child family" (p. 239). McLanahan and her

colleagues (1995) argue that change in women's roles is both a sign of progress and a sign of their growing economic vulnerability. They note that just as the increase in labour force participation has provided women with a new source of freedom and economic independence, so has the decline in marriage and homemaking undermined traditional forms of economic protection and support, leading to what some analysts have called a 'feminization of poverty.' (Garfinkel & McLanalhan 1986, Pearce 1978).

*Polarisation in women's labour force participation*
Gains in educational attainment over the 1980s meant that larger numbers of highly educated women began to obtain access to more interesting, higher status and better paid jobs. Several studies (Davies & Joshi 1998; Ferri & Smith 2003; Macran, Joshi & Dex 1996) have found that mothers who were the most highly educated were also the most likely to delay childbearing and more likely to return to work earlier than other mothers. Ferri and Smith (2003) show that educational qualifications are associated with delayed family formation and smaller families among women in every generation, but the proportion of women with educational qualifications has increased dramatically in more recent cohorts. Among women born in 1970, nearly a third of those with no formal qualifications had entered their first partnership before they were 20, compared with less than one in 12 of their peers who had obtained a degree and the difference was even greater in the 1946 cohort.[2] With regards to age at first birth, nearly a quarter of women in the 1970 cohort with no qualifications had had their first child at or before age 20; for women who were graduates at age 30, the figure was just 2%. The pattern was similar in the other two cohorts, though at each level of qualification, there was still a trend for later motherhood among the more recent cohorts.

Macran and colleagues (1996) compared the break in employment after childbearing between women born in 1946 and those born in 1958. They found that the length of the break had reduced between the two groups, but only for women who were more highly educated and delayed their childbearing to their late twenties or early thirties. The authors examined results from the PSI Maternity Rights Survey in which all women had their babies in 1988. This was to determine whether the high employment attachment of older mothers in the later cohort was a product of their age/life stage, or a product of having children in the late 1980s when employment opportunities were increasing and there was an increase in 'family friendly' employment policies. Their results suggested an age at

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[2] Some generational differences remain unexplained by education; even among the relatively small number of women in the 1946 cohort who obtained a degree, over 80% were married by age 25.

motherhood effect rather than a period effect. They showed that a polarisation appeared to be opening up between mothers in more and less privileged social groups in terms of ability to enter and remain in employment once they had children. The authors note, "Although mothers at both ends of the social scale have to balance the dual demands of paid and domestic work, older and better educated mothers are more likely to be in higher status occupations, to earn adequate income to pay for childcare and to be better placed to take advantage of any changes in employer provisions for working mothers" (p.273).

Another aspect of this increasing polarisation among women can be attributed to changing patterns in full- vs. part-time employment. Throughout the sixties, seventies and eighties, British women maintained the balance of work and childbearing by taking low-paid, low-status part-time jobs (Davies & Joshi 1998, Joshi & Paci 1998). During these years, the pay gap between men and women partly reflected a pay gap between full- and part-time employment. Over the late 1980s and 1990s the pay gap between full- and part-time employment shifted from representing a gender gap towards representing a gap between women in different educational and socio-economic circumstances. [3] For the increased number of women who had gained high educational qualifications and adopted the 'male model' of full-time, continuous employment (regardless of whether or not they had become mothers) the gender gap in pay decreased. The pay gap between these women and women who maintained the traditionally 'female' model of employment in Britain – of part-time employment after a break for childbearing – increased. Ward and colleagues (1996) also found that the ability to afford childcare was an important factor in this polarisation. Thus, a vicious circle is created in which women in higher paying jobs are able to pay for formal childcare, allowing them to continue to earn and gain employment experience. Women in lower paying jobs cannot afford formal childcare and must rely on informal arrangements which reduce the number of hours they have free to earn.

Joshi & Paci (1998) conclude that women made gains in the labour market in the 1980s, but that these gains were unevenly distributed. On the one hand there is a group of highly

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[3] Even among women born in 1946, Joshi & Paci (1998) found a pay gap of 40% between women full-time and part-time at age 32 (which was even wider than the 36% gender gap in pay among full-time workers). Differences in human capital (education, experience and having undertaken training) explained nearly half (45%) of this difference. Although the majority of women in part-time employment were mothers, the authors found that their relatively low pay was not explained by motherhood in that part-time jobs were equally low paying whether or not a woman had children. Comparing women in full-time and part-time employment, they found no family gap beyond that which was attributable exclusively to human capital. Motherhood per se does not appear to contribute to women's low salaries directly, but indirectly as a trigger for uptake of part-time employment.

educated women in the upper echelons of the occupational scale. This minority of women benefited considerably from changes in the law on equal opportunities and statutory provisions over the past two decades. By remaining in their jobs, or taking only a short break for childbearing, these women tend to reinforce their already advantageous position in the labour market, are less likely to suffer occupational downgrading and more likely to retain their employment benefits. This group of women are also more likely to enhance their career prospects by remaining childless. On the other hand, for women in Britain who have lower levels of educational attainment, part-time work continues to be a way of combining employment and the responsibility for childcare in order to structure paid work around the availability of partners or close relatives to provide free or cheap childcare. Childcare is then affordable, despite the low earnings which most part-time jobs offer. Many such women suffer a downgrading of their occupational status after taking a break in employment for childbirth. Among British women in 1980, the risk of experiencing downward occupational mobility after childbirth increased by 30% if the woman took a part-time job (Dex & Shaw 1986). Occupational downgrading has been shown to occur in a large minority of each generation, and is one feature of the female British labour force that has changed little (Dex 1987).

In summary, there have been rapid changes in women's social roles over the past three decades. As a result, it is likely that occupancy of particular social roles will have very different meanings for women now than they had fifty years ago. To not have followed the norm would have meant a very different thing when normative values regarding women's social roles were strong, such as in the early 1960s, compared with the late 1980s, when non-normative social role patterns had become more prevalent among women in certain social groups.

The extent to which changes in women's social role patterns reflect a weakening of patriarchal structure and power is not yet clear. For instance, at the population and the individual level, there continues to be a trade-off between work and family roles: fertility declines as ties to the labour market increase. Some authors have argued that reduced levels of fertility are the inevitable result of a narrowing of gender inequalities (Keyfitz 1986, Ryder 1979, Westoff 1983). However, others have argued that declining fertility rates reflect the extent to which institutional conditions make it possible for women to reconcile productive and reproductive roles (Brewster & Rindfuss 2000, Pinnelli 1995). It is well known that gender equity in domestic labour responsibilities has still not been achieved, despite women's increased paid labour commitments (Hochschild & Machung

1990, Sullivan 2000) (although there does appear to be a minority of families in which parenting is shared equally, for example; see Deutsch 1999). This 'double burden' of labour was the aspect of women's changing roles that sparked much interest in the effects of the multiple roles of employee, mother and wife on women's health, and particularly women's mental health.

## 1.3    Research into social roles and women's health

The increase in women's labour force participation over the second half of the twentieth century sparked a flurry of research activity into the effect on women's health of combining paid employment with their traditional family roles. This research was directed at the psychological and health effects on women of having to manage the multiple role responsibilities of mother and employee. Two broad theoretical approaches towards the relationship between roles and health developed. The role strain (or overload or conflict) model, first introduced by Goode (1960), theorises that increased roles may be harmful to health as the attempt to cope with conflicting demands leads to fatigue. Other theorists argued that accumulating roles would not necessarily have the negative consequences predicted by Goode (Marks 1977, Sieber 1974, Thoits 1986). The role enhancement (or multiple role) model proposes that health is enhanced by participation in all socially valued activities, such as marriage, parenthood and employment, and that multiple roles provide diversifying and increased sources of self-esteem, social contact, and access to financial resources.

Early research, the bulk of which was conducted in the United States in the 1970s and 80s, focused particularly on the relationship between work roles and mental health (Gove 1978, 1984; Gove & Geerkin 1977; McLanahan & Adams 1987; Nathanson 1975, 1980; Voydanoff & Donnelly 1989). Overall, empirical support for the role enhancement hypothesis has been fairly consistent in that women who enacted more roles were generally mentally healthier than those who enacted fewer roles (Baetjer 1946; Barnett & Hyde 2001; Feld 1963; Hibbard & Pope 1991; Macran et al. 1994; Repetti 1998; Repetti, Matthews & Waldron 1989; Verbrugge 1983; Waldron, Weiss & Hughes 1998). Paid work appeared to be particularly important. In an early review of literature on this topic, Nathanson (1975) concluded that "Employment has, perhaps, the most clearly positive effects on women's health of any variable investigated to date" (p. 60).

### 1.3.1 Role quality and women's health

Several potential explanations for the beneficial effects of paid employment on women's mental health were raised in the early literature. Verbrugge (1983, 1987) hypothesised that the social involvement associated with paid work conferred an emotional benefit that influenced the threshold for perception of symptoms. Rosenfeld (1989) wrote about lower levels of prestige associated with domestic roles, and suggested that non-employed women have less control over their environment. Thoits (1987) also spoke of differing levels of power associated with different social roles, emphasising that the effect of different roles may not be equal. Thus, in the late eighties, investigators began to conclude that the effects of role accumulation did not simply depend on the total number of roles enacted, but on the particular type and characteristics of the role. Focus shifted towards aspects of role quality or what Moen, Dempster-McClain & Williams (1989) called a role context approach. This approach emphasised not only the occupation of roles, but the specific characteristics of each role, the way in which it was performed and the value placed upon it by society and by the person (Baruch & Barnett 1986, Crosby 1987, Repetti 1993). Aneshensel (1986) argued that employment was particularly good for women's mental health if their marriage was 'high-strain'. Thoits (1987) also described a process of role 'trade-off' in which emotional and material resources provided by one role were used to meet the demands of another role. Waldron (1980) concluded that the effects of employment on a woman's health depend on the type of job she has and her family situation.

Schooler and colleagues (1983) developed a model of housework analogous to a model they had previously designed for paid employment. This hypothesised that, like waged work, the psychological and physical demands, routinisation, complexity, level of responsibility, independence and control associated with housework shapes people's psychological functioning. In a test of their model, they found that distress among full-time homemakers was related to the frequency of having to do housework under time pressure while distress among both employed women and full-time homemakers was associated with the frequency of being held responsible for things outside their control. Both employed women and full-time homemakers reported better psychological functioning if their household tasks were cognitively challenging and required independent judgement.

Bartley, Popay and Plewis (1992) examined role quality in terms of both paid and domestic work. For this analysis, own occupational class was interpreted as an indicator of working conditions and financial incentives for employment, and the authors also created a scale to

act as an indicator of domestic working conditions. They found that working conditions with regards to both paid and domestic labour had independent effects on self-reported physical symptoms in the past month, while domestic working conditions were the most important influence on experiencing psychological symptoms. Hibbard and Pope (1993) looked at the particular qualities of roles in a longitudinal design. They collected information regarding qualities of work and family roles from a random sample of men and women who were registered at a health care provider in the northwestern United States in the early 1970s, and then examined their health records for health and mortality outcome information 15 years later. They found that, among married women, equality in decision making and companionship in marriage were protective against mortality. Work support was protective for women, and work stress increased the risk of heart disease among men.

Two relatively recent models appear to be modern revisions of the old role strain or overload models except that, instead of theorising that multiple role occupation causes strain on women, they attempt to explain *why* multiple role occupation might cause strain. One of these is the spillover model which posits that stressful exposures from home or work sometimes spillover from one environment to another and can eventually lead to role conflict and negative health outcomes (Frone 1997; Frone, Russell & Barnes 1996; Grzywacz & Marks 2000; Wortman, Biernat & Lang 1991). Using this model in a small longitudinal study of employed parents, Frone (1997) found that family to work spillover was related to depression and poor physical health while work to family spillover was more closely associated with negative health behaviours, such as heavy alcohol consumption. Adjusting for both types of spillover explained gender differences in mental health, physical health and heavy alcohol use. The double exposure (or double burden) model is similar to the spillover model. It suggests that some stressful exposures are unique to home, some are unique to work and others are common to both environments. Poor health results if levels of total exposure (from unique or common stressors) are high (Hall 1992; Lundberg, Mardberg & Frankenhaeuser 1994). Adopting this model, Hall (1992) showed that psychosocial job demands, social support and job hazards, having older or younger children combined with home duties were related to psychosomatic strain.

One qualitative investigation to focus on a notion of role quality studied gender differences in depression in a sample of 100 couples who had recently experienced a threatening life event (Nazroo, Edwards and Brown 1998). The authors found that the greater risk of women to have a depressive episode following a life event was entirely restricted to

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episodes following events involving the domestic domain, but where the man had significant involvement in domestic roles, the gender difference in depression did not occur. The authors concluded that gender differences in depression could be attributed to women's greater involvement in and responsibility for domestic roles. Matthews and colleagues (1998) examined the work characteristics of employed and non-employed women and found that women in full-time employment reported fewer negative characteristics than part-time workers or homemakers. Homemakers were less likely to report opportunities for learning and experienced greater monotony than paid workers, but they were more likely to be in control of their work pace and to have flexibility in taking breaks. This study did not examine relationships with health, however.

In a nationally representative sample of Canadian women, McDonough and colleagues (2002) hypothesised that chronic stress explains the social patterning of women's health and that both social roles and socioeconomic circumstances influence women's health because they signify differential exposure and vulnerability to the problems of daily life. They found that employed women were less likely to report poor health or be psychologically distressed than their non-employed counterparts even when socio-economic circumstances were included in the model. After the inclusion of measures of chronic stress employed women were even less likely to report poor health or be distressed than non-employed women. Also, parents with children at home were much less likely to be psychologically distressed than non-parents once stress was taken into account. So, employed women and mothers had better health than other women despite the fact that they experienced more stress. Divorced women were less likely to report poor health than their married counterparts after adjusting for stress, and adjusting for stress reduced, but did not eliminate, the greater likelihood of mental distress among divorced compared with married women. The authors conclude that chronic stress was largely irrelevant to the pathways linking social roles and health among women in their sample.

### 1.3.2 Social roles in a socio-economic context

While a number of studies continued the work of theorising why social roles influence health, the bulk of work into the relationship between social roles and health over the past decade focused on considering this relationship in combination with socio-economic circumstances.[4] Findings from these studies highlight the complex, intertwined, and

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[4] Few early studies into the relationship between social roles and health paid much attention to socio-economic circumstances, although there were exceptions to this, for instance Cleary & Mechanic (1983) and Brown & Harris (1978).

sometimes interacting, relationships between women's socio-economic circumstances, their social roles and their health. In 1991, Arber published an analysis of men's and women's limiting longstanding illness (LLI) in relation to their combination of roles within a socio-economic context using data from the 1985/86 General Household Survey. She found that occupational class and employment status were the most important predictors of LLI for both men and women (using spouse's occupational class for women) and that family roles were important predictors for women but not for men. Work by Bartley, Popay & Plewis (1992) also looked at the effects of paid employment on health for women in different social classes. It found that the effect of paid employment supported the role enhancement theory for both mental and physical health in all women but those in the professional/managerial classes where full-time employment had little impact on mental health and a negative impact on physical health. The role enhancement effect was greater for part-time employment than for full-time employment and greater for psychological than for physical health.

Two years later, Macran and her colleagues (1994) published a study using the same data set to examine the relationships between poor self-reported physical health and women's work and family roles, their own occupational class and household equivalised income. In terms of family roles, lone mothers were the most likely to report poor health, followed by women living alone. Employment had a protective effect, with the exception of lone mothers for whom employment was associated with worse health. Full-time homemakers were more likely to report poor health even after accounting for health selection out of the labour market due to limiting longstanding illness and independent of household income. Overall, this study supported the role enhancement theory in that non-employed women had poorer health than employed women, with the exception of lone mothers. Three years later, Arber (1997) published analyses of both limiting longstanding illness and self-reported health among men and women in a later round of the General Household Survey (1991/92). Even after allowing for material circumstances, non-employed women were significantly more likely to report poor health than full-time employed women. No significant differences in self-reported health were found between women employed part-time or full-time. Marital status lost its significance for women's health after taking account of material circumstances. Material circumstances were more important for the health of non-employed than for employed women. Previously married women who worked full-time had particularly poor health while previously married women who worked part-time had the same health as married women. Perhaps, Arber suggests, this reflects role strain among lone mothers who balance full-time domestic and employment responsibilities. Arber

concludes that non-employed women who live in advantaged material circumstances (usually because they are married), have much better health than non-employed women who live in poor material circumstances (probably because they are not married). Bartley and colleagues (1999) looked at the effect of two theorised measures of social position (Erikson-Goldthorpe schema and the Cambridge scale), social roles and partner's working status on self-reported health in the 1980s and 1990s using the 1984 Health and Lifestyle Survey and the 1993 Health Survey for England. The authors found that the health of lone-mothers had improved, in relation to single professional women, between the 1980s and '90s while the health of 'empty nesters' (previously married, non-employed women with no children at home) and women with unemployed partners had declined relative to single professional women.

Most recently, there appears to be a renewed interest in the relationship between social roles and health (for instance, see volume 54 of *Social Science and Medicine* dedicated to this topic in 2002). This latest work has further emphasised the context from which relationships between social roles and health emerge. Each of these studies has found that role effects persist after including contextual factors into multivariable models. Hope and colleagues (1999) found that financial hardship and social support did not entirely account for the increased psychological distress of lone mothers. Lahelma and colleagues (2002) examined whether health differences in social roles were explained by socio-economic circumstances in both Britain and Finland. They found that, in Britain, lone mothers were more likely to report poor health than women in other role combinations. Work roles, education and income reduced this increased risk, but did not explain it entirely. In Finland the increased risk of reporting poor health among lone mothers did not reach statistical significance. Fokkema (2002) showed that both married and divorced women in the Netherlands who combined work and childcare reported better health than those not employed or with children, after adjusting for education. Those who were employed part-time and had older children were particularly likely to report good health. In a nationally representative sample of Canadian women, Janzen and Muhajarine (2003) investigated the relationship between social roles and health among employed men and women taking lifestage (age), gender and income into account. They found that women who occupied only one (employee) or two (employee plus one partner *or* parent) social roles were subsequently (two years later) more likely to report poor health or a chronic condition than women who occupied all three roles at base line. This was true after adjusting for age, gender and income, although the authors acknowledge the relationship between income and health was weaker than expected because their sample was

restricted to employed people. Janzen and Muhajarine also found what Arber and Hibbard and Pope reported a decade earlier in their studies in English and American samples respectively, that family roles were salient for women's, but not for men's health.

In summary, research in this field has progressed from looking simply at the number of women's roles in relation to their mental health, to attempting to include a variety of contextual factors, such as socio-economic circumstances and stress. These factors have been examined, either as control variables, or as characteristics of roles that might increase understanding of what it is about roles that are important for health. However, several gaps remain in work currently available on this topic. One of these is the direction of association between social roles and health.

### 1.3.3   The direction of relationships between social roles and health: the need for longitudinal studies

While women in multiple role combinations, and particularly employed women, have mostly been found to have better health than women in fewer roles, or non-employed women, this finding relies entirely on cross-sectional research designs, impeding our ability to adequately evaluate the direction of the relationships seen. The few exceptions are studies that have looked at the effect of women's role combinations and socio-economic circumstances on mortality in Britain (Moser, Pugh & Goldblatt 1990; Weatherall, Joshi & Macran 1994), Finland (Martikainen 1995) and the United States (Kotler 1986), mostly using census data. These studies have tended to find no evidence of role strain, but were cautious in their interpretation of the beneficial effects of multiple roles due to evidence of health selection into motherhood and employment.

In recognition of the importance of the issue of directionality, some authors have made an effort to understand the direction of events in their cross-sectional data sets. Bartley, Popay and Plewis (1992) distinguished between informants' 'health status' and 'health state'. 'Health state', the health outcome variable, was based on the number of symptoms experienced in the past month, while 'health status', used as a control variable for health selection, was defined as the presence of a long-standing or disabling condition. Using three-way analysis of these variables with employment status, this study found evidence for the existence of a health selection effect in that 'health status' acted as a confounding factor in relationships between employment status and 'health state' to some extent. Macran and colleagues (1994) divided non-employed women into those with a limiting longstanding illness and those without. Full-time homemakers were more likely to report

poor health even after accounting for health selection out of the labour market due to limiting longstanding illness and independent of household income. Fokkema (2002) examined relationships between social roles and self-reported health before and after adjusting for limiting long-standing illness. The results suggest that the positive relationship seen between paid employment and health as well as between having children and health are partly the result of health selection: a higher proportion of Dutch women who participated in the labour force and who had had children did not have a limiting long-standing illness.

Janzen and Muhajarine's (2003) study described above (p. 34) was conducted in a longitudinal sample, but their follow-up period was only two years. Also, they did not take any measure of prior health status into account and so the longitudinal nature of the data did not add to understanding regarding the direction of the relationship between social roles and health. They also examined the interaction between a woman's lifestage and her social roles, hypothesising that role effects would be stronger for women later in life, presumably because they had spent more time 'exposed' to their particular roles. They found no interaction effect, but only included a measure of social roles at one point in time and so lacked information about women's social role patterns over their adult lives. The study by Hope and colleagues (1999, described on p. 34) included psychological distress at age 23 in their predictive model of psychological distress at age 33 among lone mothers and found that prior mental health explained only a little of the subsequent psychological distress of lone mothers. A decade ago, Hibbard and Pope's study (1993, see p. 31) in the United States was probably the only previous study to examine social roles, role quality and health longitudinally. Respondents to their study were interviewed in the early 1970s and their health records were examined 15 years later. This study did not address the question of selection per se. However, Hibbard and Pope excluded respondents who had had medical care contact for the outcome condition of interest within the two years prior to baseline in order to ensure that the relationships they identified between role quality indicators and health were not due to selection into particular quality roles.

This section has provided an overview of existing work investigating the relationship between social roles and women's health. The following section highlights some of the main gaps in current knowledge on this subject and outlines the content of the thesis.

## 1.4 Overview of the thesis

A review of the literature on the relationship between social roles and women's health has revealed three main gaps in existing knowledge in this area. One major drawback to existing work is the preponderance of cross-sectional studies to examine this relationship. A longitudinal perspective in the study of social roles and health will be illuminating in many ways. As described in the previous section, one of the big concerns for researchers in this field has been establishing the direction of events, which is not possible to do without longitudinal data. If particular role combinations are associated with poor health in later life, is this because poor health in early life selected women into these role combinations? In addition to the influence of health in early life on the relationship between social roles and health, life course data allow us to examine whether early life factors other than health predict women's adult social roles, or explain relationships between social roles and health. Also, a longitudinal perspective allows us to look at the social roles women have occupied over their adult lives, rather than the simple snapshot provided by cross-sectional data. If quality of social roles is useful as an explanatory construct, it is likely that the length of time spent in a poor quality role is important in determining its influence on health. Finally, the way that women feel about the roles that they enact is likely to depend upon where they are in their life course. For instance, a woman in her mid-twenties who has not yet started a family is likely to feel very differently about that fact than a woman in her mid-fifties. Role combinations are certain to mean different things at different ages.

Secondly, a review of literature showed that there has been some attempt to explain why social roles might influence health; however, most of these studies have adopted explanatory models from the health inequalities field. Very few studies have explicitly attempted to understand, from a sociological perspective, why social roles may be important for health. A third gap in current knowledge of the relationship between social roles and health is the absence of studies using an objective physical measure of physical health. With the exception of the few studies that have looked at mortality (Kotler 1986, Martikainen 1995, Moser *et al.* 1990, Weatherall *et al.*1994), previous studies considering the relationship between social roles and physical health have used self-reported measures as their health outcome. While self-reported measures of physical health are widely used and have been shown to be predictive of mortality, they are also non-specific. As a result, it is unclear whether the relationships seen are capturing physical health exclusively, or a combination of physical and mental health.

The aims of this thesis centre around addressing these three gaps. Therefore, one aim of this thesis is to explore the concept of social role from a theoretical point of view and to present a theory of role quality. Another aim is to examine the relationship between social roles and health from a longitudinal perspective, and a third is to investigate both subjective and objective measures as health outcomes. To achieve these aims, this thesis uses data on women from the 1998 Health Survey of England, and the MRC National Study of Health and Development (otherwise known as the 1946 birth cohort). The Health Survey of England is a large, nationally representative cross-sectional health survey. The women selected for study from this survey ranged in ages from 25 to 54 in 1998 and so represent women born between 1944 and 1973 at a particular point in their lives. This makes it possible to examine relationships between social roles and health within a sample of women that encapsulates the vast differences in social roles over the past several decades as described in the first section of this chapter (section 1.2). The 1946 birth cohort is a longitudinal data set that provides data at frequent points in the lives of women from their birth in 1946 to the age of 53 (in 1999). This design makes it possible to address the longitudinal questions raised above in relation to life time social roles and women's health. Both of these data sets collected subjective and objective measures of physical health in addition to a wide range of relevant information.

Each chapter addresses the overall aims of the thesis in the following ways. The purpose of the next chapter (chapter 2) is to address the gap in developing the theoretical aspects of social roles. Chapter 2 discusses the place of roles within the wider context of social theory from a historical perspective, arguing that the concept of agency is important as an explanatory aspect of social roles in their relationships with health. Chapter 2 goes on to develop a theory of role quality based on the concept of agency or autonomy need satisfaction. Once the theoretical aspects of the thesis have been developed in chapter 2, chapter 3 presents the ways in which the two other gaps identified in current knowledge – a longitudinal perspective and an objective measure of physical health – are addressed by the thesis. Chapter 3 presents the specific research questions that drive the empirical work of the thesis, as well as a model that is used as a longitudinal framework for addressing each of the research questions described. Once the theoretical background, research questions and analytical model have been presented in chapters 2 and 3, chapter 4 describes in detail the two samples of women in which analysis for this thesis is conducted. Chapter 4 then describes the cross-sectional social role patterns of the women

in these samples by age with reference to the known historical social role changes described in section 1.2.

Chapters 5 and 6 present the cross-sectional results of analysis using the Health Survey for England data. Chapter 5 presents the health outcome measures and the relationships between social roles and health for women in three age groups. Chapter 6 investigates whether specific, potentially confounding and mediating factors explain these relationships. Chapters 7 through 10 present longitudinal analyses of women in the 1946 birth cohort data. Chapter 7 shows the relationship between women's life time social role histories and their physical health in middle age. Chapter 8 investigates whether any of the relationships seen in chapter 7 are explained by health selection into particular social role combinations among women in the cohort data. Chapter 9 investigates whether relationships between social role histories and health in middle age are explained by other potential confounding or mediating factors. Chapter 10 focuses on role quality. It first presents the variables that are used to operationalise the theories of role quality raised earlier in the thesis, and then examines the contribution of role quality to relationships between social roles and health. The final chapter (chapter 11) summarises and discusses the findings of the thesis in relation to social theory, as well as their relevance in light of rapid changes in women's social role patterns of the past fifty years, and emphasises key points for future work.

## 1.5    Conclusion

This chapter has shown that women's family roles became increasingly uniform over much of the twentieth century, culminating in the 1960s when the age of marriage was the youngest and most uniform that it has ever been either before or since. After that point an explosion of diversity occurred with respect to family formation with delays in childbearing and marriage, more women opting to forgo marriage and/or motherhood, as well as more cohabitation, divorce and lone parenthood. In terms of work roles, the last century saw women's strengthening ties to the labour market as the result of shorter and shorter gaps in employment for childbearing. These strengthening labour market ties have been accompanied by a shift from stronger ties among working class women for much of the century to stronger ties among highly educated women over the past several decades.

It was women's strengthening ties to the work place in particular that instigated early work into the effect on women's health of combining paid employment with traditional family roles. This work resulted in two opposing models. The role strain (or overload or conflict) model, hypothesising that the conflicting demands of multiple roles were bad for women's

health, and the multiple role (or role enhancement) hypothesis that multiple roles provide multiple sources of factors that are good for health, such as self-esteem, social support and financial resources. As this field of study matured, work progressed from a focus on the number of roles a woman possessed to a focus on the type and characteristics of roles. Also, with the revival of study focussing on social inequalities in health, researchers began to study the relationship between roles and health within a socio-economic context, with recent work continuing to expand the scope of contextual factors included in such studies. As yet, no study has shown that adjusting for contextual factors explains relationships between social roles and health entirely. Several important gaps in this research were identified, including the lack of both longitudinal and theoretical perspectives, as well as a limited focus on subjective measures of health. This thesis begins to address these gaps by examining the relationship between life time social roles and subsequent health in middle age. It tests whether these relationships are explained by early health selection or socio-economic confounding. Finally it tests theoretically-driven measures of role quality.

This chapter has shown that, while a handful of studies have attempted to investigate what aspects of roles are important for influencing health, theoretical perspectives have been rare. While the simple documentation of relationships is likely to remain interesting as long as social role patterns continue to fluctuate in their social meaning over time, further emphasis on developing hypotheses for why these relationships might exist is necessary to progress understanding. A theoretical perspective is needed to test hypotheses that might illuminate the black box between social roles and health, assuming relationships are not entirely explained by health selection, other early life factors or access to socio-economic resources. The next chapter will discuss the place of social roles in the context of wider social theory and then adopt a needs-based approach to develop a theory of role quality.

# Chapter 2   Social roles, agency and a theory of role quality based on autonomy needs

## 2.1   Introduction

Chapter 1 discussed the shift in focus in research on social roles and health from counting the number of roles women had to the quality of work and family roles. A few studies have looked at domestic labour in light of constructs that have been shown to be important in the work place, such as control and demand (Hall 1992, Matthews *et al.* 1998, Schooler *et al.* 1983). Others have focused on sources of stress or strain (Frone 1997; McDonough, Walters & Strohschein 2002). Overall, a theoretical perspective on social roles in terms of their influence on women's health has been fairly rare. The purpose of this chapter is to move this area of work towards a more theoretical perspective.

This chapter discusses social roles from a theoretical viewpoint and develops a theory of role quality. The chapter begins with a brief history of social roles in relation to social theory. From this history, the chapter draws on the concept of agency as an aspect of social roles that is potentially important for understanding relationships with health. Agency is equated with autonomy in order to develop a theory of role quality that defines the quality of a role as the extent to which it provides opportunities for fulfilment of agency or autonomy needs. The chapter draws on Doyal and Gough's (1991) theory of human need to emphasise the importance of autonomy, or agency, in order to hypothesise that it is the extent to which roles provide or restrict opportunities for agency or the satisfaction of autonomy needs that is important for health.

## 2.2   Social roles and social theory

In thinking about social roles and social theory, an obvious starting point is Parson's functionalism because it placed such strong emphasis on social roles and a normative order in the socialisation of roles. In the 1950s and 60s, Talcott Parsons (1937, 1951) was a widely influential developer and proponent of systems theory from a functionalist perspective in the United States. Functionalism (or the 'orthodox consensus' as Giddens calls functionalism due to its marked influence and prestige in sociology around the middle of the twentieth century) explains social institutions primarily in terms of the functions they perform, treating societies as systems of interacting, self-regulating parts. Functionalism drew from the work of nineteenth century social thinking that theorised society in terms of

an organic analogy. The concept of a 'normative order' was a central element of Parson's systems theory. Parsons' normative order was comprised of values and norms. Norms were defined as rules that regulate action and relations within a social group or system. Like norms, values, according to functionalism, were also moral and regulatory, but they had a wider significance in that, while norms were specific to given social situations, values went beyond specific situations to inform norms in different contexts, thus serving to connect different systems in society. In Parsonian terms, the value aspect of the normative order was crucial in ensuring the maintenance of established patterns of social behaviour. These patterns were thought to be functional for society as a whole in the way that biological organs are functional for the body as a whole.

Functionalism strongly emphasised the pre-eminence of the social whole over its individual parts. Alternatively, symbolic interactionist (SI) theories, which emerged at the beginning of the twentieth century with the work of Mead and Cooley, emphasised the development of identities rather than the adoption of ready-made roles. The basic premise of SI is that people attach symbolic meaning to objects, behaviours, themselves and other people, and develop and transmit these meanings through interaction (Howard 2000). For symbolic interactionists, meanings do not reside in the object but emerge from social processes. Emphasis is placed on the active, interpretive and constructive capabilities of human actors, rather than the determining influence of social structures suggested by functionalism. Erving Goffman's work (1959) further emphasised the process of identity construction and negotiation in his description of social actors creating roles through social interaction both with and for various audiences. Goffman describes how social actors come to associate their own identity with the roles they have created. Although symbolic interactionists largely reject the functionalist presentation of roles as pre-existing social structures with stability over time, Goffman did recognise some social stability in established social roles. He commented that when an actor takes on a pre-existing social role, they usually find that a particular front (or performance persona) has already been established for it.

A more structural branch of SI developed a theory of role identities as the characters a person develops as an occupant of their particular social positions, explicitly linking social structures to persons (McCall & Simmons 1966, Stryker 1980, Stryker & Serpe 1982). Thoits (1991) drew upon the theory of role identities in relation to the study of stress as a potential explanation for social status differences in mental health. According to role identity theory, role identities are organised hierarchically, on the basis of their salience to

the self and the degree to which the individual is committed to them. Role identities are defined as self-conceptions in terms of one's positions in the social structure based on enduring, normative, reciprocal relationships with other people.[5] Individuals define their identities by their roles in that roles provide a sense of who individuals are, in an existential sense, as well as providing behavioural guidance. According to role identity theory, the adequacy of individual's identity performance in light of normative expectations has important implications for self-evaluation.

While the aspects of roles that are related to normative social expectations may indeed be important for self-evaluation, one major element that appears to have been lacking in previous theoretical work in relation to social roles is the concept of agency. One of the first social theorists to argue against an 'oversocialized conception of man' was Wrong. Wrong (1961) argued that sociological thinking, informed largely by functionalism, had over-emphasised conformity in its description of the internalisation of social norms. He drew upon the ideas of Freud to argue that sociology had appropriated the superego concept, but had forgotten any equivalent of the id and the stress Freud placed on the inner conflict and tension between the two. He called upon sociologists to include the idea of human nature – forces within individuals which resist socialisation – in their understanding of individuals and society.

Gidden's theory of structuration (1984) advanced an account of the interrelation of structure and agency, which he called the 'duality of structure,' in which primacy is granted to neither. Giddens defined 'agency' both as the intentions people have in doing things and also their capability of doing those things in the first place, thus including an element of capability, as well as intention, for action. This concurs with Sen's (1985, see pp. 47-8) emphasis on capabilities as the appropriate metric for the measurement of quality of life. Giddens defined 'structure' as rules and resources that provide both opportunity and constraint on the identity formed within it. The formulations of structure as both constraining and enabling is an important aspect of Giddens' structuration theory. Giddens was not particularly interested in social roles. He believed that Parsons

exaggerated the degree to which normative obligations are internalised by the members of societies. For Giddens, normative commitments were only one of the many possible motivations for social action: "Norms figure as 'factual' boundaries of social life, to which a variety of manipulative attitudes are possible" (p.4). However, in thinking about social roles and agency, Giddens' theory of structuration provides a useful model for the conceptualisation of social roles as the fusion of structure and agency. Rather than the power associated with class structure in which Giddens is interested, traditional norms regarding gender divisions in social roles are the result of power associated with a patriarchal structure. Gender divisions in work and family roles are governed by normative rules that have their origins in the patriarchal structuring of society. Patriarchal power assigned, and assigns, both authoritative and allocative resources to social roles which traditional rules dictate are occupied by men, i.e. to work rather than family roles. Following Gidden's duality of structure and agency as a model, the patriarchal structures associated with gender divisions in social roles provide both opportunity and constraint for agency. The patriarchal structure of social roles was and is produced and reproduced by the activities of agents living and working within social constraints. Therefore, within patriarchal structure individuals exercise varying amounts of agency.

The concept of agency in relation to structural constraints forms the basis for determining the quality of roles in the theory of role quality developed in the remainder of this chapter. Quality is defined as the extent to which opportunities for autonomous action – for agency -- are afforded by particular social roles. This thesis hypothesises that it is opportunities for agency – or limitations in these opportunities – that explain relationships between social roles and health. A theory of need satisfaction forms the basis for this emphasis on autonomy / agency (this thesis conceptualises the two as synonymous), arguing that autonomy / agency is a basic requirement – a basic human need -- for participation in society and good mental health. The first step in developing this theory is to provide some background to the theory of human needs. One of the first theoreticians to talk about human agency needs, albeit from a psychological perspective, was Abraham Maslow.

## 2.3    Maslow and a hierarchy of needs

There is much conceptual overlap between the notions of agency and autonomy and the concept of self-actualisation which Maslow (1954, 1970) developed out of his theory of human motivation based on a hierarchy of human needs. In this way, Maslow was one of

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gender-role behaviour occurs within specific institutional contexts such as husband-wife, parent-child, teacher-student, etc.

the first people to theorise human agency or autonomy needs. The following is a depiction of Maslow's hierarchy of human needs[6]:
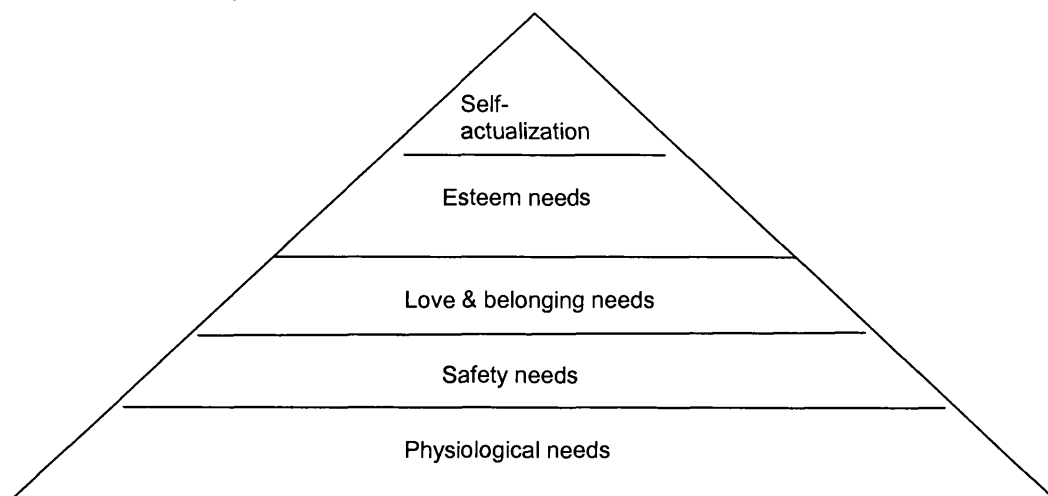


## Deficiency needs

Maslow categorised each of the needs beneath self-actualisation in the hierarchy as deficiency needs (d-needs). He described d-needs as usually being experienced negatively as an unpleasant annoyance while they exist, and resulting in satisfaction once they have been fulfilled. The d-needs include *physiological needs* which pertain to physical survival and biological maintenance. Needs in this category include the need for food, water, oxygen, clothing, shelter and sex. According to Maslow's theory, when physiological needs are not met for an extended period of time, an individual will not be motivated to fulfil other needs until these are met. *Safety needs* refer to the individual's need to live in an orderly, stable and predictable world. *Love and belonging needs* refer to the needs of individuals to have affectionate, intimate relationships with others, as well as their needs to be affiliated with certain reference groups. And *esteem needs* refer to the need for individuals to like themselves and think highly of themselves, and include feelings of competence, confidence, mastery, achievement and independence. Esteem needs derive from both respect from others and self-respect. Maslow argued that the thwarting of belonging and esteem needs was behind much of the mental illness experienced in western societies in the middle of the twentieth century.

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[6] Maslow depicted the needs that motivate human behaviour hierarchically in order to indicate which needs are what he called 'prepotent' to the next. He described each set of needs exerting a constant force of pressure on the individual until they are satisfied. As each prepotent need is adequately satisfied, the next category of need arises to take its place. Each need must be adequately satisfied before an individual is motivated to fulfil the next highest need in the hierarchy.

## Self-actualization (or being needs)

Maslow theorised that, once each of the d-needs were adequately satisfied, individuals were then motivated by what he called being or growth needs (b-needs). He used the term self-actualization (SA) to refer to b-needs, which differ from d-needs in that they are experienced positively as enjoyable and challenging and their gratification increases rather than decreases motivation to fulfil them. Moreover, whereas the satisfaction of deficit needs is episodic and climactic, occurring periodically and having a distinct beginning and end, the satisfaction of growth needs is an on-going, open-ended process of development. Maslow also wrote about the concept of autonomy as an important aspect of self-actualisation. Maslow believed that each individual has an underlying, 'true', biological self. The discovery or 'actualisation' of this self is what drives the unique b-needs of each individual. Maslow conceptualised SA as a need 'to become more and more what one idiosyncratically is' (1970, p.46).

## 2.4    Human needs: relative or universal?

More recent theorists on need satisfaction have rejected the strict temporal sequencing of Maslow's hierarchy as false, with many examples in everyday life of people putting 'higher' needs before more basic ones (Blane personal communication; Doyal & Gough 1991).[7] In addition, Maslow's theories were widely criticised and largely rejected in the 1970s for their ignorance of social context (Geller 1982, Schur 1976, Smith 1973). Maslow's concept of self-actualization, in particular, was strongly criticised as a view of the ideal personality type held primarily by white, middle class, educated westerners (Aron 1973, Lasch 1976, Schur 1976, Yankelovich 1981). Buss (1979) and Nord (1977) argued that Maslow's unchanging, transhistorical and transcultural concept of self was problematic. Buss maintained that "Maslow's biologically rooted theory of self-actualization freezes human nature circa 1950" (p.54), and pointed out that, like psychoanalysis and behaviourism before him, Maslow's concept of human nature was historically driven.

Some of the criticism of Maslow's concept of needs emanated from sociologists who were embracing a kind of cultural relativism based on the Marxist historical dialectic. Although Marx seemed to believe in the existence of objective human needs in his condemnation of capitalism as oppressive and degrading for working people (Lukes 1985), within his doctrine of materialism, the mind and its ideas develop from the material world in which

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[7] It should be noted that Maslow emphasised that the demarcation between needs is not rigid or fixed. For example, physiological needs are always with us, even though the needs 'above' them may be dominating our

people exist. In the 1859 preface to *A Contribution of the Critique* Marx stated, "It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness" (p.101 in Morrison 1995). Some academics have interpreted this to mean that different social environments produce different conceptions of self, and therefore, profoundly different perceptions of need (Doyal & Gough 1991). Some authors (for example, Heller 1976) have taken this argument to its logical extreme to argue that human needs are socially relative and stipulate only what some groups of humans prefer over others. These arguments coincided with growing popularity of relativist ideas more widely, often linked with concern about cultural imperialism. Relativism rejects universal needs as being arbitrarily chosen and legitimised by those in positions of power. Here, human liberation is equated with reclaiming the right of oppressed groups to determine what preferences they will designate as needs (Rist 1980). Needs exist, but they vary from group to group and over time, rather than being universal. According to this relativist argument, basic needs may differ according to ethnicity and gender.[8]

Critics of these notions of cultural relativity have argued for the existence of an objective quality of life that is not entirely culture-specific. One such group was the World Institute for Development Economics Research (WIDER), established by the United Nations University in 1984 to help identify and meet the need for policy-oriented and socio-economic research on development problems. As part of this work, in 1988 WIDER brought together prominent economists and philosophers to address the question of what was meant by 'quality of life', the results of which were published in 1993 (Nussbaum & Sen 1993). Amartya Sen and Martha Nussbaum were key to the formation of this group and their work and ideas were central the group's characterisation of an objective quality of life.

The relativist ideas addressed by this group focused less on cultural relativity, and, perhaps paradoxically, derived more from classical economic theory. Classic welfare economics holds utility – usually defined either as happiness or the satisfaction of desires and preferences – as the aim of economic and social development. Sen (1985) illustrated the problems with the utilitarian tradition and ways in which people adjust their desires as a mechanism for reconciliation with their fate:

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motivations at a given time. According to Maslow, we never completely outgrow any of the needs regardless of which level may be dominant.

[8] For example, many feminists have criticised certain cultural practices such as purdah and female circumcision as harmful to women while some radical anti-racists have attacked these criticisms as ethnocentric and disrespectful of the cultural lifestyles of particular ethnic groups, implying that the basic needs to which the feminists implicitly refer are no more than their own cultural preferences.

> Our mental reactions to what we actually get and what we can sensibly expect to get may frequently involve compromises with a harsh reality. The destitute thrown into beggary, the vulnerable landless labourer precariously surviving at the edge of subsistence, the over-worked domestic servant working round the clock, the subdued and subjugated housewife reconciled to her role and her fate, all tend to come to terms with their respective predicaments. The deprivations are suppressed and muffled in the necessity of endurance in uneventful survival (p.21-2).

Nussbaum (1993) pointed out that utilitarian economics is especially fallacious with regards to women (and other marginalised groups) because utility is largely determined by social norms:

> Since one necessary condition of much desiring seems to be the ability to imagine the object of desire, it is easy to see why severe limitations of experience, in the case of many of the world's women, should lead, as well, to limitations of desire. ... For example, women frequently report when polled that they do not desire more education. ... When such replies are given in situations in which it is clear that the women in question have little experience of education, little incentive (indeed, often a strong disincentive) from the society around them to pursue their education, and no clear paradigms of women's lives that have been transformed by education, it seems clear that their announced contentment with the uneducated life means relatively little. Desires adjust to deprivation. (p. 324-325)

Sen's response to utilitarians (and other forms of welfare economics less relevant here) was a focus on capabilities and functionings. Sen described *functionings* as representing parts of the state of a person – in particular the various things that he or she manages to do or be in leading a life. The *capability* of a person reflects the alternative combinations of functionings the person can achieve, with quality of life to be assessed in terms of the capability to achieve valuable functionings (Sen 1993). The capability set is relevant in addition to the person's functionings in that freedom of choice may be important in its own right. Sen's emphasis on the objective value of functionings, as opposed to subjective measures of happiness or utility, provided an important foundation for further theoretical work in this area because of its powerful arguments against the idea that quality of life is entirely relative to people's place, time or culture. Sen argued that some functionings, at the basic level, are very elementary and may be strongly valued by all and these can be used to define a universal quality of life. Sen did not go so far as to define what the elementary and widely valued functionings might specifically be. Len Doyal and Ian Gough went further to define the specific needs that exist universally in order to achieve 'quality of life'.

## 2.5 Doyal & Gough and A Theory of Human Need

In 1991 Doyal and Gough published *A Theory of Human Need* which argued against the various forms of relativism which became increasingly fashionable in the 1970s and 1980s. Doyal & Gough's use of the term 'need' differed from Maslow's work in which the term refered to a motivational force instigated by a biological state of disequilibrium or tension because of a particular lack (Thompson 1987). Doyal & Gough's theory is not a theory of objective human nature as was Maslow's, but a theory of objective human needs. These needs are defined as what all humans must achieve if they are to avoid dramatic impairment to social participation in a form of life. For Doyal and Gough, people's values and goals and ideas of a quality life – what they call each person's vision of the good -- is relative. This vision of the good varies between cultures and times and between individuals within those cultures and times. What is universal and does not vary, are the basic things that people need to pursue their own vision of the good, to participate in their society without substantial impairment.

In determining what people need in order to participate in their society and to pursue their vision of the good life, Doyal & Gough begin with Kant who searched for the conditions to which persons must conform if they are to be capable of initiating actions and assuming responsibility for them. The authors say that Kant showed that for individuals to act and be responsible, at the very least they must have "a *body which is alive* and which is governed by all of the relevant causal processes and *the mental competence to deliberate and to choose*" (p.52, authors' italics). Doyal & Gough develop an argument that identifies Kant's two processes with physical survival and personal autonomy. In looking at physical survival, Doyal & Gough use the example of someone who is surviving in a deep coma on a life-support system to make the point that mere survival is not adequate for social participation. They extend physical survival to physical health as a basic need which all humans share in order to participate in their society. For the purposes of this thesis, physical health is regarded as the outcome of interest rather than an aspect of role quality.

To describe what they mean by personal 'autonomy', the authors use the example of a runner. The physiological and biochemical explanations for the causes of running provide no information about what the runner is doing – running for a bus, escaping a tormentor, jogging, etc. To understand this is to know something about the person's reasons for running, their aims, beliefs and goals, and the strategies they have chosen to implement these. So, in addition to physical health, people must "have the ability to make informed

choices about what should be done and how to go about doing it" (p.53); people must be capable of initiating action. Put in more sociological language, people must have access to agency in order to participate fully in society. Doyal & Gough summarise their position thus: "since physical survival and personal autonomy are the preconditions for any individual action in any culture, they constitute the most basic human needs – those which must be satisfied to some degree before actors can effectively participate in their form of life" (p.54).

## 2.6    Social roles as opportunities for satisfaction of autonomy needs.

Doyal & Gough go on to present a set of intermediate needs and societal preconditions which "contribute positively to the 'output' of individual health and autonomy in all cultures" (p.191). With regards to autonomy needs, they recognise three key variables that affect levels of individual autonomy. These are: the 'psychological capacity' a person has to formulate opinions about herself; the 'level of understanding' she has about herself, her culture and what is expected of her as an individual within it; and the 'objective opportunities' enabling her to act. By 'psychological capacity', the authors mean mental health. They acknowledge the difficulties regarding cultural differences in conceptions of mental illness, but provide a detailed list of aspects of minimum rationality that must be maintained over a period of time for autonomous action, such as the capacity to formulate aims and beliefs, the confidence to want to act, etc. By 'understanding', the authors are referring to "a good and relevant *education* of whatever institutional form will prepare learners for participation in their culture" (p. 61, authors' ital). An essential component to this education is fluency and literacy in the society's language. The most important precondition for autonomy for the purpose of this thesis is access to 'objective opportunities' to participate in some form of socially meaningful activity. Doyal & Gough identify social roles as being the key to providing these opportunities: "Having social roles is a universal attribute of human autonomy, notwithstanding the diversity of cultural expectations about how they are defined and allocated" (p.185). They identify roles associated with production, reproduction, cultural transmission and authority as holding great significance in all cultures. "Thus it is the opportunity to participate successfully in roles relating to all four of these societal processes to which we should turn to operationalise...autonomy" (p.185). In theorising social roles as encompassing the duality of patriarchal structure and agency, the rules and resources associated with patriarchal structure can be seen as both constricting and enabling 'objective opportunities' for autonomous agency in Doyal & Gough's sense.

Doyal and Gough discuss two avenues through which restricted social roles represent restricted opportunities for meeting autonomy needs: role deprivation and role stress. Role deprivation relates to the denial of access to primary social roles whose enactment is perceived to be fundamentally important to society. One of these, of course, is the work role of paid employment. Doyal and Gough define the importance of material production as constituting the need of all cultures to create the food, shelter and other necessities required for 'normal' levels of health, as well as for successful biological reproduction and socialisation, to be achieved collectively. Doyal and Gough maintain that across all societies, probably the most important type of activity is labour, either paid or unpaid, in which people translate a part of themselves into something which they produce or maintain, or help others to produce or maintain. Freud (1961) named paid employment as our most important tie to reality. Jahoda (1982) summed up the non-income benefits of paid employment: "The imposition of a time structure, the enlargement of the scope of social experience into areas less emotionally charged than family life, participation in a collective purpose or effort, the assignment...of status and identity, and regular activity" (p.59). Marx most famously described the importance of creative labour in his theory of alienation in which he theorised a 'species-being' aspect of human nature that included a need to create new things and to change the environment. Marx believed that, unlike animals who live directly off of nature, humans need to enact their consciousness on the world, duplicating their consciousness in history, by labouring upon nature and working it up to make it palatable and digestible. According to Marx, alienation occurs when humans are no longer in control of their labour upon nature and are, therefore, no longer able to connect with and enact their conscious beings. Thus, when labour is no longer an act to affirm consciousness, but acts merely as a means of existence, humans become alienated from the consciousness that forms their species being and exist merely physically as animals do (Morrison 1995).

According to such theories, exclusion from access to autonomous, productive work is conceivably harmful. Certainly, patriarchal power restricts access to productive labour along gender lines. Chapter 1 showed that reproduction continues to restrict women's access to paid productive roles, particularly among those without educational qualifications. In this sense role quality applies to the opportunities to choose which roles to adopt in addition to opportunities for the satisfaction of autonomy needs within roles. As Sen pointed out, the freedom to have a choice between multiple capabilities may provide an important functioning in its own right even if one would have chosen the same capability had s/he had one choice. However, it is also important to note that patriarchal

opportunities and restrictions regarding role occupation are not limited to forms which are consciously perceived by individuals, but also operate in individual's own desires and preferences regarding role occupation which are, at least to some extent, socially constructed (as has been described by Nussbaum, p 40).

The second avenue through which social roles can threaten autonomy needs as identified by Doyal & Gough is through 'role stress', in other words the role strain hypothesis presented in chapter one. The authors highlight women's 'dual burden' citing work by Warr (1987) as evidence that, "the resulting tension between reproductive and productive labour is one factor which can induce high levels of anxiety, overload and depression in women in Western societies, and thus impair still further their ability to participate successfully in their form of life." In chapter one we saw that the majority of work has shown evidence that women in paid employment are less likely to report poor mental or physical health than their non-employed counterparts. This thesis intends to move beyond this simple role overload model to examine what it is about roles, or combinations of social roles, rather than their sheer number, which is important for health.

## 2.7    Social roles, autonomy needs and health.

Doyal and Gough's basic needs are physical health and autonomy and they influence social participation in this way:

**Figure 2.1    The relationship between participation, health and autonomy***
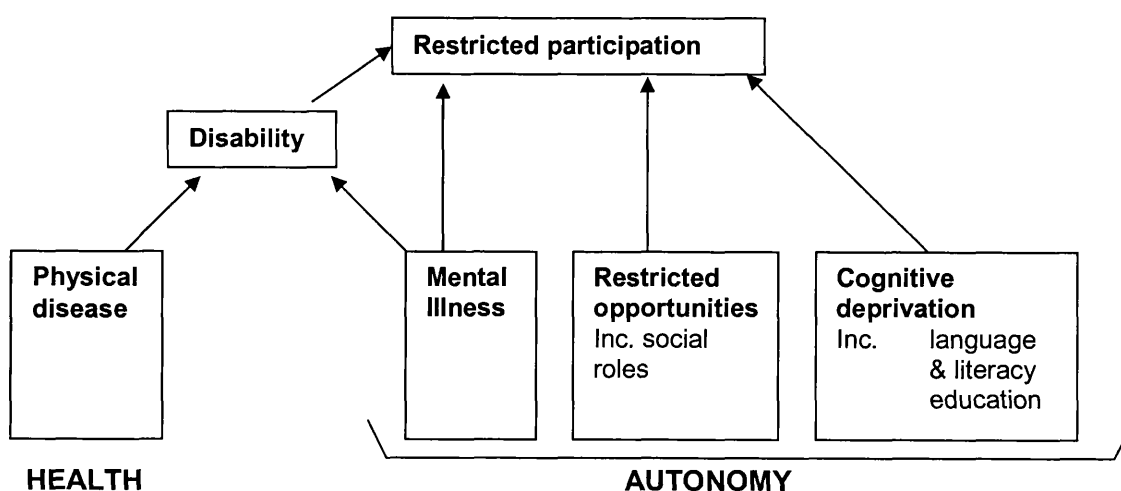
Figure 2.1 represents Doyal and Gough's theoretical model. In this model, social roles potentially restrict satisfaction of autonomy needs, in turn influencing social participation. Mental illness also acts to restrict satisfaction of autonomy needs and increases disability, both of which influences participation. For the purposes of this thesis, two additional arrows are added to the model above. The first is between the restricted opportunities posed by poor quality social roles and mental illness. Although not explicitly drawn into their model, Doyal & Gough also highlight the relationship between mental illness and restricted opportunities for meeting autonomy needs through social role deprivation. The example they use is the way in which mental health suffers with unemployment which was well-documented by the time of Doyal and Gough's publication (Smith 1987, Warr 1987) and has been further documented since (Burchell 1994, Ferrie *et al.* 1998, Morris, Cook & Shaper 1994).

The second additional arrow that this thesis adds to figure 2.1 runs between mental illness and physical disease. There are a variety of pathways through which poor mental health might lead to poor physical health. For example, work on inequalities in health has suggested that psychosocial factors are directly linked with physical health through the immune and the neuroendocrine systems. Brunner (1996) suggests that the chronic stress response of the hypothalamic pituitary adrenal system results in "elevated levels of corticosteroids, to central obesity, insulin resistance, poor lipid profile and an increased tendency for the blood to clot" (p.29). In addition to direct biological responses, mental health can influence physical health indirectly, for example, through coping behaviours that influence physical health, such as smoking, excessive alcohol and drug consumption, or comfort eating. Marsh & McKay (1994) point out that giving up smoking is easier when self-esteem is high, and one feels optimistic about life and in control. When things are going badly and prospects look hopeless, smoking is more likely to be regarded as the only form of relaxation or luxury available, despite wishing to give it up (Graham 1993, 1990, 1987). According to Cameron & Jones (1985), "Our society not only needs tobacco, alcohol and other drugs of solace to relieve individuals of a great burden of pain and suffering but could not function in its present form without them" (p. 18). Wilkinson (1996) adopts a similar line, "Seen as a group, alcohol, cigarettes, the 32 million prescriptions for psychoactive drugs, caffeine-laden drinks and comforting – probably antidepressant – sweet and fatty foods, present a picture of a remarkably neurotic society. Almost all of us know something both of the emotional and psychological gaps we use these things to plug, and of the difficulties of checking our own addictions – whether to chocolate, alcohol or anything else"(p.189).

In developing a theory of role quality based on satisfaction of autonomy needs as theorised by Doyal and Gough, figure 2.1 is accordingly revised as follows:

**Figure 2.2    The relationship between participation, health and autonomy\* (revised)**
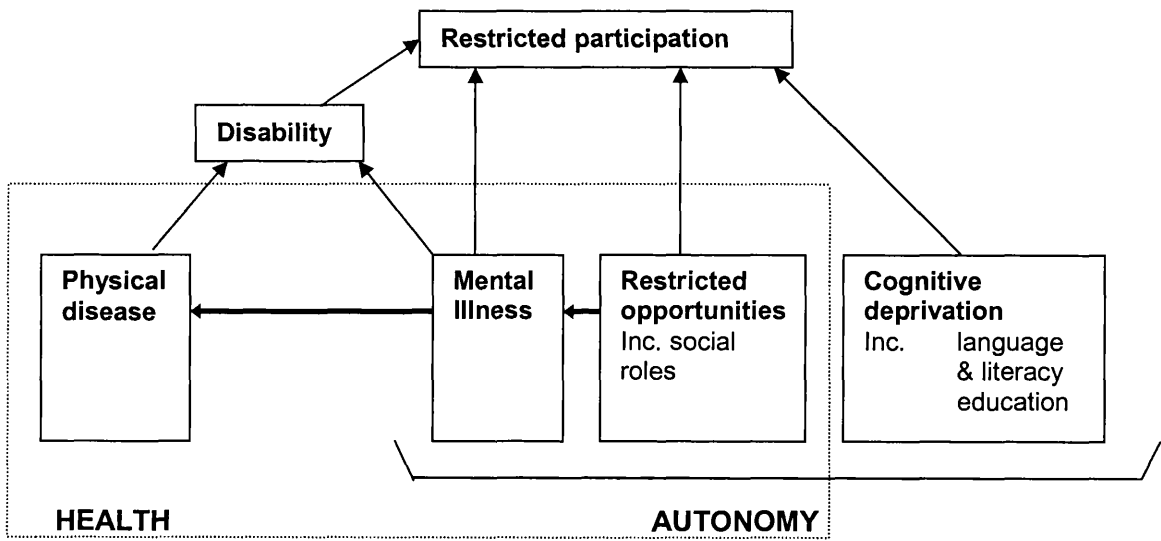


\*        Adapted from p. 171 Doyal & Gough (1991)

Restricted opportunities through poor quality social roles (and role deprivation) do not enable autonomy needs to be met. This leads to a decline in mental health which, if maintained for a substantial period of women's adult lives, may ultimately lead to poor physical health. It is this particular avenue within the dashed box above, and reconfigured in figure 2.3 below, that this thesis will adopt as a hypothesis for how social roles might influence women's health:

**Figure 2.3    Pathway between social roles and physical health according to a needs-based theory of role quality**
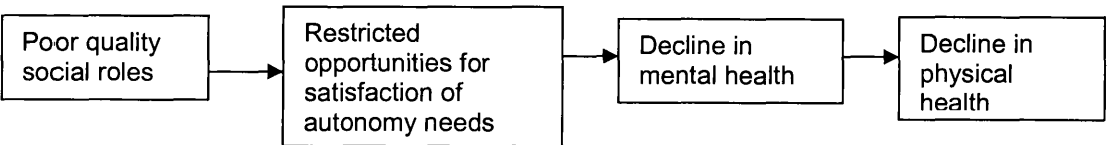
## 2.8    Conclusion

This chapter began by providing a brief overview of the basis in sociological theories for a relationship between social roles and health and well-being. Within this context, it described role identity theory which hypothesises that identity is developed by the roles which one occupies. The chapter also highlighted the concept of agency within Giddens' theory of structuration, with its duality of agency and structure, as a useful aid to thinking about what social roles are: patriarchal structure providing both constraints on and opportunities for agency. A theory was then developed which defined role quality as the extent to which roles provide opportunities for, or constraints on, agency or autonomy (used synonymously). Doyal and Gough's theory of human need was adopted as the basis for arguing the importance of autonomy as a basic and universal human need, and social roles as key for providing opportunities to satisfy these needs. According to this theory, humans need to posses a basic level of autonomy in order to participate fully in their society. This autonomy need is universally shared by all human beings, and is not relative to one's generational or cultural social environment. Roles are defined as poor quality to the extent that they restrict opportunities for satisfaction of autonomy needs within a particular role, or through restricted access to particular roles. As the philosopher Ruth Anna Putnam has argued, "we are not adrift in a world that we can only make and remake and never finish or make correctly, we are anchored in the world by our needs" (Putnam 1993).

This chapter has addressed the theoretical gaps in previous work examining relationships between social roles and health. Another gap in current work in this area, identified in chapter 1, is the lack of a longitudinal perspective in examining relationships between social roles and health. The following chapter (chapter 3) presents the specific research questions driving the empirical work of the thesis which are used to build a model for attempting to answer these questions using a longitudinal framework.

# Chapter 3 A longitudinal perspective on social roles and women's health: research questions and a model.

## 3.1 Introduction

The previous chapter went some way towards developing a theory of role quality based on satisfaction of autonomy needs by highlighting the potential importance of the agency aspects of social roles. Now that the theoretical groundwork has been laid, this chapter presents the research questions to be addressed. These questions are based on the three gaps, in our current knowledge of relationships between social roles and health as identified in chapter 1. These were: the lack of theoretical development for explaining why social roles might influence health, the lack of a physical health measure in studying the relationship between social roles and physical health, and the lack of longitudinal studies focusing on this question. The research questions developed to address these gaps provide the building blocks for developing a longitudinal model to be used as a framework for analysis. This longitudinal model of the potential relationships between social roles, contextual factors such as early health and socio-economic circumstances, and health in later life drives the empirical work for the remainder of the thesis.

## 3.2 The lack of a physical measure of health in relation to social roles

The first research question asks:

*Research question 1. Is there evidence that women's social roles affect physical measures of health as well as subjective measures of health?*

Chapter 1 showed that subjective measures of health – i.e. respondents' reports of their own general health status, or whether they have a long-standing illness – have been used as outcome measures of physical health for the vast majority of studies in this area. Self-reported health is a widely used health outcome measure in medical sociology and social epidemiology generally, and it has been shown to strongly predict mortality (Mossey & Shapiro 1982, Welin *et al.* 1985). This study extends work in this area to include a physical measure of health. Such an extension is useful, from a biomedical perspective, for teasing out relationships between social roles and physical health specifically, as well as pointing to potential etiologic pathways between social roles and health. Thus, this thesis uses obesity as one of two health outcomes of interest.

### 3.2.1 Obesity

Obesity is currently receiving much attention due to its links with multiple illnesses and its dramatic rise in prevalence in industrialised countries in recent decades. Obese women have an elevated risk of diabetes, gallbladder disease, hypertension, coronary heart disease, cancer (breast cancer, endometrial cancer, cervical cancer), respiratory problems, and arthritis (Calle *et al.* 1999, Must *et al.* 1992, WHO 1998). In addition, all data show alarmingly fast increases in rates of obesity in industrialised countries. In England, the Health Survey for England has shown the prevalence of obesity for women to have increased from 16.4% in 1993 to 20.9% in 1999 (Erens, Primatesta & Prior 2001). The World Health Organisation (WHO 1998) recently pronounced that obesity should be regarded as today's principal neglected public health problem. Though genetic factors are likely to play a role in risk for developing obesity, they are unlikely to account for the recent dramatic rise in the prevalence of obesity, and so epidemiological work is focusing on environmental and lifestyle influences (Parsons *et al.* 1999, Power & Parsons 2002).

In addition to these health implications, body mass index clearly has social meaning, particularly for women and girls. Social attitudes towards what is a desirable or attractive body image appear to have shifted historically, apparently in relation to the shifting pattern of obesity and other degenerative diseases through the epidemiological transition that has occurred in industrialised countries. It is thought that throughout pre-industrial human history the rich were fat and the poor were thin. In many of these societies (as in many pre-industrial societies today) obesity was regarded as an attractive status symbol indicating no shortage of access to the basic necessities of life (Sobal & Stunkard 1989). As industrial societies reached a stage of economic development in which the vast majority of the population gained regular access to the basic necessities of life and obesity became more prevalent among working class families, it no longer served as a marker of social distinction and aesthetic sensibilities changed. For the first time in history it became fashionable to be thin and during the first half of the twentieth century the fashion industry began to emphasise slimness (McLaren & Wardle 2002). Now, in industrialised countries, we see an inverse gradient in the relationship between adult obesity and social position (in both childhood and adulthood) which is more consistent for women than for men (Erens & Primatesta 1999, Hirani *et al.* 2000, Power *et al.* forthcoming, Prescott-Clarke & Primatesta 1998, Sobal & Stunkard 1989).

Current social attitudes towards obesity mean that being obese is also associated with restrictions in women's opportunities for social participation. Several studies have found

that obesity is predictive of subsequent education and earnings for women but not for men, and also that obese women are less likely to marry than women who are not overweight, while the same is not true for men (Gortmaker *et al.* 1993, Sargent & Blanchflower 1994). In their review of childhood predictors of adult obesity, Parsons and colleagues (1999) found that women who were socially mobile showed the prevalence of obesity of the class they joined, with no such association present for men. The social burden associated with obesity appears to begin at early ages, starting with negative attitudes shown towards fatter body shapes in preschool girls (Turnbull *et al.* 2000). Also, fatter girls show subsequently poorer self-esteem and cognitive outcomes during adolescence (Gortmaker *et al.* 1993).

There are several hypothetical pathways through which social roles might influence obesity. Some are psychosocial pathways in which long-term occupation of poor quality social roles leads to a negative psychological state, such as dissatisfaction, frustration or stress, potentially leading to unhealthy eating habits (and/or inactivity) as a coping mechanism, eventually resulting in obesity. In his work on the relationship between psychosocial risk factors and inequalities in health, Wilkinson (1996) notes that increased consumption of comforting foods – usually those with high sugar and fat contents – is one of the many ways that people respond to stress, unhappiness and unmet emotional needs. Wilkinson points to dramatic increases in obesity which coincided with rapidly widening income differences in the 1980s and speculates that unemployment and job insecurity may have lead to decreases in physical activity among dispirited people stuck at home eating for comfort. The same scenario might be applied to women in particular social role combinations such as long-term full-time homemakers who no longer have young children to look after at home, for instance.

Another potential pathway, parity, is more biological in nature, although it may have links with psychosocial pathways. Several studies have shown a link between obesity and parity (Harris, Ellison & Holliday 1997; Rossner 1997). Previous work in the National Study of Health and Development 1946 British birth cohort showed that, at age 36, 11% of women who had had three or more pregnancies were obese compared with 6% of women with fewer pregnancies (Braddon *et al.* 1986). The number of children a woman has is also likely to be related by her social roles. For instance, women who have large families might be less likely to be in paid employment, or to enter employment after a longer gap for childbearing. The influence of parity on relationships between social roles and obesity is examined in this thesis.

### 3.2.2 Self-reported health

In addition to the physical measure of obesity, the more global measure of self-reported health is also used as one of the two health outcomes of interest for this thesis. It was chosen for inclusion, partly to align this work with the existing body of knowledge in this area, but also, particularly in thinking about the impact on women of life time roles, subjective health – women's perceptions of their health -- may be of more interest than a particular physical illness. Since many definitions of health are essentially subjective, it follows that measures of health ought to take some account of what health means to lay people, at least in addition to, health as defined by a biomedical model.

The difficulty with using a subjective measure of health is knowing what standards people are using to judge their health. Several qualitative studies have now attempted to understand how people think about health. In probably the earliest study to do this, Baumann (1961) reported that people make three main types of response when asked what they think 'being healthy' means. These were 'a general sense of well-being', 'the absence of symptoms of disease', and 'the things that a person who is physically fit is able to do'. Nearly half of her respondents used more than one of these definitions when talking about health. However, her sample consisted entirely of low income patients at an out-patient clinic who had already been given diagnoses of quite serious diseases. A later and widely influential study conducted interviews with 80 people living in Paris. Based on these interviews, Herzlich (1973) pointed to three conceptions of health as being important. These were 'health-in-a-vacuum' or the absence of illness (in line with Baumann's findings), 'reserve of health' the capacity of an individual to withstand disease (often thought of as inherited), and 'equilibrium' such as a feeling that things are going well which can be lost or regained.

Another influential study into this question, based on a nationally representative British sample, was that by Blaxter (1990) which showed, like people in Baumann's more limited sample, when people talk and think about health they do not use a single concept. Coding responses to two open-ended questions[9] in the 1984/5 Health and Lifestyle Survey, Blaxter produced six categories of ways that respondents thought about health. These were: 'health as not-ill' in which health is defined by the absence of illness (found in both

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[9] The questions were: (1) 'Think of someone you know who is very healthy. Who are you thinking of? How old are they? What makes you call them healthy? [and]
(2) At times people are healthier than at other times. What is it like when you are healthy?

previous studies); 'health as reserve' also noted by Herzlich; 'health as behaviour' as looking after one's self in terms of diet, exercise, not smoking, etc; 'health as physical fitness or vitality' also noted by Baumann; 'health as psychosocial well-being' to do with a person's mental state; and 'health as function' in the functionalist sense of being able to perform one's social or role-related duties. Blaxter identified that individuals use a variety of these definitions in different combinations at different times.

Blaxter also showed that the ways in which people think about health does vary in some systematic ways. For instance, younger men talked about health in terms of physical strength and fitness while young women spoke of energy, vitality and ability to cope. In middle age concepts of health became more complex with emphasis upon mental health and total well-being. Older people, particularly men, thought in terms of function and the ability to do things. Blaxter found that women gave more expansive, multi-dimensional answers than men and were more likely to include social relationships in their definition of health. In addition to studying self-assessments of health, Blaxter created a health index constructed empirically from health measures in four dimensions which she compared with self-assessments of health. As might be expected, people's own assessments of their health were most likely to correspond with their index score at the extremes – among those who were most and least healthy. Even so, nearly ten per cent of those whose health was in the best category said their health was only poor or fair while 40% of those with undoubtedly poor health claimed that it was good. The norm for excellent health became less stringent with age in that the elderly were more likely to judge their health favourably in relation to their health index score.

This work shows that the presence or absence of illness or symptoms is only one of many notions that people have about health. In order to capture how people are really 'feeling' – in order to capture aspects of health which people find salient, but which are not specific to physical or mental illness per se, such as vitality, reserve and equilibrium -- a non-specific, subjective question is necessary. Blaxter's work found that one component of subjective concepts of health is mental health. In addition to being a component of the construct of health captured by self-reported health, mental health may be thought of as on the pathway between poor quality social roles and physical health. While it will not be possible to disentangle these two potential influences, the influence of mental health on relationships between social roles and both subjective health and obesity will be investigated.

## 3.3    The lack of a longitudinal design: early life predictors of life time social role histories.

Chapter 1 highlighted the lack of longitudinal perspective in studying social roles and health. This section describes in more detail how this gap is addressed in three main ways: the development of life time social role histories, the examination of health selection, and the examination of other (non-health) early life predictors of adult social roles.

### 3.3.1    Life time social role histories

The second research question driving work for this thesis is

*Research question 2. What is the relationship between social roles over the long-term and subsequent health?*

Cross-sectional data are unable to capture changes in women's social roles over time. It may be that women's current social roles are important for their current mental health. In terms of physical health in later life, and potentially for later mental health as well, it is likely to be life time role histories that are important (figure 3a).



(Figure 3a)
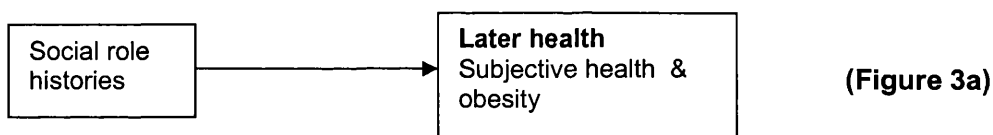
Data from a birth cohort of women who are now in their early fifties are used to create a social role history variable, allowing for examination of relationships between life time social roles and subsequent health.

### 3.3.2    Health selection and social roles.

*Research question 3. Are relationships between social roles and health explained by health selection into particular social role combinations?*

Chapter 1 showed that this is one of the big questions that has plagued understanding the relationship between social roles and health. If a relationship between social roles and health is seen, is this because particular role combinations are bad for health? Or, is this because women with poor health in early life are selected into particular role combinations? It is very likely that health in early life is associated with health in later life. Indeed, obesity tracks strongly from early to later life. Fatter girls have a high risk of going on to become fat women, although risk estimates depend on the measures used and the study duration (Power, Lake & Cole 1997a, Serdula *et al.* 1993). For example, 12% of all women in the 1958 British birth cohort were obese at 33 years, but among those with a

BMI above the 95<sup>th</sup> percentile at age 7 or 16 the prevalence was 44% and 56%
respectively (Power, Lake & Cole 1997b). It is, therefore, particularly important to
investigate whether obesity in early life selects women into particular role combinations
that also show an association with obesity in later life (figure 3b).



(Figure 3b)
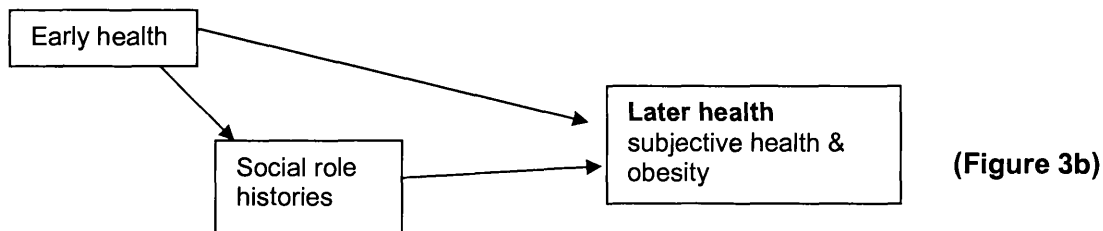
We have seen that a few of the cross-sectional studies looking at the relationship between
social roles and health have made efforts to control for health selection by adjusting their
models for long-standing or disabling conditions (Bartley, Popay & Plewis 1992; Fokkema
2002; Macran *et al.* 1994). Studies of the effect of women's role combinations and socio-
economic circumstances on mortality in Britain using the Longitudinal Study (LS) data
found evidence of health selection into motherhood and employment (Moser, Pugh &
Goldblatt 1990; Weatherall, Joshi & Macran 1994). The data used for this thesis allow the
study of both BMI and mental health throughout the lifecourse (to the mid-fifties), as well
as providing measures of self-reported health at ages 26 and 54.

### 3.3.3 Early life predictors of adult social roles: childhood social class and education

*Research question 4: Are relationships between social roles and health explained by other
early life predictors of adult social roles (for instance, education and
childhood social class)?*

In addition to health in early life, there are other factors in early life that are likely to select
women into particular social role combinations, or influence the timing of social role
transitions. Two of these are childhood social class and educational attainment. In addition
to the extent to which health in early life explains relationships between social roles and
health in later life, this thesis also examines whether these relationships are explained by
these early life factors (figure 3c).

Childhood social class | Social role histories | Later health subjective health & obesity | Education

**(Figure 3c)**
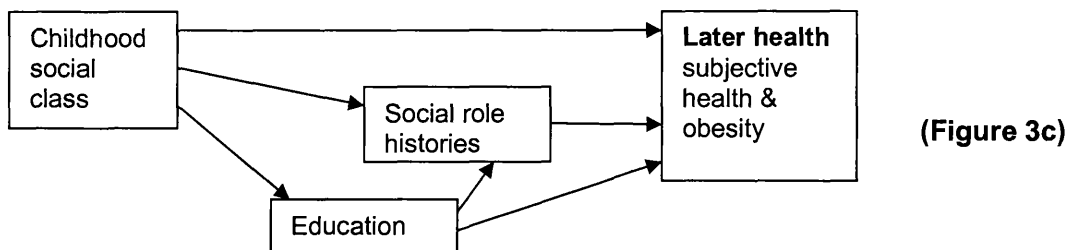
Longitudinal studies consistently show that a lower socio-economic position in childhood increases the risk of fatness in adulthood (Hardy, Wadsworth & Kuh 2000; Parsons *et al.* 1999), as well as adult morbidity and mortality more generally (Power & Hertzman 1997; Wadsworth 1991, 1997). In addition, childhood social class itself is predictive of educational attainment (Douglas 1964; Halsey, Health & Ridge 1980; Lauder & Hughes 1990; Power & Matthews 1997; Wadsworth 1991) as well as adult socio-economic position (Britten 1981; Halsey, Health & Ridge 1980; Kuh & Wadsworth 1991; Kuh *et al.* 1997) in dynamic ways that are changing with the social environment over time (Bartley, Sacker & Schoon 2002). All three of the British cohort studies have shown that socio-economic circumstances in childhood have exerted unequal pressure on women and men with regards to employment opportunities and income (Bynner *et al.* 2000, Bynner *et al.* 2002, Joshi & Hinde 1993; Joshi & Paci 1997, 1998; Makepeace *et al.* 1999). Chapter 1 reviewed work showing that educational attainment is a strong predictor of both family and work role patterns (p. 19, 26-28). Other work has shown that low educational attainment is associated with poorer marital quality, divorce and lone parenting (Coley & Chase-Lansdale 1998). Also, educational attainment has been shown to be predictive of adult obesity (Hardy, Wadsworth & Kuh 2000).

Early life factors are strongly predictive of women's adult social role patterns, and are associated with health outcomes in later life, such as obesity. Therefore, it is important to investigate whether early life factors explain relationships seen between adult social role histories and health in later life. In addition, there is known to be a large degree of class and income continuity between fathers and children, although for daughters this continuity has occurred with respect to the occupation of their husbands' rather than their own occupations (Bartley, Sacker & Schoon 2002). If early life factors appear to play an important role in the relationship between social role histories and later health, is it due to these exposures in early life?

## 3.4 Social roles, health and adult socio-economic circumstances

*Research questions 5:*      *Are adult social roles simply acting as a marker for adult socio-economic circumstances?*

Chapter 1 showed that there is a strong, albeit complex and changing, relationship between adult socio-economic circumstances and women's adult social role patterns. Before addressing the final gap raised in chapter 1, which is the lack of theoretical development regarding role quality, the influence of adult socio-economic circumstances ought to be ruled out as a confounding factor. Chapter 1 described a class convergence, in which levels of employment among women in middle class household caught up with those of women in working class households. This convergence lead to polarisation of women's employment patterns in which ties to the labour market actually became stronger for highly educated middle class women and weaker for less qualified women (p.19, 26-28). Spousal and family income and wealth (financial assets) are associated with stability of marriage over time (Marks & Ashleman 2002). In addition to its relationship with women's social role patterns, we know that adult socio-economic circumstances are strongly associated with a wide range of health outcomes. Both social class of head of household and household income are strongly and consistently associated with self-reported poor health among women (Boreham & Tait 1999, Calderwood & Park 2000, Prior 1998). Also, low socio-economic status in adulthood is associated with a higher prevalence of affective disorders (Weich & Lewis 1998). Though part of this association may reflect selection effects, some causal influences also seem likely to be involved (Dohrenwend *et al.* 1992).

```
┌──────────────┐
│ Social role  │──────────┐
│ histories    │          │
└──────────────┘          │     ┌────────────────────┐
       ▲                  └────▶│ Later health        │
       │                        │ Subjective health & │    (Figure 3d)
       │                  ┌────▶│ obesity             │
┌──────────────┐          │     └────────────────────┘
│ Adult social │──────────┘
│ class        │
└──────────────┘
```
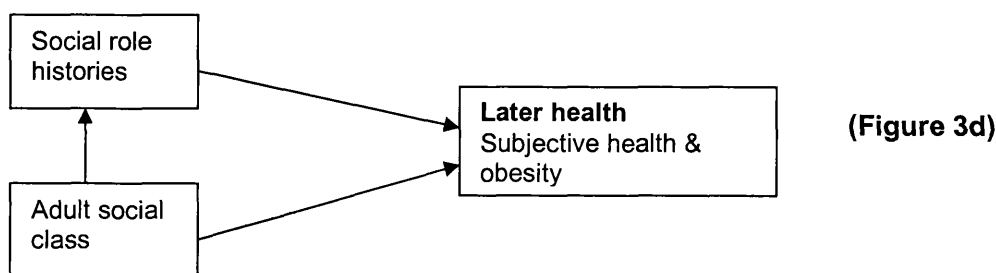
As adult socio-economic circumstances are strongly associated with both women's social role patterns and their health in later life, it is possible that any relationships seen between social role histories and later health are confounded by adult socio-economic circumstances (figure 3d). Chapter 1 showed that these relationships have been examined at some length in cross-sectional data, and mainly show that role effects persist after

adjusting for current socio-economic circumstances. This thesis also examines this question in relationship to life time social role histories and subsequent health in middle age.

## 3.5    Social roles, health and role quality

*Research questions 6:*    *Are relationships between social roles and health mediated by theoretically-driven measures of role quality?*

Chapter 1 identified a lack of theoretical focus as one of the main gaps in current research in this area. Chapter 2 developed a theory of role quality based on satisfaction of autonomy or agency needs. Furthermore, this theory can be operationalised through measures of role quality. This thesis hypothesises that measures of role quality based on the theory developed in chapter 2 will mediate relationships between social roles and health as described in figure 2.3 (p. 52) (figure 3e).

```
┌──────────────┐        ┌──────────────┐        ┌──────────────────┐
│ Social role  │───────▶│ Role quality │───────▶│ Later health     │
│ histories    │        │              │        │ subjective health &│   (Figure 3e)
└──────────────┘        └──────────────┘        │ obesity          │
                                                 └──────────────────┘
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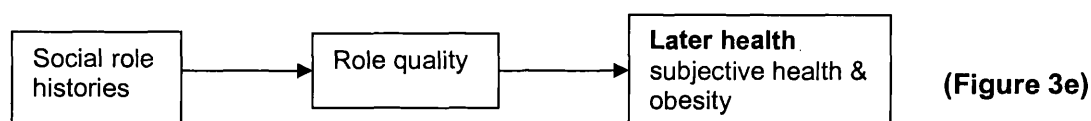
## 3.6    The longitudinal model

The research questions described above can be considered together to create figure 3.1 below. Later health is examined in terms of both subjective health and obesity. Histories of women's social roles across early adulthood and middle age are used to examine the longitudinal relationship between social roles and subsequent health. Over time, childhood social class is likely to influence early health, educational attainment and adult social class, each of which may influence adult social roles and health. Childhood social class may also influence women's social roles directly. Education is likely to influence women's work and family roles, as well as their health, directly, as well as indirectly through adult social class. If relationships between social role histories and health in late middle age are not explained by these factors, they may be explained by measures of role quality, based on the theory of role quality developed in the previous chapter. The quality of women's roles, defined as the extent to which they afford opportunities for satisfaction of autonomy needs, may influence subjective health or obesity through mental health (or, indeed, mental health may be a component of subjective health) or it may influence physical health independent of mental health. The extent to which relationships between social roles and health are mediated by mental health is examined. In addition, a factor known to be a risk factor for obesity is parity (Harris, Ellison & Holliday 1997). The extent to which relationships

between social roles and obesity are explained by parity is also examined. This model, and the research questions from which it is derived, form the basis for the longitudinal analysis in this thesis. There are certainly factors which enter into these relationships that are not depicted in this model, but the model is intended to include the main factors of interest in studying relationships between life time social roles and subsequent health. The pathways in figure 3.1 delineated by broken lines are not directly studied in this thesis.

**Figure 3.1 Longitudinal model for studying adult social roles and health in later life.**



TIME
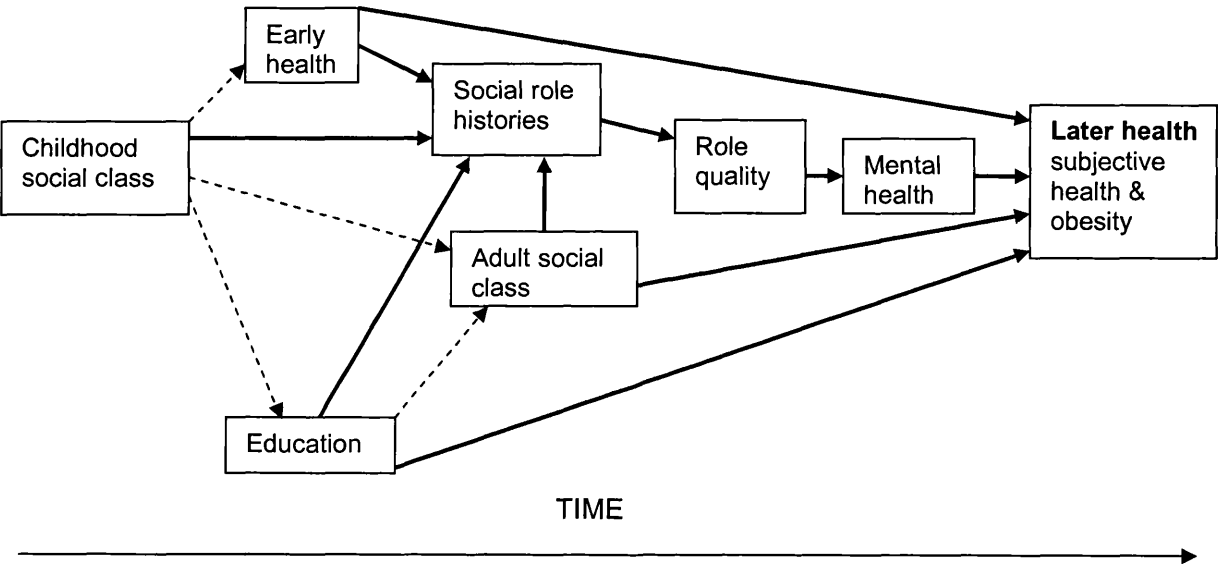
## 3.7    Conclusion

Based on the gaps in existing knowledge about relationships between social roles and health presented in chapter 1, this chapter presented the research questions that drive the empirical work. The first of these questions addresses the limitation of studies in this field to subjective health measures. The next three questions relate to the limitation of existing studies to cross-sectional data in answering these questions, and raise specific questions relating to life time social role histories, and the influence of early life factors on relationships between adult social roles and health in later life. In addition, chapter 1 showed that there are strong relationships between women's social roles and their socio-economic circumstances. Although not identified as a major gap, one research question asks whether relationships between longitudinal social role histories and subsequent health are explained by adult socio-economic circumstances. Finally, but perhaps most importantly from the point of view of this thesis, the final research question allows for the

operationalisation of the theory of role quality developed in the previous chapter, and the investigation of the influence of these measures on relationships between social roles and health. In this chapter I have drawn these questions together into a unified model to be used as a framework for longitudinal analysis. However, the empirical work of this thesis is not entirely limited to longitudinal analysis. Cross-sectional data are also included in order to allow for the examination of relationships between social roles and health in more recent cohorts of women. The next chapter (chapter 4) introduces both the longitudinal and cross-sectional samples of women that are used for empirical work and presents the social role patterns for women in each sample by age.

# Chapter 4  Introduction to the data sets

## 4.1    Introduction

This chapter introduces the two samples of women to be used for analysis. It then describes their social role patterns within a historical context of rapidly changing social norms regarding the ways in which women combined the roles of mother, wife and employee. The sample used for cross-sectional analysis is women aged 25-54 when they took part in the Health Survey for England in 1998. The longitudinal sample is women from the MRC National Survey for Health and Development who have been followed since their birth in 1946. In most ways, women in this cohort predated the rapid changes in social role patterns witnessed over the second half of the 20th century. In fact, women in this cohort were the least diverse cohort of women throughout the entire 20th century with respect to the adoption and timing of their social role transitions (see p. 19). Women in the Health Survey for England 1998 provide a picture of women at various stages of their adult lives during the nineties, a time of rapid changes in social roles as was described in chapter 1.

## 4.2    The data sets

### 4.2.1    The Health Survey for England

As the only large, nationally representative survey series to collect physical health measures in England, the Health Survey for England (HSE) is an obvious choice for this thesis. The HSE comprises a series of annual cross-sectional surveys on the health of the population of England and has been funded by the Department of Health since 1991. Each annual survey covers the non-institutionalised population using a stratified probability sampling design which results in self-weighting (equal selection probabilities) samples, both of households and adult individuals. In 1998, the year of the HSE being used here, a random sample of 13,680 addresses was selected from the Postcode Address File. Seven hundred and twenty postal sectors were stratified according to a number of socio-demographic factors (using data from the 1991 Census), to maximise the representativeness of the sample, and then 19 addresses were randomly selected within each sector. Once an address has been selected, all of the adults and up to two of the children living there are included in the survey. Each year the focus of the HSE changes. In 1998 the focus was on cardiovascular disease and its risk factors. For that year interviews were conducted with 74 per cent of eligible households, yielding 4,687 women aged 25-54 (Erens & Primatesta 1999a). Information for each of the variables in this

analysis was collected during face-to-face interviews with individual respondents and/or the head of household in respondents' homes using Computer Assisted Personal Interviewing (CAPI). (The one exception to this was mental health measure, the GHQ12, which was collected in a self-completion booklet). The age range 25-54 was chosen as one in which women were likely to have completed their education at the lower end and be less likely to have retired at the higher end.

### 4.2.2  MRC National Study of Health and Development 1946 birth cohort

The Medical Research Council (MRC) National Survey of Health and Development (NSHD) originated as a study of childbirth (Wadsworth 1991, Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee 1948). Interviews were conducted with women who gave birth during the week $3^{rd}$-$9^{th}$ March, 1946 in Wales, England and Scotland (n=13,687, 82% of the 16,695 births selected for the sample). Subsequently, a follow-up of all single, legitimate births to wives of non-manual and agricultural workers, and one in four of all single, legitimate births to wives of manual workers was carried out at age two. The resulting sample of 5362 two-year-olds constituted the NSHD. Of these, 2,547 were girls. In adulthood, data have been collected in face-to-face interviews at ages 26, 36, 43 and 53, with postal follow-ups between some waves (Wadsworth *et al.* 2003). At each age information on occupational, home and family circumstances and on physical and mental illness were collected. By age 26, 4.6% of females had died (most in infancy), 9.3% had emigrated or were temporarily abroad, and 2.7% were permanent refusals, resulting in an eligible sample of 2,126 women. Of the eligible sample, 87.2% were successfully interviewed at age 26, representing 72.8% of the original cohort of females. At age 36, research nurses successfully interviewed and measured 1666 female study members in their homes. This was 87.5% of those 1905 alive (5.1% of the original sample of girls had died by this age), resident in England, Wales or Scotland (11.3% lived or were temporarily abroad) and still participant in the study (8.8% had permanently refused). This represents 65.4% of the original cohort of girls. In 1989, at age 43, 1,627 of the original 2,547 female survey members were interviewed and measured by research nurses, 86% of the eligible sample. This represents 63.9% of the original cohort of girls. Reasons for failing to contact subjects included death (5.7%) and living abroad (10.6%). At age 53, 1,563 cohort women were interviewed by a survey nurse, representing 87.8% of the eligible sample and 61.4% of the original cohort of girls. By this age, 7.7% of the original cohort had died, 10.3% had emigrated, and 12.1% had permanently refused.

This sample cannot be completely representative of the national adult population of a similar age because its selection predated major immigration flows, and because of the decision to exclude births outside wedlock and multiple births from the initial sampling frame. Also, certain sub-groups of the sample, such as those with schizophrenia or literacy problems, are known to be under-represented. At age 36, the sample was representative of native born British people of the same age in most respects (Wadsworth *et. al.* 2003, Wadsworth *et. al.* 1992). In a recent publication, Wadsworth and colleagues (2003) compared the weighted cohort sample responding at ages 43 and 53 with data from the 1991 census. They found that full-time employed and widowed women were over-represented while never married, separated and divorced women were under-represented at both years of data collection compared with census data in the same age range. The sample of women included in analysis for this thesis is described in detail in chapter 7.

## 4.3    Social roles: combining work and family

This section compares the work and family roles of women in the two samples. These comparisons are limited by the fact that the HSE only collects information about children who are currently living in the household. This limitation particularly affects the oldest age group from the 1998 HSE being considered here: women aged 45-54. This happens to be the age group which includes women who were born in 1946 (who were 52 in 1998). It is comparisons with the more recent cohorts of women, which chapter 1 suggested have been much more diverse in their social roles, which is of most interest and these comparisons are less influenced by the limitations of the HSE.

### 4.3.1  Family roles: increasing diversity

This section presents family roles for women in each of the data sets at various ages. Figure 4.1 shows the family roles of women in the 1946 cohort at the main ages of data collection in adulthood: 26, 36, 43 and 53 years.

### Family roles of women in the 1946 birth cohort

Women born in 1946 had their families prior to the more recent trend towards delayed childbearing. Married motherhood was strongly normative for women in the 1946 birth cohort and from a relatively uniform young age. Over 80% of women in the sample were married by the age of 26 and over 60% were married with children by this age (figure 4.1, p. 76). Kiernan & Diamond's (1983) analysis of age at which childbearing began in this cohort showed that these women mostly became mothers in their early twenties (in the late 1960s). The median age for these women at their first birth was 23 (1969) (Kiernan

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1980). The proportion of women in married motherhood continued to increase somewhat between ages 26 and 36 (from 61% to 79% of women, figure 4.1, p. 76), both from new children among women who were married but childless at 26, as well as from women who were single at 26 marrying and having children.[10] The proportion of married mothers then declined slightly at ages 43 and 53 as increasing numbers of women divorced, separated or became widowed (figure 4.1, p. 76). Eleven per cent of women in this cohort remained childless throughout adulthood and 5% never married. The number of previously married mothers increased steadily with age from 3% of women at age 26 to 17% at age 53. Of the women who were married at age 53, a fifth were in second (or third in a few cases) marriages. Just over sixty percent of women in this cohort remained married to the same partner until their early fifties. Thirty percent of women in this sample had divorced or separated by age 53 and just over half of these had remarried by that time. By age 53, A fifth of women in the previously married group were widowed. The vast majority of married or previously married women (92%) had children.

*Family roles of a cross-section of women in 1998*

Although married motherhood remained broadly normative for later cohorts of women, the strength of this norm declined, particularly with regards to adopting this role combination in their early twenties as was the norm for women in the 1946 birth cohort. Work by Joshi (1996) showed that women in the 1958 birth cohort tended to become mothers later than women born in 1946. Three-quarters were mothers by the age of 33 and the median age for first childbirth was 26, compared with 23 years for women in the 1946 cohort. Looking at a cross-section of women born between the 1940s and the 1970s at various stages of their adult lives in the 1998 HSE sample supports the notion of increasing diversity in women's family roles over the last thirty years (figure 4.2, p. 76). Seventy per cent of women born in the 1960s and early 70s were married and less than half were married with children by their late twenties or early thirties. This compares with 80% and 61% by age 26 among women born in 1946 (figure 4.1, p. 76). In addition, 15% of 25-34 year-olds in 1998 were lone mothers compared with 5% of women in the 1946 cohort at age 26 (figures 4.2 and 4.1, p. 76).

Even women born in the 1950s and early 1960s were less likely to be married with children in their mid-thirties to early forties than women who were born in 1946. Almost

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[10] Seventy-eight per cent of women who were married, but didn't have children at age 26 had had children by age 36. Forty-one per cent of women who were single and childless at age 26 were married with children at age 36 and 20% were married without children.

two-thirds of women who were aged between 35 and 44 in 1998 were married with children compared with 79% of women in the 1946 cohort at age 36 and 73% at age 43 (figures 4.2 and 4.1, p. 76). However, this is likely to reflect the fact that the HSE only collects information on children who are currently in the home as some women in their early forties will have children who have already left home. Also women in their mid-thirties to early-forties in 1998 were more likely to be never married lone mothers than women aged 36 in 1982, although, the number of never married lone mothers remains small for both samples of women (figures 4.2 and 4.1, p. 76).

The oldest age group of women in the 1998 HSE includes women who were born in 1946. We can see that married and previously married women aged 45 to 54 in the HSE sample were less likely to report having children at home than their married or previously married counterparts in the 1946 cohort sample (figures 4.2 and 4.1, p. 76). Again, this reflects the fact that the HSE only includes children who are currently residing with their parents, and so mainly shows the proportion of women whose children have left home by this age rather than the proportion who did not have children. Children of women in their mid-forties to early fifties in 1998 are likely to have moved out of the parental home as we have seen women in these cohorts had their children at relatively young ages compared with women in later cohorts. As in the cohort sample, 5% of women in this age group had never married (figure 4.2, p. 76).

In summary, for women who were aged 25-54 in 1998, being married or cohabiting remained normative, but family roles were more diverse in the youngest age group. Compared with women who were 26 in 1972, women who were aged 25-34 in 1998 were less likely to be married, less likely to be mothers, more likely to be divorced, separated or widowed and more likely to be lone mothers. Also, more women aged 25-34 in 1998 who were married or cohabiting had not had children in comparison with women who were 26 in 1972. This increased diversity probably reflects both changing norms regarding the timing of family formation, and, to a lesser extent, increases in the proportion of women choosing not to become mothers (see p. 23). Overall, analysis of the family role patterns of women in the data sets used here confirms the patterns described in chapter 1. The increased diversification in family role patterns began in the 1970s, and, therefore occurred after the majority of women in the 1946 birth cohort had established their families. In fact, women in this cohort were the least diverse of any in the last century in terms of both the occupation and timing of family roles.

### 4.3.2 Work roles: shorter gaps for childbearing

A comparison of work role patterns of the 1946 cohort women and the HSE cross-section of women aged 25-54 in 1998 also illustrates women's increasing ties to the labour market over time.

#### Work roles of women in the 1946 birth cohort

At age 26, when women in this cohort had small children at home, the majority of women were at home full-time. A little over a third of women at this age were employed full-time (figure 4.3, p. 75). Between the ages of 26 and 36, there was a large increase in the proportion of women employed part-time (from 13% to 37%), a reduction in full-time employment (36% to 29%), and an especially large reduction in full-time homemaking (49% to 30%) (figure 4.3, p. 77). The reduction in full-time employment was probably partly explained by the move of unmarried women into the married mother role (figure 4.1, p. 76). The larger shift from full-time homemaking to part-time employment seems to reflect a shift in the work roles of women who were married mothers at both ages 26 and 36, rather than an influx of women who became married mothers between ages 26 and 36 and had stronger ties to the labour market as a result.[11] The fact that the children of these married mothers have now grown older appears to explain much of this uptake of employment.

Between the ages of 36 and 43 there was a further shift in work roles away from full-time homemaking into employment outside the home (figure 4.3, p. 77). The bulk of the increased employment was in full-time rather than part-time employment, with the increasing age of women's offspring, although even at age 43 when full-time employment was at its height, less than half of women were employed full-time. The proportion of women employed full-time increased from 28% at 36 to 45% at 43 while the proportion keeping house full-time dropped from 28% at age 36 (already a substantial drop from 49% at age 26) to 15% at age 43. The proportion employed part-time only increased from 35%

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[11] We have seen the movement of unmarried women into the married mother role between ages 26 and 36, and high levels of full-time employment among unmarried women at age 26. These two facts might suggest that the shift among married mothers from full-time homemaking at age 26 to part-time employment at age 36 might be partly explained by a larger proportion of married mothers having stronger ties to the labour market at age 36. The following table shows that this is not the case.

| Work roles at age 36 | Family roles age 26 to 36 | | |
|---|---|---|---|
| | Married w/ch both ages | Unmarried age 26 – married w/ch age 36 | Total |
| Employed | 549 (63.3) | 162 (45.9) | 711 |
| Full-time homemaker | 236 (27.2) | 143 (40.5) | 379 |
| Unemployed | 78 (9.0) | 48 (13.6) | 126 |
| Total | 863 (100) | 353 (100) | 1216 |

Women who were married mothers at both age 26 and 36 were more likely to be employed at age 36 (presumably because their children are older) than women who became married mothers between the ages of 26 and 36.

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to 39%. By age 43, 84% of women in this sample were employed outside the home. Between ages 43 and 53 there was a reduction in both full-time homemaking and part-time employment, as well as a slight reduction in full-time employment, with 9% of women reporting that they no longer could work due to illness and 5% reporting that they had retired (figure 4.3, p. 77).

In summary, women in this cohort tended to have strong ties to the labour market, but not until their mid-thirties or early forties, due to long employment gaps for childbearing that we have seen (in chapter 1) were typical for women at this time. Also, the decrease in full-time homemaking accompanied by a large increase in part-time employment between ages 26 and 36 suggest that women in this cohort predominantly returned to part-time employment when they did enter the labour market after full-time homemaking.

### *Work roles of a cross-section of women in 1998*

Women who were in their mid-twenties to early-thirties in 1998 were much less likely to be at home full-time (27%) than women who were 26 in 1972 (49%) (figures 4.4 and 4.3, p. 77). Employment outside the home, particularly part-time employment, was more likely among young women in the later cohorts. A quarter of women aged 25-34 in 1998 were in part-time employment compared with 13% of women in the 1946 cohort at age 26 years (figures 4.4 and 4.3, p. 77). This suggests that it was more usual for women born in later cohorts to work part-time, rather than be at home full-time, when their children were young.

Women aged 35 to 44 in 1998 were exactly as likely to be employed part-time as women aged 36 sixteen years earlier in 1982 (figures 4.4 and 4.3, p. 77). This may reflect the long-term propensity for British women to combine work and childrearing by taking informal, flexible part-time jobs described in chapter 1. In fact, the overall work role patterns for women aged 35 to 44 in 1998 were very similar to women who were 36 in 1982 and 43 in 1989. The increase in women's continuous employment, with no period of non-employment for childbearing, and stronger ties to the labour market that began in Britain in the 1990s, after the great increases in women's educational attainment in the 1980s (seen in chapter 1) affect these cohorts less than younger cohorts. Overall, ties to the paid labour market were strong for women of all ages in 1998, with a little over a fifth of women of any age being a full-time homemaker (figure 4.4, p. 77). From the age of 35 women were about as likely to be employed part-time as they were full-time. Even in the youngest age group part-time employment was much more likely than it had been for

earlier generations at this age, with about a quarter of women aged 25 to 34 being employed part-time (figures 4.4 and 4.3, p. 77).

## 4.4    Conclusion

This chapter has described the samples to be used in analysis: one a cohort of women born in 1946, the other a cross-sectional snapshot of women at different points of the life course in 1998. The chapter examined women's family and work roles at various ages and showed that they followed historical trends in women's social roles over the last half of the 20[th] century as described in chapter 1. There was very little diversity in family formation patterns among women born in 1946. Most women in this cohort worked in paid employment outside the home, but usually after a spell of full-time homemaking when children were young, followed by part-time employment. At no age did more than 45% of women in the 1946 cohort work full-time; part-time employment also predominated in all age groups in the 1998 HSE. Younger cohorts – women who were in their late twenties or early thirties in 1998 – showed much more diversity in their family and work roles. So, within a quarter of a century women's family roles became more diverse while their ties to the labour market strengthened. Such rapid change suggests that particular social role patterns are likely to have different social significance for women in different cohorts, in addition to different meanings for different age groups. For instance, a woman in the 1946 cohort who had not formed a family by age 36, while about 85% of her peers had, may have been more likely to feel socially marginalised and that her opportunity for having children was passing her by. Alternatively, a woman born twenty years later in 1966 just starting to think about having her first child would be joined by many of her peers, particularly if she were among those with higher educational qualifications and in higher level occupations. The health importance of the differing strength of normative roles is examined in subsequent chapters. Now that the samples have been introduced and described, the following chapter (chapter 5) presents the cross-sectional relationships between social roles and health for women aged 25-54 in the 1998 HSE.

## Chapter 4 Figures

### Figure 4.1 Family roles at ages 26, 36, 43 and 53 among women in the NSHD 1946 birth cohort



Legend:
- ▨ Previously married no children
- ▤ Previously married with children
- ⊞ Never married no children
- ■ Never married with children
- ▥ Married no children
- ▨ Married with children

X-axis:
26 (1972) N=1853　36 (1982) N=1666　43 (1989) N=1627　53 (1999) N=1520

Age (year)
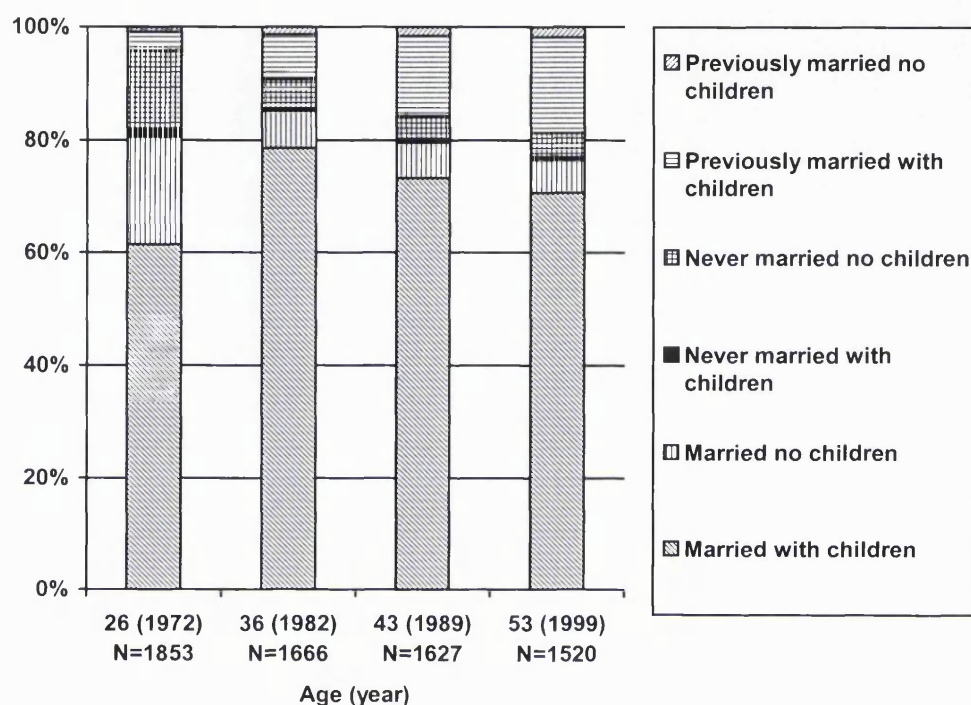
### Figure 4.2 Family roles by three age groups among women aged 25-54 in the 1998 HSE



Legend:
- ▨ Previously married no children at home
- ▤ Previously married with children at home
- ⊞ Never married no children at home
- ■ Never married with children at home
- ▥ Married no children at home
- ▨ Married with children at home

X-axis:
25-34 (born 1964-73) N=1630　35-44 (born 1954-63) N=1573　45-54 (born 1944-53) N=1482
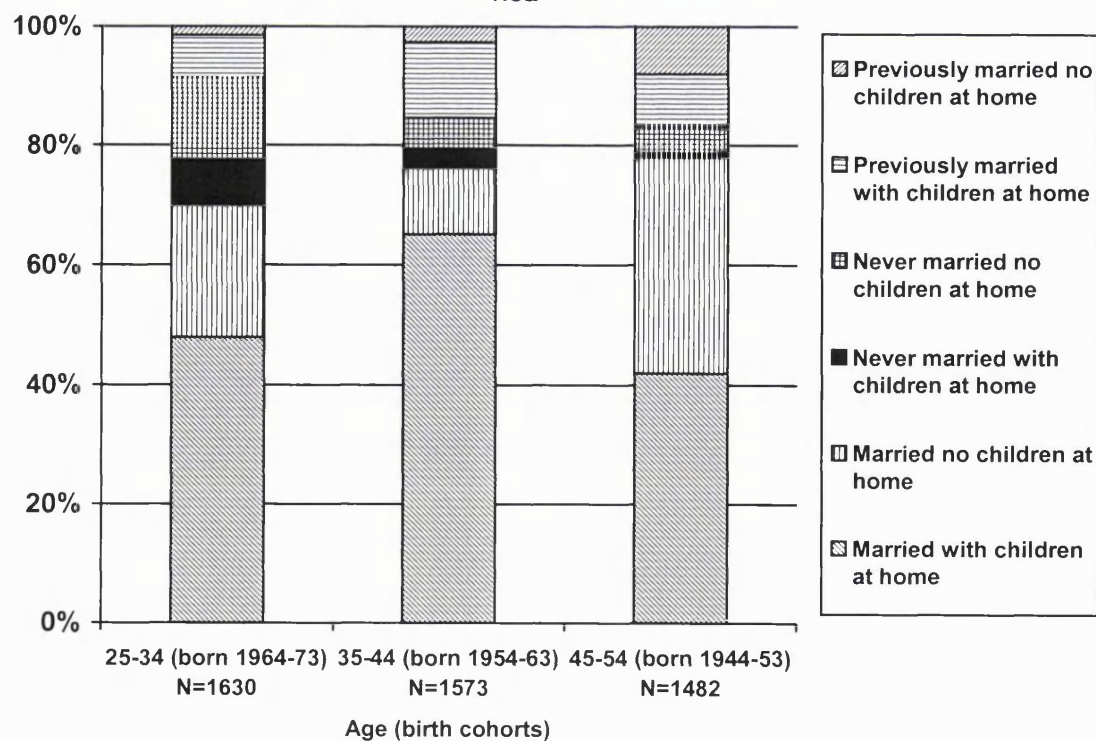
Age (birth cohorts)

Figure 4.3 Work roles at ages 26, 36, 43 and 53 among women in the NSHD 1946 birth cohort

Legend:
- Retired
- Stopped working due to illness
- Other
- Unemployed
- Full-time homemaker
- Part-time employed
- Full-time employed

X-axis: Age (year)
26 (1972) N=1853
36 (1982) N=1661
43 (1989) N=1555
53 (1999) N=1520
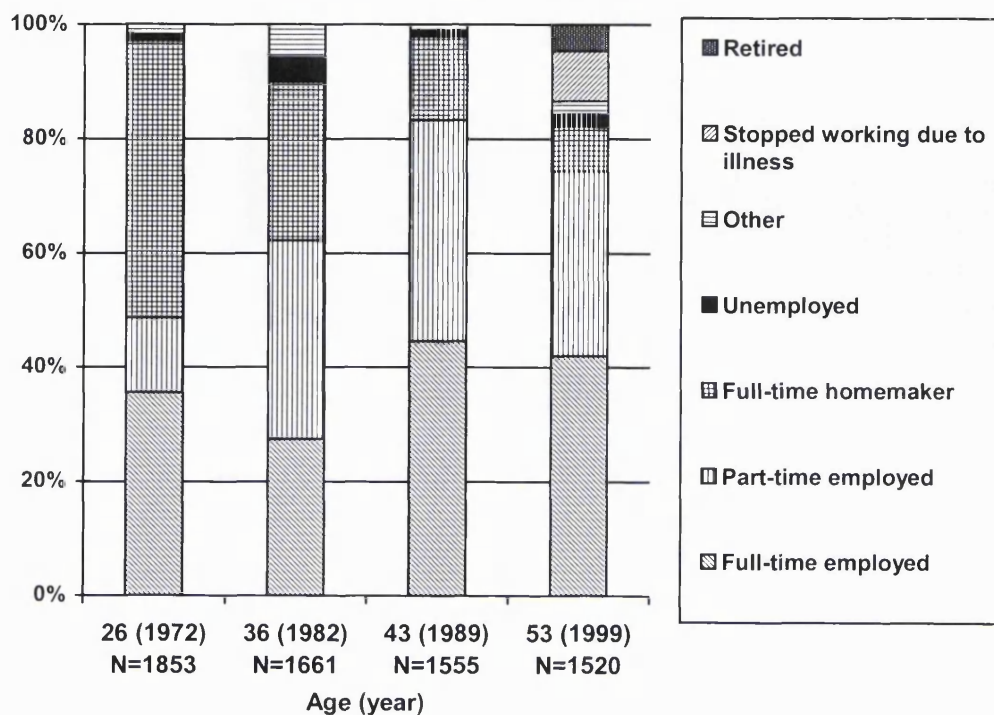


Figure 4.4 Work roles by three age groups among women aged 25-54 in the 1998 HSE

Legend:
- Retired, full-time student or other
- Unable to work due to illness
- Unemployed
- Full-time homemaker
- Part-time employed
- Full-time employed

X-axis: Age (birth cohorts)
25-34 (born 1964-73) N=1628
35-44 (born 1954-63) N=1570
45-54 (born 1944-53) N=1480
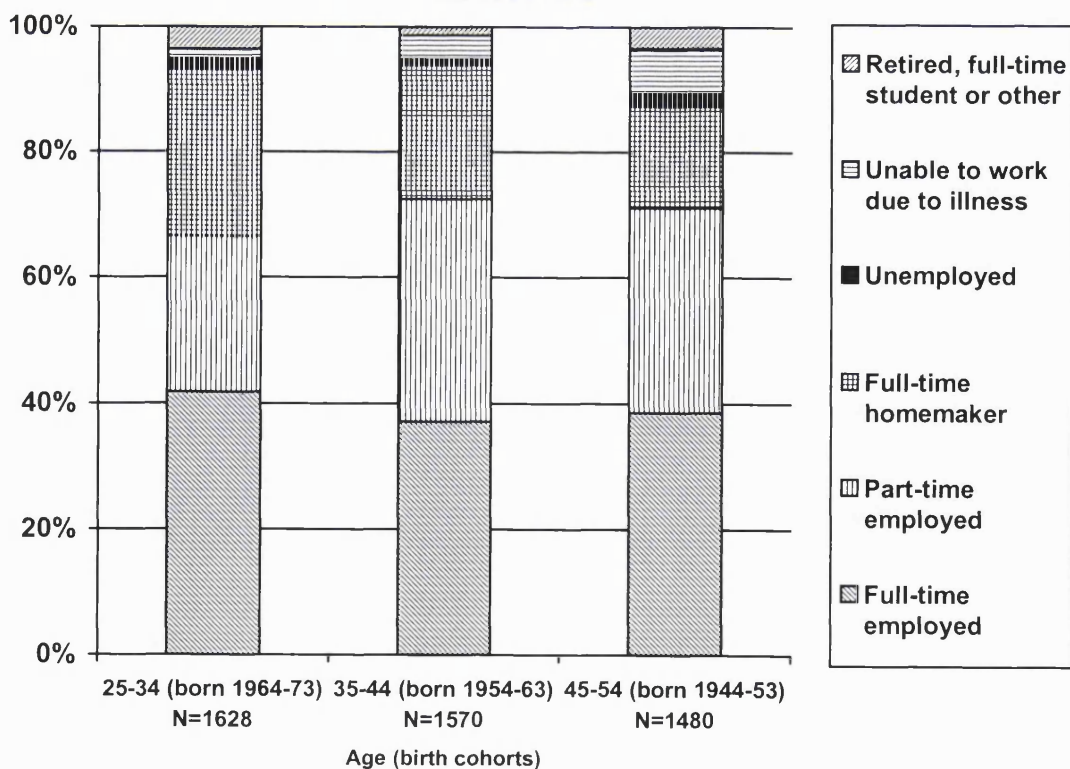
# Chapter 5  A snapshot of social roles and health in 1998

## 5.1    Introduction

This chapter presents the relationship between social roles and health among women aged 25-54 in the 1998 Health Survey for England (HSE). Analysis of the HSE is a useful supplement to the longitudinal analysis that makes up the main part of the thesis. It provides a picture of relationships between social roles and health for various cohorts at various ages at the end of the twentieth century, adding breadth to the deeper, more specific examination of the nature of these relationships for the 1946 birth cohort. The health and social role measures and the methods used to analyse these measures among women in this data set are first discussed.[12] Relationships between social roles, self-reported health and obesity are investigated for three age groups (25-34, 35-44, 45-54) in order to examine women ranging from the most traditional to the most diverse cohorts in terms of their social roles separately. We will see that results for subjective health are consistent with previous work showing that employed women are less likely to report poor health than those who are not employed. Cross-sectional relationships between social roles and obesity are more complex.

## 5.2    Measures and methods

### 5.2.1    Self-reported health measure

For analysis in the HSE (chapters 5 and 6) current self-reported general health is one of the health outcomes used. The HSE used the version of this question that is used widely in the UK in which the response categories are very good, good, fair, bad, very bad. This question was asked in a face-to-face computer assisted personal interview in the respondents' homes. Five per cent of women aged 25 to 54 reported having 'bad' or 'very bad' health, 15% reported having 'fair' health, while 36% reported having 'very good' health. Self-reported health was dichotomised so that women who reported fair, bad or very bad health (nearly a fifth of the cross-sectional sample of women) were considered to have poor reported health. As expected, the proportion of women reporting fair, bad or very bad health increased significantly with age from 14% among women aged 25-34 to 24% among women aged 45-54.

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[12] Rather than include a chapter wholly dedicated to measures and methods as is conventional, variables and methods are described as they are used in this thesis. This is mainly due to the complex nature of some of the derived variables, and also due to the large number of variables included. It seems less taxing on the reader if the descriptions of the variables are relatively recent in their minds while examining results related to them.

### 5.2.2 Obesity measure

As described in chapter 3, obesity has been chosen as an objective health outcome measure. For the cross-sectional analysis here and in the next chapter, current obesity is used. Height was measured in respondents' homes using a portable stadiometer with their shoes removed. One measurement was taken, with the respondent stretching to their maximum height and their head positioned in the Frankfort plane. The readings were recorded to the nearest millimeter, and respondents who were ill, chairbound, or unsteady on their feet were not measured. Weight was measured using a Soehnle electronic scale with a digital display. Respondents were asked to remove their shoes and any heavy clothing. A single measurement was recorded to the nearest 100g. Respondents who were pregnant, chairbound, or unsteady on their feet were not weighed.

Body mass index (BMI) is a measure of weight that allows for differences in weight due to height. It is defined as $kg/m^2$. Although widely used, BMI does not differentiate between heaviness due to fat and heaviness due to muscular physique. Also it does not indicate the distribution of body fat. Women with a BMI of 30 or more were considered obese in accordance with the World Health Organisation international standards of obesity in adults (WHO 1988). Among women in this sample, 44% of women had a BMI in the range that is considered to be desirable by the WHO. Nearly a third (31%) were overweight and a fifth (20%) were obese. Very few (5%) women had a BMI considered to be underweight. As expected, the prevalence of obesity increased with age from 16% among women aged 25-34 to 24% among women aged 45-54.

### 5.2.3 Social role measure for HSE analysis

The previous chapter (chapter 4) presented work and family roles separately for women in both the 1998 HSE and the 1946 birth cohort by age. For analysis of social roles in relation to health, work and family roles have been combined. Women's work and family roles influence one another as shown by work reviewed in chapter 1; for example, childless women are very unlikely to be full-time homemakers. Therefore, a social role variable was created that reflects women's work and family roles in combination. The social role variable to be used in cross-sectional analysis in the HSE consists of:

- four family role categories among employed women –
  - employed, living with a partner and children;
  - employed, living with a partner and no children;

- employed lone mothers;
- employed, living without a partner or children;
- two family role combinations among women who were full-time homemakers --
  - full-time homemaker, living with a partner and children, and
  - other full-time homemaker (85-90% of whom were lone mothers among women under age 45);
- unemployed; and
- other (including retired women and full-time students).

Because a greater variety of family roles were represented among women who were in paid employment, four family role categories exist for employed women. Women who were at home full-time were more likely to be married with children and so only two family role categories were identified for full-time homemakers. It is important to remember that the HSE collects information about who is currently living in the household, and no further family history. Therefore, for the purposes of the HSE data, having children means currently living with children. There will be a significant proportion of women, particularly in the oldest age group, whose children have moved out of the parental home. These women will appear in the categories of women who were not living with children, but this obviously does not mean that they were not mothers. (This is not the case for the longitudinal data presented in chapters 7-10.)

The health and social role measures described here are those used for all analyses in both this and the next chapter.

### 5.2.4  *Methods used in analysis of social roles and health in the HSE*

This chapter presents the simple relationships between social roles and health for women in three age groups in the 1998 HSE using unadjusted cross-tabulations. For each relationship proportions, overall $\chi^2$ and p values are presented based on the sample of women with valid measures for both variables in the cross-tabulation measures. Women who reported themselves as not working due to illness (4% of the total sample) were excluded. All proportions are presented as round numbers, $\chi^2$ are presented to two decimal places, and p values are shown to three decimal places. All analysis for this chapter was conducted using SPSS for windows version 9.

## 5.3 Results: social roles and self-reported health in the HSE

At every age women in paid employment were less likely to report fair or bad health than full-time homemaking women (table 5.1, p. 84). Full-time homemakers who were not living with a partner and children were particularly likely to report fair or bad health, especially between ages 35 and 44 when 85% of women in this group were lone mothers. Employed women who were living with a partner but not children were the least likely to report fair or bad health in the first two age groups, but on a par with other employed women in the oldest age group. (In the oldest age group, this group was more likely to represent mothers whose children had left home rather than childless women). Unemployed women were also much more likely to report poor health than employed women in each age group. Because the relationship between social roles and self-reported health were fairly similar in each of the three age groups, the three age groups are combined (but age-adjusted) in analysis for the next chapter (chapter 6).

## 5.4 Results: social roles and obesity in the HSE

Social role patterns for obesity were less consistent across age groups than those for self-reported poor health. In the youngest age group (aged 25-34), women without children, and particularly women without a partner or children, were less likely to be obese than women with children (table 5.2, p. 85). In the middle age group, full-time homemaking women with 'other' family roles – nearly all lone mothers at this age – were more likely to be obese than employed women living with a partner and children, as were employed women living without a partner or children (table 5.2, p. 85). Therefore, in the middle age group, it was women in the two most 'roleless' groups, lacking either the roles of partner and mother, or of partner and employee, who were most likely to be obese. Also, there was a dramatic shift with age among employed women living without a partner or children from being the least likely to be obese in the youngest age group (9%) to being one of the most likely in the middle age group (27%) (table 5.2, p. 85). Because relationships between social roles and obesity differ by age, particularly for employed women living without a partner or children, further analysis (in chapter 6) is conducted separately for women in the two younger age groups. There was no significant variation in obesity in the oldest age group and so no further investigation of the relationship between social roles and obesity is conducted for these women.

## 5.5 Discussion

Among women aged 25-54 in the 1998 HSE, relationships between social roles and self-reported poor health varied very little with age. Full-time homemakers – particularly homemakers not living with a partner and children -- and unemployed women, were most likely to report poor health in every age group. These results are very much in line with previous work examining relationships between social roles and self-reported health in cross-section. A relatively consistent finding in the literature is that women who work report better health than women who are not in paid employment (Arber 1997; Bartley, Popay & Plewis 1992, Bartley et al. 1999, Fokkema 2002, Macran et al. 1994, McDonough et al. 2002, Nathanson 1975), results consistent with the multiple role hypothesis.

Unlike the relationship between social roles and self-reported poor health, relationships between social roles and obesity varied a lot by age among women in this sample. In the youngest age group, childless women were significantly less likely to be obese than their counterparts with children. As parity is known to be associated with an increased risk for obesity (Braddon et al. 1986; Harris, Ellison & Holliday 1997; Rossner 1997), this relationship may be attributable to different biological risk between parous and nulliparous women. Alternatively, or in addition, the greater risk of obesity among employed mothers living with a partner compared with childless women may suggest a role overload effect among women who are attempting to juggle motherhood, career and marriage at this age (25-34) when children are likely to be young.

In the middle age group, women living alone, and full-time homemaking lone mothers were the most likely groups to be obese. Single women and lone mothers were also the two groups of women that Macran and her colleagues (1994) found to have poor subjective health. The relatively high risk of obesity among single women constituted a major shift in their obesity patterns with age. In the youngest age group, women in this social role combination were among the least likely to be obese, while in the middle age group they were among the most likely. Studies have shown that overweight women are less likely to marry than other women (Gortmaker et al. 1993). Perhaps the women who remain single by their mid-thirties were more likely to be obese due to obesity-related selection out of the marriage market.

There were no significant relationships between social roles and obesity in the oldest age group. It is unclear why this was the case. One reason may be that, in middle age, it is

long-term social role patterns over time, rather than women's current social roles, that are associated with a physical health outcome that takes time to develop such as obesity. Alternatively, or additionally, it may be that the social role variable for this data set is not appropriate for older women. This is because, among women who were not living with children, it was not possible to distinguish between women who were not mothers, and women whose children had moved away from home. In this respect certain categories of the social role variable were almost certainly combining mothers and childless women in this age group.

Homemaking lone mothers stood out as a potentially important group of women, being at risk for both reporting poor health and obesity. Another consistent finding in research into relationships between social roles and health is the relatively poor self-reported and mental health of lone mothers (Arber 1997, Hope *et al.* 1999, Lahelma *et al.* 2002, Macran *et al.*1994). Results here are the first to show that, among lone mothers who are not employed, results for increased risk of obesity are consistent with those found for subjective and mental health.

The next chapter investigates whether the relationships seen between social roles and health in this chapter are explained by education, social class or household income. It also considers the influence of mental health on these relationships.

## Chapter 5 Tables

**Table 5.1**    Self-reported fair, bad or very bad health by social roles in three ten-year age groups among women aged 25-54 in the 1998 HSE.

| HSE '98 | Aged 25-34 | | Aged 35-44 | | Aged 45-54 | |
|---|---|---|---|---|---|---|
| *Social roles* | N | % reporting bad health | N | % reporting bad health | N | % reporting bad health |
| **Employed** | **1084** | **11** | **1138** | **15** | **1051** | **18** |
| Employed, living with partner and children | 452 | 11 | 746 | 15 | 463 | 17 |
| Employed, living with partner, no children | 327 | 9 | 147 | 11 | 374 | 18 |
| Employed lone mothers | 89 | 15 | 142 | 17 | 98 | 18 |
| Employed, without partner or children | 216 | 13 | 103 | 17 | 116 | 17 |
| **Full-time Homemakers** | **434** | **18** | **337** | **25** | **240** | **25** |
| Full-time homemaker, living with partner and children | 297 | 16 | 236 | 20 | 126 | 21 |
| Full-time homemaker, other family role* | 137 | 23 | 101 | 36 | 114 | 28 |
| **Unemployed** | **27** | **30** | **14** | **36** | **31** | **39** |
| **Other (inc. full-time students & retired)** | **58** | **16** | **22** | **14** | **51** | **28** |
| Total | 1603 | 13 | 1511 | 17 | 1373 | 20 |
| $\chi^2$ | 27.22 | p < 0.001 | 37.19 | p < 0.001 | 17.46 | p = 0.015 |

*In the first two age groups, 85-90% of women in this social role category are lone mothers. In the oldest age group it appears to include more mothers living with a partner whose children have left home.

**Table 5.2** Obesity by social roles in three ten-year age groups among women aged 25-54 in the 1998 HSE.

| HSE '98 | Aged 25-34 | | Aged 35-44 | | Aged 45-54 | |
|---|---|---|---|---|---|---|
| *Social roles* | N | % obese | N | % obese | N | % obese |
| **Employed** | 963 | 15 | 1057 | 19 | 991 | 23 |
| Employed, living with partner and children | 408 | 19 | 695 | 18 | 434 | 23 |
| Employed, living with partner, no children | 277 | 12 | 138 | 18 | 351 | 23 |
| Employed lone mothers | 85 | 14 | 126 | 21 | 94 | 23 |
| Employed, without partner or children | 193 | 9 | 98 | 27 | 112 | 25 |
| **Full-time Homemakers** | 375 | 20 | 307 | 24 | 214 | 20 |
| Full-time homemaker, living with partner and children | 260 | 19 | 216 | 21 | 107 | 22 |
| Full-time homemaker, other family role[*] | 115 | 22 | 91 | 29 | 107 | 18 |
| **Unemployed** | 24 | 17 | 14 | 29 | 28 | 25 |
| **Other (inc. full-time students & retired)** | 51 | 18 | 19 | 21 | 51 | 31 |
| **Total** | 1413 | 16 | 1397 | 20 | 1284 | 23 |
| $\chi^2$ | 17.75 | p = 0.013 | 10.39 | p = 0.168 | 4.03 | p = 0.777 |

*In the first two age groups, 85-90% of women in this social role category were lone mothers. In the oldest age group it appears to include more mothers living with a partner whose children have left home.

# Chapter 6 Cross-sectional relationships between social roles and health: an examination of confounding or mediating factors

## 6.1 Introduction

This chapter investigates whether the poor subjective health of full-time homemakers and unemployed women, or the increased obesity of single women and homemaking lone mothers in early middle age are confounded by education or socio-economic circumstances or mediated by mental health.

The term confounder refers to factors that are associated with both the explanatory risk factor and the outcome of interest and, therefore, may explain the relationship between the two. Chapter 1 reviewed previous work showing that education predicts social roles, and that adult socio-economic circumstances are also strongly associated with work roles in particular. In addition, household socio-economic circumstances, and the type of job that women are able to obtain are both likely to influence women's work role decisions, to varying degrees for different cohorts of women (Joshi 1996). As a result education, household socio-economic indicators as well as the social class of women's own occupation have been chosen as potential confounders of relationships between social roles and subjective health or obesity.

A mediating factor is distinct from a confounding factor in that it chronologically follows the exposure and is conceptualised as lying, at least partly, on the causal pathway between the explanatory factor and the outcome of interest (Kuh *et al.* 2003). Mental health has been chosen as a potential mediating factor in relationships between social roles and both subjective health and obesity. In chapter 2 (figure 2.2, p. 54) poor quality roles were hypothesised as influencing physical health through mental health. Chapter 3 discussed mental health as potentially on the pathway between long-term occupation of poor quality roles and obesity, with poor mental health leading to poor eating habits as a coping mechanism, one causal pathway raised by Wilkinson (1996) in relation to social inequalities. Similarly, mental health may be thought of as being on the pathway between poor quality roles and poor subjective physical health. Alternatively, previous work examining subjective health presented in chapter 3 (Blaxter 1990) showed that mental health is one of the many aspects of health that people think about when they are asked

about health. This suggests that mental health may also be thought of as a component of the concept of health being measured by the self-reported measure. This chapter examines whether cross-sectional relationships between social roles and subjective health or obesity are accounted for by indicators of mental health. If they are, this suggests that mental health, either as a mediator or a component of self-reported health, is important for understanding the relationship between social roles and health. This chapter shows that the influence of the potential confounders and mediators examined is different for women in different social roles.

## 6.2 Measures and methods

### 6.2.1 Socio-economic and education measures

#### Education

Educational qualifications are combined into the following categories: degree or some higher education, 'A' level or equivalent, 'O' level or equivalent, those with no qualifications, and those with foreign qualifications or other kinds of qualifications that do not fit into existing categories.

#### Socio-economic circumstances

Social class of the head of household and household income are used to measure socio-economic circumstances at the household level. Social class, based on the current or latest occupation of the head of household, is categorised into four groups: classes I and II combined, III Non-Manual, III Manual, and classes IV and V combined. Household income (equivalised to take the number of occupants into account[13]) is grouped into fifths (using quintiles created for the entire data set of men and women combined).

Household level measures provide the best indication of access to socio-economic resources in a world in which ties to the labour market are stronger for men than for women. However, an individual measure of own occupational class provides a picture of women's own working conditions and financial incentives for being employed (Bartley, Popay & Plewis 1992, Macran *et al.* 1994). Chapter 1 reviewed work showing that

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[13] The 1998 HSE used the McClements scoring system to adjust household income in order to take account of the number of persons in the household. The system assigns a score to each household member and adds these together to derive a household McClements score. The annual household income is then divided by the household McClements score. Further details of these scores appear in Erens & Primatesta 1999b, p. 464-465.

women's own human capital is replacing household circumstances as the driving force behind labour force participation in later cohorts. Therefore, the class of women's own current or last occupation is included for analysis among women who were active in the labour market at the time of the survey. This is a measure of the social class of women's current or latest occupation, and the categories used are the same as those used for head of household's social class. Women who were not active in the labour market at the time of the survey are excluded from analysis with own social class. Unemployed women are included because only 3% of them did not have a valid measure of own social class (compared with 11% of full-time homemakers and 8% of women in the 'other' social role group).

### 6.2.2 Mental health measure

The GHQ12 (Goldberg & Williams 1988) was included in the 1998 HSE. The GHQ12 was designed to detect possible psychiatric morbidity in the general population. The questionnaire, based on 12 questions about general levels of happiness, depression, anxiety and sleep disturbance over the past four weeks, was included in a self-completion booklet. A score of 4+ is used to represent those with poor mental health.

### 6.2.3 Methods used to investigate confounding and mediating factors in cross-sectional relationships between social roles and health

Within each section, unadjusted relationships between potential confounding factors and social roles are first examined. As in chapter 5, overall $\chi^2$ and p values are presented for each of these relationships. These are followed by two-step logistic regression models with the binary outcome of poor self reported health or obesity which are used to examine the influence of each factor on relationships between social roles and self-reported health or obesity. For self-reported health, the three age groups were combined for this analysis, resulting in a sample of 4,487. Relationships between social roles and obesity were very different for different age groups, so the models for obesity were conducted separately in the two younger age groups. This resulted in a valid sample of 1,413 for the youngest age group (25-34) and 1,397 for the older age group (35-44). As mentioned above, women who were not active in the labour market at the time of the survey were excluded from analysis of the social class of women's own occupation. For self-reported health this resulted in a sample of 3,345 women for analysis of own social class. For obesity the samples sizes for analysis with own social class were 987 for women aged 25-34, and 1,071 for women aged 35-44.

The first model of each table presenting the results of the regression models (tables 6.3–6.9) shows odds ratios, 95% confidence intervals and overall p values for each of the explanatory variables, unadjusted for age in the case of obesity (which is analysed separately within two age groups) and age-adjusted for self-reported health. The subsequent models adjusted for the effect on relationships between social roles and health of each on the confounding (or mediating in the case of mental health) terms. Missing values on potential confounding variables were included in each model as a separate category. For tables with household income, the p values presented do not include women with missing values as they made up a substantial proportion of the sample for this particular variable.

## 6.3    Results: self-reported health

### 6.3.1    Does education explain the reported poor health of homemakers and unemployed women?

There was significant variation in social roles depending on educational qualifications (table 6.1, p. 102). Employed women generally had higher levels of education (29% had a degree or some higher education) than full-time homemakers (15% of whom had a degree or some higher education). Only 18% of employed women had no qualifications compared a third (33%) of full-time homemakers. Women living without a partner or children had the highest levels of education (42% had a degree or some higher education, and only 13% had no qualifications). Other full-time homemakers (largely homemaking lone mothers) were the most likely to have no educational qualification (43%). These relationships were consistent across age groups (not shown).

In line with results from chapter 5, in the age-adjusted model, full-time homemakers and unemployed women were more likely to report fair, bad or very bad health than employed women living with a partner and children (table 6.3, model 1, p. 104). Also, in the age-adjusted model, women with no qualifications or foreign qualifications were significantly more likely to report poor health than women with a degree or some higher education. The addition of education to the model with social roles reduced the increased risk of reporting poor health among full-time homemakers and unemployed women slightly, but the increased odds of reporting poor health remained significant (especially for unemployed women) (table 6.3, model 2, p. 104). In contrast, relationships between education and self-reported health were only slightly attenuated by the inclusion of social roles. Women

without qualifications and those with foreign qualifications remained more likely than women with degrees or some higher education to report poor health.

### 6.3.2 Do socio-economic circumstances explain the reported poor health of homemakers and unemployed women?

#### Social class of head of household

Lone mothers lived in less privileged households according to relationships with social class of head of household (table 6.1, p. 102). Among employed women, lone mothers were the least likely to be in social class I or II households (26%), and the most likely to be in a social class IV or V household (29%). Equivalent figures of other employed women were 42-48% in social class I/II households and 13-15% in social class IV/V households. Only just over a third of other homemakers (predominantly lone mothers) lived in non-manual households and over a third in social class in IV or V households. Unemployed women were in the most disadvantaged households overall with over a third (35%) in a IV/V class household and only 18% in a professional or managerial household.

Childless women lived in more privileged households overall, but women living without a partner or children did particularly well (table 6.1, p. 102). Almost three-quarters (73%) of women in this group were in non-manual households compared with a little over half (56%) of employed women overall and less than half (45%) of full-time homemakers. The distribution of head of household social class was identical for women living with a partner and children regardless of whether or not they were employed. In this respect, social class of head of household was more strongly associated with family roles – whether a woman was a wife/partner and mother – than a predictor of labour force participation in this sample of women. These patterns were very similar across different age groups within this sample (not shown).

Analysis of age-adjusted relationships showed a strong, significant inverse gradient in the likelihood of reporting fair, bad or very bad health by social class of head of household among women in this sample (table 6.3, model 1, p. 104). Including household social class and social roles simultaneously showed that the increased risk of reporting poor health among full-time homemakers and unemployed women was effectively unchanged by the inclusion of social class of head of household (table 6.3, model 3, p. 104). A significant gradient in reporting poor health by social class of head of household remained, although

the increased risk among women in class IV/V households was reduced slightly (table 6.3, model 3, p. 104).

## Household income

The relationship of social roles to household income was similar to that with social class of head of household, but more extreme (table 6.1, p. 102). Less than a quarter of employed lone mothers were in the top two fifths of income and over half were in the bottom two fifths, compared with 51-81% and 4-19%, respectively, for other employed women. Less than a fifth of other homemakers (again, largely homemaking lone mothers) were in the top two and almost three-quarters were in the bottom two quintiles of income. Childless women were most likely to live in high income households. Childless women living with partners did particularly well, with 81% living in a household in the top two, and only 4% living in a household in the bottom two, quintiles of income.

The one difference in the patterns between social class of head of household and household income was among women living with a partner and children (table 6.1, p. 102). The distributions of social class of head of household for women living with a partner and children were identical regardless of whether women were in paid employment. However, women living with a partner and children who were employed were more likely to live in high-income households than partnered mothers who were full-time homemakers. This suggests that the earnings of women who were employed made an important contribution to the total income of the household.

The age-adjusted gradient in the likelihood of reporting fair, bad or very bad health by household equivalised income was at least as great as that for social class of head of household (table 6.3, model 1, p. 104). In the fully-adjusted model, household income had much more influence on the relationship between social roles and reported poor health than either social class of head of household or educational qualifications (table 6.3, model 4, p. 104). We have seen (table 6.1) that while there were no differences in the distribution of social class of head of household between employed and full-time homemaking married mothers, employed married mothers lived in higher income households than homemaking married mothers. Taken together, these results suggest that the increased risk of poor health among homemaking married mothers is largely attributable to poor material circumstances in comparison with their employed married mothers.

The increased likelihood of reporting poor health among other homemakers and unemployed women was also considerably reduced by household income, but remained high (Table 6.3, model 4, p. 104). This suggests that, while some part of the increased risk of homemaking lone mothers and unemployed women may be material in nature, other factors are likely to be involved. The gradient in self-reported health by household income remained after the inclusion of social roles, although it was slightly reduced because of a reduction of the odds ratios for the bottom two fifths (where 74% of other homemakers and 68% of unemployed women were) compared with the top fifth (table 6.3, model 4, p. 104).

**Social class of own occupation**

Looking at the social class of women's own occupations among women who were active in the labour market at the time of the survey, childless women were much more likely than other employed women to be in a social class I or II occupation (table 6.2, p. 103). There was very little difference in the occupational class distribution of mothers, regardless of whether they were living with a partner or not. Also, the occupational class distribution for mothers was very similar to that of unemployed women. It is, therefore, not surprising that the higher risk of reporting poor health among unemployed women was not explained by their own social class (table 6.4, model 2, p. 105). Also, women in social class IV/V occupations remained more likely to report poor health regardless of their social roles.

### 6.3.3 Does mental health mediate the reported poor health of homemakers and unemployed women?

Mental health was significantly associated with self-reported health ($\chi^2$ = 325.56, p<0.001, not shown). Forty-one per cent of women with a high score on the GHQ12 reported fair, bad or very bad health, compared with only 14% of women with a score less than 4 on the GHQ12. When mental health was combined with social roles (and age) in a multiple regression model, it reduced the increased risk of reporting poor health among unemployed women more than any of the socio-economic factors, but the odds of reporting poor health for both full-time homemakers and unemployed women remained strong and significant (table 6.5, model 2, p. 105).

### 6.3.4 The joint effects of education, household socio-economic circumstances and mental health on self-reported health

Combining each of the confounding factors (education, social class of head of household, household income) and the mediating factor of mental health into the model reduced the odds of reporting poor health among homemaker and unemployed women somewhat more than the individual factors on their own (figures 6.1-6.3, p. 109; appendix 1, p. 214). The odds ratio for full-time homemakers living with a partner and children declined from 1.44 (1.13-1.83) in the age-adjusted model to 1.14 (0.88-1.48) in the fully-adjusted model. For full-time homemakers not living with a partner and children the odds of reporting poor health were reduced from 2.40 (1.83-3.15) to 1.45 (1.06-1.99). The equivalent figures for unemployed women were 3.11 (1.87-5.16) to 1.72 (1.00-2.99). Much of the reduction in the odds ratios for unemployed women occurred when mental health was added to the model while for full-time homemakers the reduction in odds ratios was greater for the confounding factors of education and household income than for mental health.

### 6.3.5 A summary of cross-sectional results for self-reported health

Section 6.3 examined whether education or socio-economic circumstances acted as confounders in the increased reported poor health of full-time homemakers or unemployed women. This chapter showed that full-time homemakers and unemployed women fared relatively poorly in terms of education and socio-economic circumstances. Results from this chapter suggest that both education and household material circumstances explain the increased risk of reporting poor health for full-time homemakers living with a partner and children in particular. The increased likelihood of reporting poor health for women in this social role combination was reduced to non-significance when either education or household income were added to the models (table 6.3, p. 104). The increased risk of reporting poor health among homemakers living with a partner and children was explained entirely when these factors were included together with social class of head of household and mental health (figure 6.1, p. 109). While the distribution of the social class of head of household was effectively identical for partnered mothers regardless of whether they were employed, full-time homemaking partnered mothers were much more likely than their employed counterparts to be in the lowest quintile of household income. It appears that the additional income of employed partnered mothers acts to boost their overall household income in comparison with full-time homemaking partnered mothers. There is evidence of a gender imbalance in access to and control over household financial resources (Brannen & Wilson 1987) but this cannot be explored with the data available in the HSE.

The increased risk of reporting poor health among full-time homemakers not living with a partner and children (mainly lone mothers, but also partnered women whose children have grown and left home) and unemployed women was only partly explained by education or socio-economic circumstances (figures 6.2 & 6.3, p. 109). This was despite the fact that women in each of these groups had low levels of both. There could be two alternative explanations. One is that of health selection, in that women whose health is poor are more likely to become homemaking lone mothers and unemployed women. Another is that there is an effect of role quality – an aspect of roles separate to their associations with education and socio-economic circumstances -- on reporting poor health among women in these two groups. Mental health mediated the increased reported poor health of unemployed women somewhat.

## 6.4    Results: obesity

Employed women without a partner or children were the group most likely to have a degree or some higher education and to be in a professional or managerial occupation, and they were among the most likely to live in a high-income household (tables 6.1 and 6.2, pp. 102-103). Full-time homemaking women not living with a partner and children (most of whom were lone mothers in this age group), on the other hand, were the most likely group to have no educational qualifications (Tables 6.1, p. 102). Also, nearly two-thirds of women in this group lived in a household with the lowest quintile of income (Tables 6.1, p. 102). There are likely to be differences in the influence of education and socio-economic circumstances on the increased risk of obesity for women in these two very different groups.

### 6.4.1   Does education explain relationships between social roles and obesity?

The unadjusted model with social roles and obesity among women aged 25-34 confirmed the relationships for this age group seen in chapter 5: women without children (either living with or without a partner) were less likely to be obese than employed women living with a partner and children. In the unadjusted model for education, there was a significant inverse gradient such that risk for being obese increased with decreasing educational qualifications (table 6.6, model 1, p. 106). In the adjusted model, educational qualifications explained only a little of the reduced odds of being obese among childless women living without a partner (table 6.6, model 2, p. 106). However, the low odds of obesity among childless women living with a partner were attenuated somewhat, from 0.55 (0.36-0.86) to

0.63 (0.40-1.00), with the inclusion of education. The inclusion of social roles reduced the overall education gradient in increased risk for obesity.

Looking at women aged 35-44, the unadjusted model confirmed the relationships seen in chapter 5. Employed women not living with a partner or children and full-time homemakers not living with a partner and children (85% lone mothers at this age) were significantly more likely to be obese than employed women living with a partner and children (table 6.7, model 1, p. 107). The unadjusted educational gradient in obesity was shallower in this age group than in the younger age group (excluding women with foreign qualifications), and only the increased risk for obesity among women without any educational qualifications reached statistical significance. In the adjusted model, the inclusion of educational qualifications hardly influenced the relationship between social roles and obesity (its inclusion increased the risk among employed women not living with a partner or children slightly) (table 6.7, model 2, p. 107)

### 6.4.2 Do socio-economic circumstances explain relationships between social roles and obesity?

**Social class of head of household**

In the younger age group (25-34), social class of head of household was not significantly related to obesity in the unadjusted model, although women in class III manual households were significantly more likely to be obese than women in social class I/II households (table 6.6, model 1, p. 106). In the adjusted model, the inclusion of social class of head of household did not influence relationships between social roles and obesity in this age group at all (table 6.6, model 3, p. 106). Childless women remained significantly less likely to be obese than employed women living with a partner and children both before and after the inclusion of social class of head of household.

In the older age group (35-44), women in all other class households were significantly more likely to be obese than women in professional or managerial households in the unadjusted model (table 6.7, model 1, 107). Inclusion of social class of head of household in the adjusted model reduced the increased risk of obesity among full-time homemaking lone mothers (almost two-thirds of whom were in a IV/V household) from 1.86 (1.13-3.05) to 1.57 (0.93-2.68) (table 6.7, model 3, p. 107). The inclusion of household social class did not influence the increased risk of obesity among employed women living without a partner or children, 44% of whom were in a professional or managerial household.

*Household income*

In the younger age group (25-34), unlike social class of head of household, there was an inverse association between the likelihood of being obese and household income (table 6.6, model 1, p. 106). In the adjusted model, the inclusion of household income explained part of the decreased likelihood of obesity among childless women living with a partner, but not the decreased likelihood of obesity among childless women not living with a partner (table 6.6, model 4, p. 106)

For the older age group (35-44), there was also a gradient in the likelihood of being obese by household income in the unadjusted model (table 6.7, model 1, p. 107). As with head of household social class in this age group, household income explained much of the increased likelihood of obesity for full-time homemakers with other family roles, but not that of employed women living without a partner or children in the adjusted model (table 6.7, model 4, p. 107).

*Social class of own occupation*

In the unadjusted model for the youngest age group (25-34), women in manual occupations were more likely to be obese than women in professional or managerial occupations, although the overall test for trend between own social class and obesity did not reach conventional levels of statistical significance (table 6.8, model 1, p. 108). As with head of household's social class in this age group, inclusion of women's own social class in the adjusted model did not influence the relationship between social roles and obesity at all (table 6.8, model 2, p. 108). Both groups of childless women were significantly less likely to be obese both before and after the inclusion of own social class.

In the older age group (35-44), there was no significant relationship between the social class of women's own occupations and obesity in the unadjusted model and inclusion of own social class in the adjusted model did not influence relationships between social roles and obesity (table 6.9, models 1 and 2, p. 108). The risk of obesity among employed women living without a partner or children increased slightly with the inclusion of own social class.

### 6.4.3 Does mental health mediate relationships between social roles and obesity?

Mental health was not significantly associated with obesity among women in this data set ($\chi^2$ = 3.31, p = 0.069) and did not influence relationships between social roles and obesity at all.

### 6.4.4 The joint effects of education and household socio-economic circumstances on obesity

Adjusting simultaneously for education, social class of head of household, and household income did not influence relationships between social roles and obesity much more than the models adjusting for each confounder at a time (figures 6.4-6.7, p. 110-111, appendix 1, p. 216-217). Among women aged 25-34, the inclusion of all three variables weakened the odds of being obese among childless women with partners from an unadjusted 0.55 (0.36-0.86) to a fully-adjusted 0.77 (0.48-1.25) and among childless women without partners from 0.44 (0.25-0.87) to 0.55 (0.31-0.97). Among women aged 35-44, the odds of being obese for full-time homemaking lone mothers were reduced from an unadjusted 1.86 (1.13-3.05) to a fully-adjusted 1.45 (0.80-2.62). For single women the odds of being obese increased from 1.68 (1.03-2.74) to 1.75 (1.04-2.93). Mental health was not included in the fully-adjusted models for obesity because its lack of association with obesity in this data set.

### 6.4.5 A summary of cross-sectional results for obesity

The previous chapter (chapter 5) showed that, unlike for self-reported poor health, relationships between social roles and obesity varied considerably by age among women in this sample. In the youngest age group, childless women were significantly less likely to be obese than their counterparts with children. In the middle age group, employed women not living with a partner or children and full-time homemakers not living with a partner and children were significantly more likely to be obese than employed women living with a partner and children, constituting a major shift with age in the obesity patterns of single women. In the oldest age group, there were no significant relationships between social roles and obesity. This chapter tested whether the relationships between social roles and obesity in the two younger age groups were explained by education or socio-economic circumstances, or mediated by mental health.

In the youngest age group (25-34), the reduced risk of obesity among childless women living with a partner relative to employed mothers living with a partner was explained, to

some extent by educational qualifications, and to a larger extent by household income. The decreased risk of obesity among childless women living with a partner weakened substantially when both education and household income were included together in the fully-adjusted model (figure 6.4, p. 110). We have seen that women in this particular social role combination had the highest levels of household income by far, with 54% in the top quintile of household income. Women in this group also had relatively high educational attainment, with over a third having a degree or some higher education. However, they were less likely to hold a degree than childless women who were not living with a partner, and neither education nor socio-economic circumstances influenced the decreased likelihood of being obese among women in this group, either on their own or in the fully-adjusted model (figure 6.5, p. 110). This suggests the relatively low likelihood of being obese among childless women in their late twenties and early thirties may be as much to do with parity as it is to do with education or material circumstances. Social class of head of household was not associated with obesity in this age group. Women's own social class might be expected to influence the risk of obesity among childless women, as childless women were significantly more likely than mothers to be in a professional or managerial occupation. However, although it was related to obesity, own social class did not influence relationships between social roles and obesity in this age group.

Among women aged 35-44, the increased likelihood of being obese among homemaking lone mothers was somewhat explained by household socio-economic circumstances, whether it be social class of head of household or household income (figure 6.6, p. 111). It seems that in the case of full-time homemaking lone mothers in their late thirties or early forties in 1998, social roles were acting as a proxy measure of socio-economic circumstances in their relationship with obesity to some extent. The same was not true for the increased risk of obesity among single women in this age group. Rather, it appears that women in this group were more likely to be obese despite their educational and socio-economic advantages (figure 6.7, p. 111). As with the increased risk of poor subjective health for homemakers not living with a partner and children and unemployed women, this suggests two alternative explanations. One is a selection effect. Previous studies have shown obesity-related selection for women with regards to marriage (Gortmaker et al. 1993). It may be that the effect shown here is due to women who were obese in early adulthood being less likely to have a partner and children by the time they reached their late thirties and early forties. Alternatively, it may be a role effect – aspects of the role unrelated to socio-economic circumstances that influence risk for obesity through psychosocial pathways. In this case, potential role effects appear to be more related

specifically to an inability to fulfil family role expectations rather than a lack of opportunities for autonomy and agency in the broader sense (as discussed in chapter 2).

## 6.5 Discussion

This chapter has found that cross-sectional relationships between social roles and health in the 1998 HSE were explained by education or socio-economic circumstances for some groups, but not for others. For subjective health, the increased reported poor health of full-time homemaking married mothers was largely explained by education and household income while the relatively high risk of reporting poor health among full-time homemaking lone mothers and unemployed women was not. The finding for homemaking mothers who were living with a partner is not entirely consistent with previous work, most of which has shown that the poor health of full-time homemakers remains after adjusting for socio-economic circumstances. Bartley, Popay and Plewis (1992) found that employed women remained less likely than homemakers to report physical health symptoms after taking account of socio-economic group. Similarly, a more recent study by Bartley and colleagues (1999) showed that the increased poor subjective health of homemakers was independent of social position using either the Erikson-Goldthorpe schema or the Cambridge scale. However, neither of these studies examined education or household income specifically, which were the two factors shown to most explain the poor subjective health of partnered homemakers here which may partly explain to the differing results. Macran and colleagues (1994) examined the influence of household income and found that it did not explain the increased likelihood of reporting poor health among full-time homemakers compared with women employed full-time. Arber (1997) also found that homemakers were significantly more likely to report poor health than women who were employed full-time after material circumstances were included in the model. However, neither of these studies distinguished between single and partnered homemakers. Education and household income had very different effects on the health of full-time homemakers here depending on whether they were living with a partner.

Homemaking lone mothers stand out as a potentially important group of women, being at risk for both reporting poor health and being obese in their late thirties or early forties. The increased risk for obesity in early middle age was largely explained by household socio-economic circumstances, but the poor subjective health for women in this group was not. Macran and colleagues (1994) also found that household income did not explain the increased odds of reporting poor health among lone mothers. Looking specifically at psychological distress, Hope, Power and Rodgers (1999) found that financial hardship was

related to, but did not entirely explain, the elevated psychological distress of lone mothers. Neither of these studies distinguished between employed and full-time homemaking lone mothers. In an earlier year of the HSE (1993), Bartley and colleagues (1999) showed that the excess risk of reporting poor heath among never married lone mothers was explained by their tendency to be full-time homemakers. This relationship was not explained by the class of women's own occupation or by the prestige of their household according to the Cambridge scale. The poor subjective health of homemaking lone mothers is in line with Bartley and colleagues' results.

It has been mentioned that the increased risk of obesity among homemaking lone mothers in early middle age was largely explained by household socio-economic circumstances. Similarly, the significantly lower likelihood of being obese in early adulthood among childless partnered women was explained by high levels of educational attainment and household income. Conversely, obesity for employed women not living with a partner or children (either their significantly lower risk in early adulthood, or their significantly higher risk in middle age) was not influenced by education or socio-economic circumstances. No previous study has examined relationships between women's work roles and obesity. Research has focused on relationships between family roles and obesity for women, and the results of these studies suggest potential alternative explanations for the differing risks of obesity for single women at different ages seen here. First, some studies have shown a relationship between obesity and parity among women (Braddon *et al.* 1986; Harris, Ellison & Holliday 1997; Rossner 1997), which could explain the reduced risk of obesity among single women aged 25-34. The influence of parity on relationships between social roles and obesity are examined in the longitudinal data. Also, studies have shown that overweight women are less likely to marry than other women (Gortmaker *et al.* 1993) suggesting an obesity-related selection effect out of partnership in early middle age. The question of obesity-related selection will also be taken up in the longitudinal data.

As part of investigating the influence of education and socio-economic indicators on relationships between social roles and health, this chapter showed levels of education and socio-economic circumstances for women in each social role group. These showed remarkably similar patterns between a variety of socio-economic and educational measures, suggesting two very broad groups of women who clustered together in terms of their socio-economic profile. One of these was primarily made up of full-time homemakers and lone mothers who had low levels of educational attainment, manual head of household occupational class and low levels of household income. The second group was

employed women, some with children and some without, who had high levels of educational qualifications, were likely to have partners in high level occupations, and to be in high level occupations themselves, resulting in high levels of household income. The similarity of social role distributions of education and socio-economic circumstances appears to support the polarisation documented by previous authors (see pp. 24-26).

In developing a theory of role quality, chapter 2 concluded with a hypothesis that poor quality roles may influence physical health through mental health. This chapter has examined whether mental health mediates cross-sectional relationships between social roles and health in the 1998 HSE and found that mental health did mediate the poor subjective health of unemployed women to some extent, but less so for full-time homemakers. Previous studies have considered mental health and self-reported physical health as separate outcomes and so have not reported on the mediating effects of mental health on relationships between social roles and self-reported health. Mental health was not associated with obesity in this sample and did not influence relationships between social roles and obesity here.

This chapter has raised questions that can only be addressed using longitudinal data. For example, is the shift with age in the relationship between social roles and obesity related to body-size selection out of family roles? Similarly, is the poor subjective health of homemakers and unemployed women the result or the cause of these particular social roles? Age differences in relationships between social roles and obesity raise the important consideration that the same role combination has different meaning for women depending on where they are in their life course. It is likely that it is not a woman's current combination of roles, but the whole history of the family and work roles she occupies over her life that is important for her subsequent health. Rather than a snapshot of women's roles at a particular point in their lives, information about the patterns and histories of women's social roles is needed. Particularly for a health outcome that develops over a period of time, such as obesity, long-term exposure is likely to be more important than current social role occupation. Longitudinal data allow the examination of women's social role histories in relation to their subsequent reported poor health and obesity and this is the focus of the next chapter.

Table 6.1    Education and household socio-economic circumstances by social roles among women aged 25-54 in the 1998 HSE

| Educational qualification | N = 4497 | Employed % | Employed, living with partner & children % | Employed, living with partner, no children % | Employed, lone mother % | Employed, living with no partner, no children % | Full-time homemaker % | F-t homemaker, living with partner & children % | Other f-t homemaker % | Unempl oyed % | Other % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Degree or some higher ed | 1161 | 29 | 24 | 34 | 23 | 42 | 15 | 17 | 12 | 21 | 34 |
| A level or equivalent | 488 | 12 | 11 | 12 | 11 | 13 | 8 | 10 | 6 | 8 | 17 |
| O level or equivalent | 1691 | 38 | 43 | 30 | 40 | 29 | 39 | 42 | 34 | 38 | 27 |
| No qualification | 952 | 18 | 18 | 19 | 21 | 13 | 33 | 28 | 43 | 31 | 15 |
| Foreign/other | 199 | 4 | 4 | 5 | 5 | 3 | 4 | 3 | 6 | 3 | 7 |
| Missing (excluded) | 6 | - | - | - | - | - | - | - | - | - | - |
| Overall $\chi^2$, p value | | 308.71 | p <0.001 | | | | | | | | |
| **Social class of head of household** | | % | % | % | % | % | % | % | % | % | % |
| I/II | 1778 | 42 | 42 | 48 | 26 | 44 | 33 | 40 | 20 | 18 | 41 |
| IIINM | 627 | 14 | 9 | 10 | 33 | 29 | 12 | 9 | 18 | 14 | 16 |
| IIIM | 1204 | 27 | 33 | 28 | 13 | 11 | 28 | 33 | 17 | 31 | 24 |
| IV/V | 800 | 16 | 15 | 13 | 29 | 15 | 22 | 15 | 36 | 35 | 16 |
| Other | 85 | 1 | 1 | 1 | 0.3 | 1 | 5 | 2 | 9 | 3 | 4 |
| Missing (excluded) | 3 | - | - | - | - | - | - | - | - | - | - |
| Overall $\chi^2$, p value | | 623.57 | p < 0.001 | | | | | | | | |
| **Household income [equivalised]** | | % | % | % | % | % | % | % | % | % | % |
| Top fifth | 1046 | 30 | 21 | 54 | 9 | 33 | 17 | 21 | 10 | 3 | 18 |
| 2$^{nd}$ fifth | 982 | 28 | 30 | 27 | 14 | 35 | 12 | 15 | 8 | 13 | 25 |
| Middle fifth | 898 | 24 | 31 | 15 | 25 | 13 | 18 | 22 | 9 | 16 | 21 |
| 4$^{th}$ fifth | 453 | 10 | 11 | 2 | 24 | 12 | 14 | 16 | 9 | 26 | 14 |
| Bottom fifth | 626 | 8 | 6 | 2 | 28 | 7 | 39 | 25 | 65 | 42 | 22 |
| Missing (excluded) | 492 | - | - | - | - | - | - | - | - | - | - |
| Overall $\chi^2$, p value | | 1454.33 | p <0.001 | | | | | | | | |

**Table 6.2** Social class of own occupation by social roles among women who are aged 25-54 and active in the labour market in the 1998 HSE

| Own social class | N = 3355 | Employed % | Employed, living with partner & children % | Employed, living with partner, no children % | Employed, lone mother % | Employed, living with no partner, no children % | Unemployed % |
|---|---|---|---|---|---|---|---|
| I/II | 1094 | 33 | 27 | 41 | 25 | 46 | 21 |
| IIINM | 1205 | 36 | 37 | 36 | 34 | 34 | 30 |
| IIIM | 234 | 7 | 6 | 7 | 11 | 6 | 11 |
| IV/V | 801 | 24 | 29 | 16 | 30 | 15 | 37 |
| Other | 10 | 0.3 | 0.4 | 0.2 | 0.3 | 0 | 0 |
| Missing (excluded) | 11 | - | - | - | - | - | - |
| Overall $\chi^2$, p value | | 143.31 | p < 0.001 | | | | |

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**Table 6.3** **Self-reported health by social roles, educational qualifications, social class of head of household and household income among women aged 25-54 in the 1998 HSE.**

| | | Model 1: Age-adjusted | | Model 2: Age & education-adjusted | | Model 3: Age & social class-adjusted | | Model 4: Age & income-adjusted | |
|---|---|---|---|---|---|---|---|---|---|
| *Social roles* | N = 4487 | OR | 95% CI | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| Employed, living with partner and children | 1661 | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 848 | 0.90 | 0.71-1.14 | 0.90 | 0.70-1.14 | 0.93 | 0.73-1.18 | 1.04 | 0.81-1.33 |
| Employed lone mothers | 329 | 1.19 | 0.87-1.65 | 1.17 | 0.84-1.61 | 1.12 | 0.81-1.56 | 0.97 | 0.70-1.35 |
| Employed, without partner or children | 435 | 1.11 | 0.83-1.50 | 1.15 | 0.85-1.55 | 1.17 | 0.86-1.59 | 1.17 | 0.87-1.59 |
| Full-time homemaker, living with partner and children | 659 | 1.44 | 1.13-1.83 | 1.28 | 1.00-1.64 | 1.44 | 1.13-1.84 | 1.26 | 0.98-1.62 |
| Full-time homemaker, other family role | 352 | 2.40 | 1.83-3.15 | 1.96 | 1.49-2.59 | 2.15 | 1.63-2.85 | 1.69 | 1.26-2.28 |
| Unemployed | 72 | 3.11 | 1.87-5.16 | 2.91 | 1.74-4.87 | 2.72 | 1.63-4.54 | 2.35 | 1.40-3.95 |
| Other (inc. full-time students & retired) | 131 | 1.47 | 0.94-2.32 | 1.50 | 0.95-2.37 | 1.50 | 0.95-2.36 | 1.34 | 0.85-2.11 |
| p value | | <0.001 | | <0.001 | | <0.001 | | 0.002 | |
| ***Educational qualifications*** | | | | | | | | | |
| Degree | 1161 | 1.00 | | 1.00 | | N/a | | N/a | |
| 'A' level or equivalent | 488 | 1.32 | 0.97-1.79 | 1.31 | 0.96-1.77 | N/a | N/a | N/a | N/a |
| 'O' level or equivalent | 1685 | 1.18 | 0.94-1.48 | 1.14 | 0.90-1.43 | N/a | N/a | N/a | N/a |
| No qualification | 949 | 2.67 | 2.12-3.37 | 2.37 | 1.87-3.02 | N/a | N/a | N/a | N/a |
| Foreign/other | 199 | 1.94 | 1.32-2.85 | 1.83 | 1.24-2.70 | N/a | N/a | N/a | N/a |
| *Missing* | 5 | -- | -- | -- | -- | *N/a* | *N/a* | *N/a* | *N/a* |
| p value for trend | | <0.001 | | <0.001 | | N/a | | N/a | |
| ***Head of household social class*** | | | | | | | | | |
| I/II | 1774 | 1.00 | | N/a | | 1.00 | | N/a | |
| IIINM | 626 | 1.63 | 1.26-2.11 | N/a | N/a | 1.52 | 1.17-1.98 | N/a | N/a |
| IIIM | 1202 | 1.79 | 1.46-2.20 | N/a | N/a | 1.76 | 1.43-2.16 | N/a | N/a |
| IV/V | 798 | 2.22 | 1.78-2.76 | N/a | N/a | 1.98 | 1.57-2.48 | N/a | N/a |
| Other | 85 | 2.23 | 1.30-3.85 | N/a | N/a | 1.66 | 0.95-2.90 | N/a | N/a |
| *Missing* | 2 | - | - | *N/a* | *N/a* | - | - | *N/a* | *N/a* |
| p value for trend | | <0.001 | | N/a | | <0.001 | | N/a | |
| ***Household income (equivalised)*** | | | | | | | | | |
| Top fifth | 1046 | 1.00 | | N/a | | N/a | | 1.00 | |
| 2nd fifth | 979 | 1.17 | 0.90-1.53 | N/a | N/a | N/a | N/a | 1.17 | 0.90-1.54 |
| Middle fifth | 896 | 1.57 | 1.21-2.04 | N/a | N/a | N/a | N/a | 1.58 | 1.21-2.06 |
| 4th fifth | 453 | 1.85 | 1.37-2.51 | N/a | N/a | N/a | N/a | 1.75 | 1.28-2.40 |
| Bottom fifth | 624 | 3.18 | 2.45-4.13 | N/a | N/a | N/a | N/a | 2.61 | 1.95-3.49 |
| *Missing* | 489 | *1.57* | *1.16-2.13* | *N/a* | *N/a* | *N/a* | *N/a* | *1.50* | *1.10-2.04* |
| p value for trend | | <0.001 | [excl.missings] | N/a | | N/a | | <0.001 | [exc. missings] |

**Table 6.4    Self-reported health by social roles and social class of own occupation among women aged 25-54 in the 1998 HSE.**

| Social roles | N = 3345 | Model 1: Age-adjusted OR | 95% CI | Model 2: Fully-adjusted OR | 95% CI |
|---|---|---|---|---|---|
| Employed, living with partner and children | 1661 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 848 | 0.89 | 0.70-1.14 | 0.94 | 0.74-1.21 |
| Employed lone mothers | 329 | 1.19 | 0.87-1.65 | 1.18 | 0.85-1.63 |
| Employed, without partner or children | 435 | 1.12 | 0.83-1.51 | 1.19 | 0.88-1.62 |
| Unemployed | 72 | 3.10 | 1.87-5.15 | 3.08 | 1.84-5.16 |
| p value | | <0.001 | | <0.001 | |
| **Social class of own occupation** | | | | | |
| I/II | 1093 | 1.00 | | 1.00 | |
| IIINM | 1205 | 1.01 | 0.79-1.29 | 1.02 | 0.82-1.26 |
| IIIM | 234 | 1.29 | 0.87-1.90 | 1.33 | 0.96-1.82 |
| IV/V | 801 | 1.65 | 1.28-2.11 | 1.71 | 1.38-2.12 |
| Other | 10 | -- | -- | -- | -- |
| Missing | 2 | -- | -- | -- | -- |
| p value for trend | | 0.001 | | <0.001 | |

**Table 6.5    Self-reported health by social roles and mental health (GHQ12) among women aged 25-54 in the 1998 HSE.**

| Social roles | N = 4487 | Model 1: Age-adjusted OR | 95% CI | Model 2: Fully-adjusted OR | 95% CI |
|---|---|---|---|---|---|
| Employed, living with partner and children | 1661 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 848 | 0.90 | 0.71-1.14 | 0.86 | 0.67-1.10 |
| Employed lone mothers | 329 | 1.19 | 0.87-1.65 | 0.96 | 0.69-1.34 |
| Employed, without partner or children | 435 | 1.11 | 0.83-1.50 | 1.02 | 0.75-1.39 |
| Full-time homemaker, living with partner and children | 659 | 1.44 | 1.13-1.83 | 1.37 | 1.07-1.75 |
| Full-time homemaker, other family role* | 352 | 2.40 | 1.83-3.15 | 2.25 | 1.70-2.97 |
| Unemployed | 72 | 3.11 | 1.87-5.16 | 2.31 | 1.36-3.92 |
| Other (inc. full-time students & retired) | 131 | 1.47 | 0.94-2.32 | 1.42 | 0.89-2.26 |
| p value | | <0.001 | | <0.001 | |
| **GHQ12** | | | | | |
| Score0-2 | 3548 | 1.00 | | 1.00 | |
| Score 4+ | 764 | 3.82 | 3.19-4.57 | 3.74 | 3.11-4.49 |
| Missing | 175 | 1.46 | 0.97-2.19 | 1.36 | 0.90-2.05 |
| p value | | <0.001 | | <0.001 | |

**Table 6.6** Obesity by social roles, educational qualifications, social class of head of household and household income among women aged 25-34 in the 1998 HSE.

| Social roles | N = 1413 | Model 1: Unadjusted OR | 95% CI | Model 2: Education-adjusted OR | 95% CI | Model 3: Social class-adjusted OR | 95% CI | Model 4: Income-adjusted OR | 95% CI |
|---|---|---|---|---|---|---|---|---|---|
| Employed, living with partner and children | 408 | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 277 | 0.55 | 0.36-0.86 | 0.63 | 0.40-1.00 | 0.58 | 0.37-0.90 | 0.73 | 0.45-1.16 |
| Employed lone mothers | 85 | 0.70 | 0.36-1.34 | 0.68 | 0.35-1.32 | 0.71 | 0.36-1.38 | 0.57 | 0.29-1.12 |
| Employed, without partner or children | 193 | 0.44 | 0.25-0.75 | 0.51 | 0.29-0.89 | 0.46 | 0.26-0.80 | 0.49 | 0.28-0.86 |
| Full-time homemaker, living with partner and children | 260 | 0.96 | 0.64-1.43 | 0.96 | 0.64-1.43 | 0.96 | 0.64-1.43 | 0.87 | 0.58-1.32 |
| Full-time homemaker, other family role | 115 | 1.18 | 0.71-1.95 | 1.13 | 0.67-1.91 | 1.22 | 0.71-2.07 | 0.97 | 0.53-1.78 |
| Unemployed | 24 | 0.85 | 0.28-2.55 | 0.87 | 0.29-2.62 | 0.81 | 0.27-2.44 | 0.70 | 0.23-2.15 |
| Other (inc. full-time students & retired) | 51 | 0.91 | 0.42-1.94 | 0.99 | 0.46-2.14 | 0.91 | 0.42-1.97 | 0.81 | 0.37-1.78 |
| p value | | 0.016 | | 0.184 | | 0.042 | | 0.269 | |
| **Educational qualifications** | | | | | | | | | |
| Degree | 393 | 1.00 | | 1.00 | | N/a | | N/a | |
| 'A' level or equivalent | 189 | 1.62 | 0.98-2.69 | 1.45 | 0.87-2.42 | N/a | N/a | N/a | N/a |
| 'O' level or equivalent | 639 | 1.95 | 1.33-2.84 | 1.65 | 1.11-2.46 | N/a | N/a | N/a | N/a |
| No qualification | 159 | 2.16 | 1.31-3.58 | 1.65 | 0.96-2.84 | N/a | N/a | N/a | N/a |
| Foreign/other | 33 | 1.53 | 0.56-4.19 | 1.27 | 0.46-3.52 | N/a | N/a | N/a | N/a |
| p value for trend | | 0.009 | | 0.169 | | N/a | | N/a | |
| **Head of household social class** | | | | | | | | | |
| I/II | 474 | 1.00 | | N/a | | 1.00 | | N/a | |
| IIINM | 239 | 1.35 | 0.87-2.08 | N/a | N/a | 1.34 | 0.85-2.09 | N/a | N/a |
| IIIM | 392 | 1.66 | 1.15-2.40 | N/a | N/a | 1.48 | 1.02-2.15 | N/a | N/a |
| IV/V | 265 | 1.30 | 0.85-1.99 | N/a | N/a | 1.12 | 0.72-1.74 | N/a | N/a |
| Other | 43 | 1.83 | 0.84-4.00 | N/a | N/a | 1.44 | 0.64-3.23 | N/a | N/a |
| p value for trend | | 0.092 | | N/a | | 0.296 | | N/a | |
| **Household income (equivalised)** | | | | | | | | | |
| Top fifth | 322 | 1.00 | | N/a | | N/a | | 1.00 | |
| 2nd fifth | 313 | 1.50 | 0.92-2.44 | N/a | N/a | N/a | N/a | 1.42 | 0.86-2.33 |
| Middle fifth | 269 | 2.20 | 1.36-3.55 | N/a | N/a | N/a | N/a | 1.95 | 1.17-3.25 |
| 4th fifth | 150 | 2.86 | 1.68-4.85 | N/a | N/a | N/a | N/a | 2.60 | 1.46-4.61 |
| Bottom fifth | 240 | 2.35 | 1.44-3.82 | N/a | N/a | N/a | N/a | 2.08 | 1.16-3.73 |
| Missing | 119 | 1.67 | 0.90-3.12 | N/a | N/a | N/a | N/a | 1.71 | 0.90-3.25 |
| p value for trend | | <0.001 | [excl missings] | N/a | | N/a | | 0.014 | [exc missing] |

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**Table 6.7** Obesity by social roles, educational qualifications, social class of head of household and household income among women aged 35-44 in the 1998 HSE.

| Social roles | N = 1397 | Model 1: Unadjusted OR | 95% CI | Model 2: Education-adjusted OR | 95% CI | Model 3: Social class-adjusted OR | 95% CI | Model 4: Income-adjusted OR | 95% CI |
|---|---|---|---|---|---|---|---|---|---|
| Employed, living with partner and children | 695 | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 138 | 1.03 | 0.64-1.65 | 1.09 | 0.68-1.75 | 1.03 | 0.64-1.66 | 1.21 | 0.74-1.99 |
| Employed lone mothers | 126 | 1.27 | 0.79-2.03 | 1.25 | 0.78-2.01 | 1.11 | 0.68-1.81 | 1.10 | 0.68-1.79 |
| Employed, without partner or children | 98 | 1.68 | 1.03-2.74 | 1.80 | 1.10-2.95 | 1.71 | 1.03-2.83 | 1.82 | 1.11-3.00 |
| Full-time homemaker, living with partner and children | 216 | 1.26 | 0.86-1.84 | 1.21 | 0.82-1.77 | 1.27 | 0.86-1.86 | 1.19 | 0.80-1.77 |
| Full-time homemaker, other family role | 91 | 1.86 | 1.13-3.05 | 1.71 | 1.03-2.83 | 1.57 | 0.93-2.68 | 1.49 | 0.86-2.60 |
| Unemployed | 14 | 1.86 | 0.57-6.03 | 1.73 | 0.52-5.68 | 1.36 | 0.41-4.49 | 1.50 | 0.46-4.93 |
| Other (inc. full-time students & retired) | 19 | 1.24 | 0.41-3.80 | 1.32 | 0.43-4.10 | 1.28 | 0.41-3.96 | 1.24 | 0.40-3.83 |
| p value | | 0.176 | | 0.246 | | 0.447 | | 0.321 | |
| *Educational qualifications* | | | | | | | | | |
| Degree | 355 | 1.00 | | 1.00 | | N/a | | N/a | |
| 'A' level or equivalent | 174 | 1.02 | 0.63-1.67 | 0.99 | 0.61-1.62 | N/a | N/a | N/a | N/a |
| 'O' level or equivalent | 554 | 1.37 | 0.97-1.94 | 1.39 | 0.98-1.98 | N/a | N/a | N/a | N/a |
| No qualification | 274 | 1.53 | 1.03-2.28 | 1.41 | 0.96-1.98 | N/a | N/a | N/a | N/a |
| Foreign/other | 38 | 2.66 | 1.29-5.51 | 2.53 | 1.21-5.28 | N/a | N/a | N/a | N/a |
| *Missing* | 2 | -- | -- | -- | -- | *N/a* | *N/a* | *N/a* | *N/a* |
| p value for trend | | 0.041 | | 0.064 | | N/a | | N/a | |
| *Head of household social class* | | | | | | | | | |
| I/II | 581 | 1.00 | | N/a | | 1.00 | | N/a | |
| IIINM | 197 | 1.83 | 1.22-2.75 | N/a | N/a | 1.68 | 1.09-2.57 | N/a | N/a |
| IIIM | 363 | 1.83 | 1.30-2.57 | N/a | N/a | 1.88 | 1.34-2.65 | N/a | N/a |
| IV/V | 233 | 2.54 | 1.76-3.67 | N/a | N/a | 2.41 | 1.64-3.53 | N/a | N/a |
| Other | 22 | 1.37 | 0.45-4.16 | N/a | N/a | 1.13 | 0.36-3.57 | N/a | N/a |
| *Missing* | 1 | - | - | *N/a* | *N/a* | - | - | *N/a* | *N/a* |
| p value for trend | | <0.001 | | N/a | | <0.001 | | N/a | |
| *Household income (equivalised)* | | | | | | | | | |
| Top fifth | 294 | 1.00 | | N/a | | N/a | | 1.00 | |
| 2nd fifth | 295 | 1.00 | 0.64-1.54 | N/a | N/a | N/a | N/a | 1.04 | 0.67-1.63 |
| Middle fifth | 308 | 1.40 | 0.93-2.11 | N/a | N/a | N/a | N/a | 1.52 | 0.99-2.34 |
| 4th fifth | 150 | 1.50 | 0.92-2.46 | N/a | N/a | N/a | N/a | 1.57 | 0.99-2.34 |
| Bottom fifth | 211 | 1.90 | 1.23-2.93 | N/a | N/a | N/a | N/a | 1.79 | 1.09-2.93 |
| *Missing* | 139 | *1.29* | *0.77-2.17* | *N/a* | *N/a* | *N/a* | *N/a* | *1.23* | *0.76-2.17* |
| p value for trend | | 0.015 | [exc. missing] | N/a | | N/a | | 0.107 | [exc. missing] |

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**Table 6.8**     Obesity by social roles and social class of own occupation among women aged 25-34 active in the labour market in the 1998 HSE.

| HSE '98 | | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| *Social roles* | N = 987 | OR | 95% CI | OR | 95% CI |
| Employed, living with partner and children | 408 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 277 | 0.55 | 0.36-0.86 | 0.59 | 0.37-0.93 |
| Employed lone mothers | 85 | 0.70 | 0.36-1.34 | 0.65 | 0.34-1.27 |
| Employed, without partner or children | 193 | 0.44 | 0.25-0.75 | 0.47 | 0.27-0.82 |
| Unemployed | 24 | 0.85 | 0.28-2.55 | 0.92 | 0.30-2.80 |
| p value | | 0.012 | | 0.042 | |
| *Own social class* | | | | | |
| I/II | 325 | 1.00 | | 1.00 | |
| IIINM | 389 | 1.53 | 0.98-2.40 | 1.36 | 0.86-2.16 |
| IIIM | 63 | 2.68 | 1.36-5.28 | 2.50 | 1.25-4.98 |
| IV/V | 208 | 1.79 | 1.08-2.97 | 1.41 | 0.83-2.41 |
| Other | 1 | - | - | - | - |
| *Missing* | *1* | - | - | - | - |
| p value for trend | | 0.078 | | 0.218 | |

**Table 6.9**     Obesity by social roles and social class of own occupation among women aged 35-44 active in the labour market in the 1998 HSE.

| HSE '98 | | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| *Social roles* | N = 1071 | OR | 95% CI | OR | 95% CI |
| Employed, living with partner and children | 695 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 138 | 1.03 | 0.64-1.65 | 1.13 | 0.70-1.83 |
| Employed lone mothers | 126 | 1.27 | 0.79-2.03 | 1.27 | 0.80-2.04 |
| Employed, without partner or children | 98 | 1.68 | 1.03-2.74 | 1.78 | 1.09-2.93 |
| Unemployed | 14 | 1.86 | 0.57-6.03 | 1.60 | 0.49-5.23 |
| p value | | 0.228 | | 0.197 | |
| *Own social class* | | | | | |
| I/II | 329 | 1.00 | | 1.00 | |
| IIINM | 372 | 0.93 | 0.63-1.38 | 0.95 | 0.64-1.41 |
| IIIM | 82 | 0.94 | 0.50-1.79 | 0.97 | 0.51-1.85 |
| IV/V | 284 | 1.47 | 0.99-2.17 | 1.53 | 1.02-2.29 |
| Other | 4 | - | -- | - | -- |
| p value for trend | | 0.146 | | 0.120 | |

Figure 6.1 Odds (95% C I) of reporting poor health among homemakers living
with a partner and children aged 25-54 in the 1998 HSE



Figure 6.2 Odds (95% C i) of reporting poor health among homemakers NOT
living with a partner and children aged 25-54 in the 1998 HSE



Figure 6.3 Odds (95% C I) of reporting poor health among unemployed women
aged 25-54 in the 1998 HSE
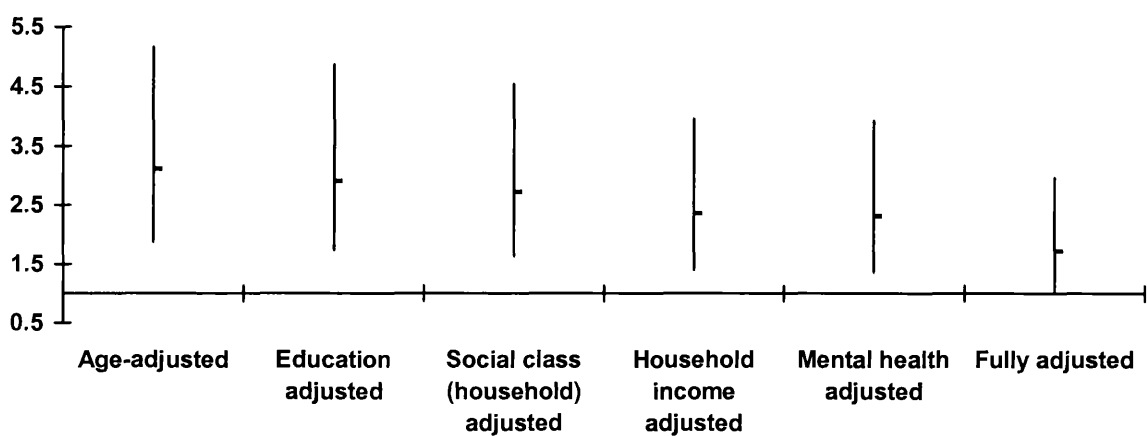
Figure 6.4 Odds (95% C I) of being obese among childless women living
with a partner aged 25-34 in the 1998 HSE
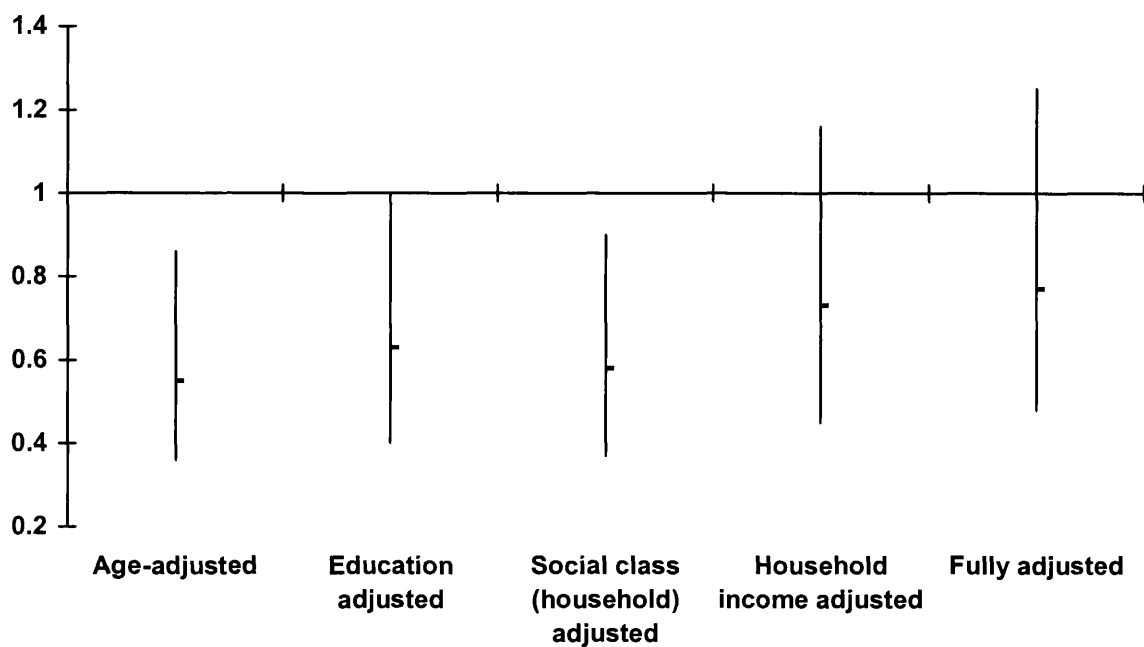


Figure 6.5 Odds (95% C I) of being obese among childless women NOT
living with a partner aged 25-34 in the 1998 HSE
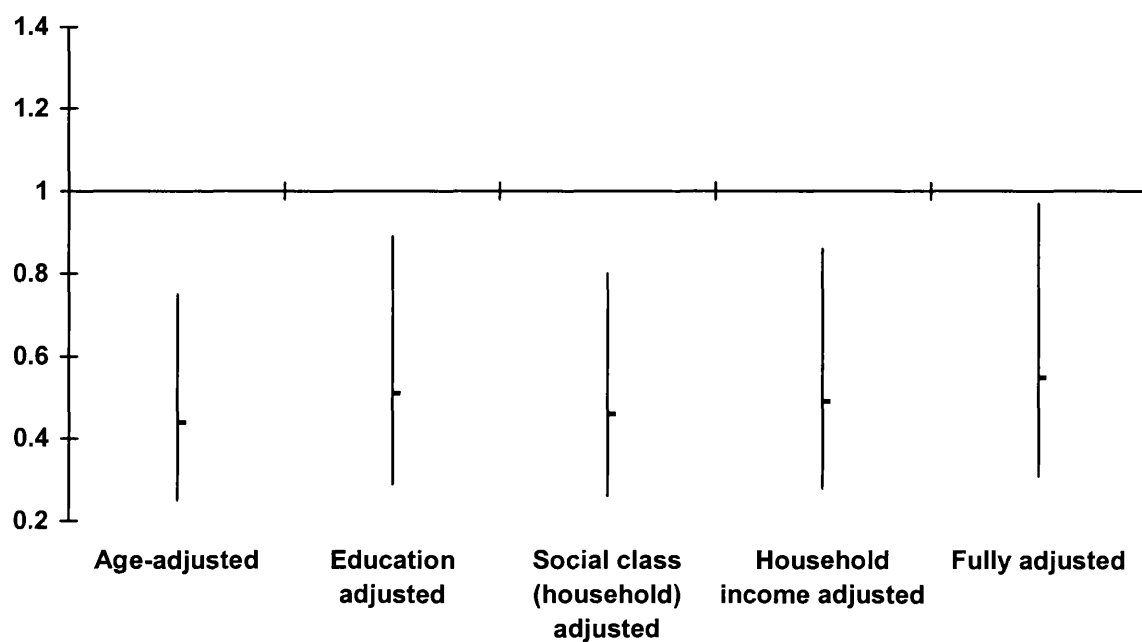
# Figure 6.6 Odds (95% C I) of being obese among homemakers NOT living with a partner and children aged 35-44 in the 1998 HSE
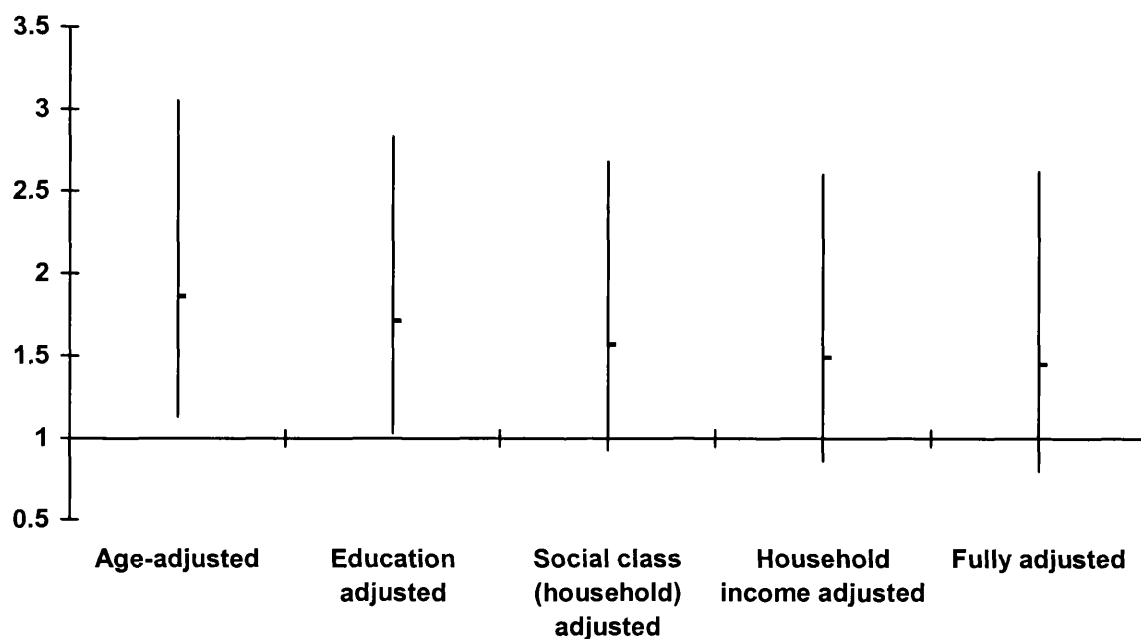


# Figure 6.7 Odds (95% C I) of being obese among childless women NOT living with a partner aged 35-44 in the 1998 HSE
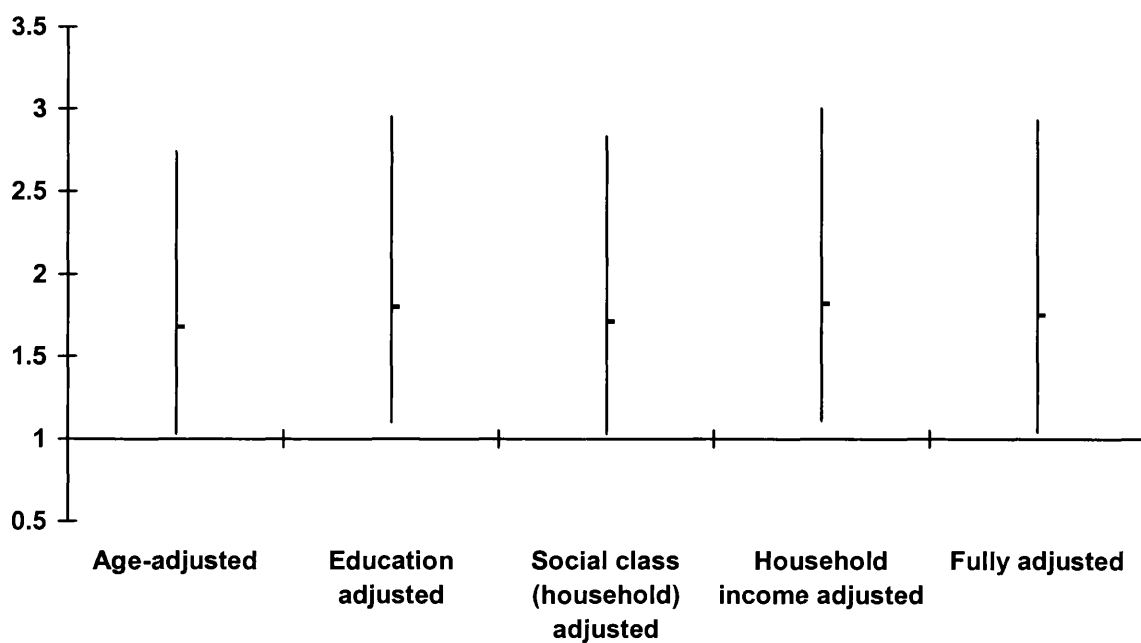
# Chapter 7 Longitudinal relationships between social roles and health among women in the 1946 birth cohort.

## 7.1 Introduction

This chapter investigates the relationship between social roles and both self-reported poor health and obesity longitudinally across women's adult lives at ages 26, 36, 43 and 53. The previous chapter (chapter 6) concluded by highlighting some of the weaknesses in cross-sectional analyses of the relationship between social roles and health, such as the lack of a temporal direction and the restricted focus on current, rather than cumulative, social role patterns. These gaps begin to be filled in this chapter. The chapter describes the social role and health variables, as well as the specific samples to be used throughout analyses of women in the 1946 cohort for the remainder of the thesis. The chapter then presents relationships between social roles and health in separate sections for self-reported health and obesity, using a combination of cross-sectional and longitudinal analysis. Cross-sectional analysis examines relationships between social roles and concurrent self-reported health or obesity for the specific ages at which the health outcome data were collected. This cross-sectional analysis shows how relationships between social roles and health changed with age for women in the same birth cohort. This is then followed by longitudinal analysis using role history variables derived by drawing together family and work role information at ages 26, 36, 43 and 53. Examination of role histories in relation to self-reported health at age 54 and obesity at age 53 suggest the importance of following the norm for subjective health and long-term labour market inactivity for obesity.

## 7.2 Measures and methods

### 7.2.1 Social role measures

Most of the analysis concerning relationships between social roles and health among women in the 1946 cohort – that is much of the results included in this chapter and all of the analysis presented in subsequent chapters – is longitudinal in nature. That is to say that it examines relationships between women's social role histories constructed from data collected at ages 26, 36, 43 and 53, and their health at age 53 (for obesity) or age 54 (for self-reported health). In addition to this longitudinal analysis, this chapter also includes cross-sectional relationships between social roles and health at specific points in time

throughout women's lives. These cross-sectional results are one way of looking at the way in which social roles change in meaning as women age.

## Social roles in cross-section

The social role variable that is used for cross-sectional analysis at ages 26, 36, 43 and 53 in the 1946 cohort data is similar to that used for analysis in the HSE (see chapter 5, pp. 79-80) except that it includes an additional 'retired' category at age 53. The main distinction to be made between social role information in the cohort data in comparison with that in the HSE is that information regarding childbearing was collected for women in the cohort. The HSE only collected information about who was living in the household at the time of the survey.

## Role history variables

This chapter presents results for family role histories, work role histories, and then a social role history variable in which work and family histories are combined. All subsequent chapters use the social role history variable that is described here.

### Family role histories

Family role histories were determined by whether or not women had had children by the age of 53 combined with marital role histories. Marital role histories were created by combining women's marital status at age 53 – married, divorced or separated, never married or widowed -- with the number of marriages they had had by age 53. This resulted in a marital history variable with the following categories: 'married to one husband', 'remarried', 'separated or divorced', 'never married', and 'widowed'. Parental role history information was available for 94.2% (n=2,002) of the eligible female sample (that is, the 2,126 women who had not died, emigrated or permanently refused by age 26). Marital histories to age 53 were available for 71.5% (n=1,519) of the eligible women in the cohort because they depended upon 53 years of follow-up. When the parental and marital role history variables were combined, family role history information was available for 70.5% (n=1,498) of the eligible sample of women. The categories for this variable are: 'married to one husband and had children', 'remarried and had children', 'married or remarried with no children', 'unmarried and had children', 'unmarried with no children' (figure 7.1, p. 130).

## Work role histories

A typology of work role histories was derived.[14] Work status information, available at ages 26, 36, 43 and 53, was: 'employed full-time', 'employed part-time', 'unemployed', 'full-time homemaker', 'other' or 'missing'. The work status question at age 53 included the two additional categories of 'stopped working due to illness' and 'retired'. In creating work role histories, women were excluded if they were missing work status information from three or four of the years of data collection (n=744). Therefore, work role histories were derived for 84.8% (n=1,803) of the eligible cohort of females. The work role histories were categorised into Late entry, Early entry, Intermittent employed, Homemakers and Others. Women in the Late entry work role pattern were full-time homemakers at age 26 and employed full-time or part-time at each age thereafter (n=436). Early entry women were employed full-time or part-time at three or four ages including age 26 (n=719). Women who were Intermittent employed were full-time homemakers at two ages and employed, either full-time or part-time, at two ages (n=320) and Homemakers were full-time homemakers at three or four ages (n=241). Women in the Other category were unemployed or recorded as 'other' at three or four ages (n=87). Women who reported being retired (n=70) or had stopped working due to illness (n=134)[15] at age 53 were allocated into the above categories based on their work role patterns prior to age 53. See figure 7.1, p. 130 and appendix 2 (p. 217-220) for a detailed description of the work role history variable.

## Social role histories

Looking at work and family role histories together, work role histories were fairly consistent depending on whether women had had children. Among married mothers and lone mothers, just under a third followed the normative Late entry work role pattern, just over a third maintained fairly high levels of labour force participation in the Early entry group, 18% followed the Intermittent employed pattern while 12-15% were long-term Homemakers.

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[14] The idea of creating work role typologies came from reading Stroud (1981).
[15] **Work role histories of women who had stopped working by age 53 due to illness**

|  | N = 134 | % |
|---|---|---|
| Late entry | 23 | 17 |
| Early entry | 31 | 23 |
| Intermittent employed | 18 | 13 |
| Homemakers | 40 | 30 |
| Other | 12 | 9 |
| Missing at two or three ages prior to 53 | 10 | 8 |

Eight of these women reported not working due to a temporary injury or illness. The remaining 126 were out of work due to a long-term illness or disability. See appendix 1 for full details of the work role history variable. Women who were ill at 53 were more likely to be in the Homemaker role and less likely to have had strong ties to the labour market than other women. However, these women only make up 17% of women in the Homemaker group.

Work role histories of remarried mothers were similar to those of married and lone mothers, except that they were a little more likely to have maintained strong ties to the labour market in the Early entry group (at 45%), and a little less likely to have followed the Late entry or Intermittent employed work role patterns (at 28% and 15% respectively). As might be expected, work role patterns were even more consistent among childless women with around 80% maintaining high levels of labour force participation in the Early entry group.

The social role history variable used for this thesis was created by combining the family and work role history variables described above. Analysis of family and work role histories confirmed previous work reviewed in chapter 1 which showed that traditional norms regarding women's social roles were strong for this particular cohort. Because of its potential importance, the concept of 'a normative role history' was incorporated into the social role history variable and is used to organise analysis of the role history variables in this chapter. The *Normative* group of women has been divided into the following two groups: *Late entry normative* and the *Early entry normative*. Women in the *Late entry normative group* (n=269) were married to one husband, had children and followed the Late entry work role pattern (i.e. were full-time homemakers at age 26 and employed thereafter). Women in the *Early entry normative group* (n=286) were married to one husband, had children and followed the Early entry work role pattern (i.e. were employed at age 26, and also at two or three of the subsequent data collection ages). The following three categories of the social role history variable are grouped as *'Lacking one main role'* as they are defined by the absence of one of the main roles of mother, employee or spouse. These categories are *Childless* (n=162): women who did not have children, *Homemakers* (n=151): women who followed the Homemaker work role history (i.e. were not employed at three or four of the ages of data collection), and *Lone mothers* (n=254) who are never (n=7) or previously (n=247) married mothers. The *Homemaker* category excludes thirty lone mothers and four childless women who followed the Homemaker work role pattern, but have been included in the *Childless* and *Lone mother* social role categories. The final two categories of the social role history variable are called *'Other non-normative mothers'* as they are sizeable groups of women who were not normative or lacking a role. The first of these is mothers who had remarried (n=185). The second is women who followed the normative family role pattern (i.e. married to one husband and had children), and the Intermittent employed work role pattern (n=150). These women

were somewhere between the strong labour force ties of the normative groups and the weak labour force ties of the *Homemaker* group.

The work roles of both women in the *Lone mother* and the *Remarried mother* groups were fairly mixed with about two-thirds having strong ties to the labour market (being employed at three or four ages). The other third of women in the *Lone mother* group were fairly equally divided between those who were Intermittent employment and those who adopted the long-term homemaker role. The other third of *Remarried mothers* followed the Intermittent employed work role pattern. Twenty-five *Remarried mothers* who followed the Homemaker work role pattern have been included in the *Homemaker* social role category rather than among *Remarried mothers*. Figure 7.1 (p. 130) shows a diagram of the creation of the social role history variable as well as sample sizes. Table 7.1 (p. 125) provides brief descriptions of the social role history categories for easier reference.

### 7.2.2 Measures of self-reported health

Measures of self-reported health were available at age 26 and 54 for women in the 1946 cohort. Identical versions of the question were used at each age and this version was different from that included in the 1998 HSE. The 1946 cohort used a version of the self-reported health question that is more commonly used in the US in which the responses are excellent, good, fair, or poor.[16] Women who reported fair or poor health in the cohort data (12% at age 26 and nearly a third at age 54), are considered to have poor reported health. Cross-sectional relationships between social roles and self-reported health are shown at ages 26 and 54. For longitudinal analysis in this chapter and in each subsequent chapter (chapters 8-10) self-reported fair or poor health at age 54 is used as the outcome measure of subjective health. Self-reported health at age 54 was collected as part of the women's health series of postal questionnaires that were sent to women in the cohort every year between ages 47 and 54. The self-reported health question was included in the eighth year of this series, and so valid responses were fewer than for obesity.[17]

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[16] The English Longitudinal Study of Ageing (ELSA) has included both versions of this question in its first round of data collection. A comparison the two questions asked of the same respondents showed that they are very comparable.

[17] Response to this mail-out questionnaire was not evenly distributed between women with different social role histories. *Lone mothers* were most likely to not respond at 28% followed by long-term *Homemakers* at 23%.

**Proportion not responding to Women's Health Questionnaire by social role history.**

| Social role history | % non-response |
|---|---|
| Late entry normative | 16.7 |
| Early entry normative | 19.9 |
| Homemaker | 22.5 |
| Lone mothers | 27.6 |
| Childless | 13.0 |

### 7.2.3 Measures of obesity

BMI measures are available for ages 15, 26, 36, 43 and 53. At ages 15, 36, 43 and 53 height and weight were measured during face-to-face interviews in the respondents' homes using portable stadiometers with their shoes removed. One measurement was taken, with the cohort member stretching to their maximum height and their head positioned in the Frankfort plane. The reading was recorded to the nearest 0.5 centimetre. Weight was measured using a scale and asking cohort members to remove their shoes and any heavy clothing. At age 26 BMI was calculated from self-reported height and weight. As in analysis with the HSE, women with a BMI of 30 or more are considered to be obese in accordance with the World Health Organisation international standards of obesity in adults (WHO 1988). As expected, women in this cohort became larger with age. At age 26, only about 10% of the sample were over desirable weight. Only 2% were obese. The proportion of obese women about doubled between each wave of data collection to 7% at 36, 13% at 43 and 25% at 53. Despite the general increase in body mass, the proportion of women whose weight was desirable remained fairly constant at just over half until age 53 when this proportion dropped to 42%. Cross-sectional relationships between obesity and social roles are examined at ages 26, 36, 43 and 53. For longitudinal analysis in this and subsequent chapters, obesity at age 53 is used as the physical health outcome.

### 7.2.4 Sample and methods used to examine relationships between social roles and health in the 1946 cohort

This chapter uses cross-tabulations to examine the unadjusted relationships between social roles (either as a history variable or in cross-section) and health. As in chapter 5, $\chi^2$ and p values are shown for each relationship and analysis was conducted in SPSS for windows version 9. Three samples have been used for all of the analysis conducted among women in the 1946 cohort for this thesis. 'Sample A' is the sample of women with valid work role and family role history information as described in section 7.2.1. This is the sample of women that are included in all unadjusted analysis between social role histories and non-health variables, such as social class, education etc. This sample is described in figure 7.1 (p. 130). Analyses that include social role histories and either of the health outcomes of interest are conducted using 'sample B' in the case of self-reported health or 'sample C' in the case of obesity. Sample B includes all women with a valid social role

| Remarried mothers | 18.4 |
|---|---|
| Intermittent employed married mothers | 16.7 |

history and a valid measure of self-reported health at age 54, while sample C includes all women with a valid social role history measure and a valid measure of BMI at age 53. These samples are used for analysis which includes both social roles and health, so, for instance, sample B is used to for examining the relationship between social roles and self-reported health at age 26. This means that some women with valid social role and self-reported health measures at age 26 will be excluded from analysis; however, sample consistency ensures comparability across tables. Samples B and C are described in figure 7.2 (p. 131). Analysis of results in the full sample showed that, at age 26, lone mothers who were excluded from the final sample were more likely to have reported having poor health than women in those categories who were included (appendix 3, p. 221-222). Also, full-time homemakers, and particularly full-time homemakers with non-normative family roles at age 43, who were excluded from the final sample were more likely to have been obese at ages 36 and 43 than their counterparts who were included in the final sample. There were other small differences in the prevalence of obesity between the two samples for certain groups at ages 26 and 36, but the numbers of obese women were two small at these ages to make reliable estimates.

## 7.3    Results: social roles and self-reported health among women in the 1946 birth cohort

At age 26, women who were employed outside the home and had not yet had children (which accounted for the vast majority of childless women) were significantly less likely to report poor health, regardless of their marital status, than employed, married mothers (table 7.2, p. 126). Only 6% of married childless women and 7% of single childless women reported poor health compared with 16% of employed, married mothers. Married mothers who were full-time homemakers – by far the most prevalent social role combination at this age when most women had young children at home – were also slightly less likely, at 10%, than employed married mothers to report poor health at this age. Employed lone mothers and full-time homemakers with non-normative family roles (not married mothers) were as likely as the employed, married mothers to report poor health at 15% and 16% respectively.

By their fifties, women who were full-time homemakers but not in the normative family role of being married with children were much more likely to report poor health (62%) than women who were employed, married mothers (27%) (table 7.2, p. 126). However, the number of homemakers with a non-normative family role at age 53 was too small to draw conclusions with much confidence. In their fifties, childless married women and full-time

homemaking married mothers were both slightly more likely to report poor health (at 32% and 35% respectively) than employed married mothers. Single childless women remained less likely to report poor health at 22%.

The self-reported health of married mothers who were at home full-time varied by age. At age 26, this was the most prevalent social role combination and women in this group reported good health compared with employed married mothers (table 7.2, p. 126). By age 54, the proportion of women in this social role combination had declined as women's children grew older and they returned to the labour market, so that being a married mother employed outside the home had become the most prevalent social role combination (see chapter 4). Married mothers who remained at home full-time were more likely to report poor health than employed married mothers at age 54. This shift in the relationship between women's social roles and their health with age emphasises that cross-sectional examination of the relationship between social roles and health may be misleading. It is necessary to examine women's social roles over time, over their lives, and how these long-term patterns are ultimately associated with health outcomes.

Looking at family role histories (this variable is described in section 7.2.1) in relation to self-reported health at age 54, women in each of the non-normative family role histories were more likely to report poor health at age 54 than women who remained married to one husband and had children (table 7.3, p. 126). Twenty-nine per cent of mothers married to one husband reported poor health at age 54 compared with 38% of married childless women or remarried women (regardless of whether they had children), 36% of lone mothers and 34% of single childless women. These differences were statistically significant once the non-normative family role histories were combined ($\chi^2$ = 7.94, p = 0.005).

Looking at work role histories (described in section 7.2.1, and appendix 2, pp. 218-221) shows that women who followed non-normative work role patterns with weaker ties to the labour market were more likely to report poor health at 54 than women who followed normative patterns with stronger ties to the labour market (table 7.4, p. 127). Only 30% of women in the normative groups (27% of Late entry and 32% of Early entry) reported poor health at age 54 compared with 40% of women in the non-normative groups (37% of women in the Intermittent employed group who worked sporadically and 43% of long-term Homemakers). More specifically, women in the Intermittent employed group were significantly more likely to report poor health at age 54 than women in the Late entry

normative group who were at home full-time with children at age 26 and employed thereafter (p=0.027). Long-term Homemakers who had the weakest ties to the labour market were significantly more likely to report poor health at 54 than women in either of the normative work role patterns (p<0.001 for Early entry and p=0.012 for Late entry).

Separate analysis of work and family role histories suggests that both long-term ties to the labour market, and the occupation of normative family roles, may be important to the subsequent perceived health of women in this cohort at age 54. Looking at the influence of women's combined family and work role histories on reporting poor health at age 54 (using the social role history measure described in section 7.2.1) shows that women in each of the non-normative groups were significantly more likely to report poor health than women in the *Late entry normative* group (table 7.5, p. 127). The prevalence of reported poor health did not differ significantly between women in the two normative groups (*Late entry* and *Early entry*). *Childless* women, long-term *Homemakers* and *Lone mothers* were all more likely to report poor health than *Late entry normative* women. Thirty-six per cent of *Childless* women and *Lone mothers*, and 42% of *Homemakers* reported poor health at 54. Women in the two *Other non-normative mother* groups were also more likely to report poor health than women in the *Late entry normative* group. Thirty-three per cent of *Remarried mothers* and 35% of *Intermittent employed married mothers* reported poor health at 54. The specific social role categories were similar in their relationships with self-reported health within the three broader categories (of *Normative, Lacking one main role* and *Other non-normative mothers*), and sit together conceptually. Therefore, they are combined so that the three categories of social role histories are used in all further analysis with self-reported health.

By looking longitudinally, we were able to learn more about the relationship between social roles and self-reported health than we could from cross-sectional analysis. Cross-sectional analysis (table 7.2, p.126) showed that full-time homemaking married mothers had relatively good health at age 26 and relatively poor health at age 54. Longitudinal analysis of social role histories and subsequent subjective health at age 54 (table 7.4, p. 127) illustrated *that Late entry normative* women -- women who were married with children and full-time homemakers at age 26 and employed thereafter -- ended up the least likely group of women to report poor health at age 54. Their counterparts who remained in the full-time homemaking role long-term were the most likely to report poor health at age 54.

## 7.4     Results: social roles and obesity among women in the 1946 birth cohort

Looking at the relationship between social roles and obesity among women in this cohort cross-sectionally, full-time homemakers were more likely to be obese than employed women from the age of 36 (when the majority of women in this cohort have entered the labour market) (table 7.6, p. 128). There was no difference in likelihood of being obese at age 26 (when being at home full-time was the normative work role), although only 2% of women were obese overall at this age, so numbers were small. At age 36, 9% of full-time homemakers were obese compared with 6% of employed women. This difference grew with age, so that by age 43 18% of full-time homemakers were obese compared with 12% of employed women and the equivalent figures at age 53 were 41% and 23%.

We saw the importance of considering the relationship between social roles and health longitudinally with self-reported health. This is likely to be even more the case with obesity which takes time to develop. There was no significant variation in obesity at age 53 by family role histories in this cohort of women (table 7.7, p. 128). Twenty-six per cent of mothers married to one man throughout were obese at age 53 compared with a quarter of women in non-normative family role histories, ranging from 21% of married childless women to 30% of single childless women.

Obesity did vary significantly by work role histories. Women who followed non-normative work role histories were significantly more likely to be obese than women in the normative groups (table 7.8, p. 129), although within the normative and non-normative groups, only women who adopted the long-term Homemaker work role pattern were more likely to be obese than women in any of the other work role groups.

Women with the weakest ties to the labour market over the long-term were the most likely to be obese in their early fifties (table 7.9, p. 129). Women in the *Homemaker* group were significantly more likely to be obese than women who adopted normative work and family role patterns at 38% compared with 24% for the *Late entry normative group* and 21% for the *Early entry* group. *Intermittent employed married mothers* were also somewhat more likely to be obese than women who followed normative work and family role patterns, but less so than long-term *Homemakers* at 32%. Proportions of obesity for the *Childless, Lone mother* and *Remarried mother* groups – each of whom had much stronger ties to the labour market than women in the *Homemaker* and *Intermittent employed married mother* groups – were identical to that of the *Late entry normative* group at 24-25%.

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Examination of both cross-sectional social role and long-term social role history differences in obesity suggests that long-term exposure to full-time homemaking, or weak ties to the labour market, is important in the development of obesity in middle age. Long-term *Homemakers* and *Intermittent employed married mothers* – the two groups of women who spent a relatively larger portion of their adult lives in full-time homemaking than women in the other social role combinations -- were more likely to be obese at age 53 than *Normative* women.

## 7.5    Discussion

This chapter has established relationships between adult social role histories and subjective health and obesity in middle age among women in the 1946 cohort. For self-reported health, women in each non-normative social role pattern were more likely to report poor health at age 54 than women who had adopted normative patterns (mothers with relatively strong ties to the labour market and married to one husband throughout). Women *Lacking one main role* (*Childless*, *Lone mothers* and *Homemakers*) were somewhat more likely to report poor health at 54 than those who had occupied all three roles but in a less normative fashion. There was no significant relationship between obesity and family role histories. The highest rates of obesity were seen in *Homemakers* and those with an intermittent work history, with little differences between other role history groups.

Results for obesity could potentially be explained by a role quality hypothesis based on opportunities for satisfaction of autonomy needs and agency, such as that described in chapter 2. The increased obesity of women who have not been active in the labour market could result from decreased opportunities for satisfying autonomy needs, leading to unhappiness and ultimately obesity. Alternatively, the high prevalence of obesity among women with relatively weak long-term ties to the labour market might be explained by obesity-related selection out of the labour market. It may be that women who were obese in early adulthood were less likely to return to work after childbearing when the majority of women in this cohort did.

The finding that those who followed a non-normative path in terms of their work and family roles were more likely to feel unhealthy in late middle age raises some interesting questions. The theory of role quality developed for this thesis, which hypothesises that health differences in social roles are explained by variation in opportunities for satisfaction of autonomy or agency needs, might explain the results for self-reported health. These

results might also be explained by health selection into non-normative social role patterns. But the seeming importance of non-normative role histories also raises an additional explanatory hypothesis for the relationship between long-term social roles and subjective health in later life. The results presented in this chapter suggest that there was something important – at least for women in this particular cohort – about following 'the norm'. We have seen throughout this thesis (in chapters 1, 4 and 7) that the social environment in which these women lived their formative years in terms of family formation and social role occupation did not exhibit traits of late modern society to a significant extent. Instead, after several decades of convergence in terms of social role timings and patterns, women born in 1946 forged their role-identities in a highly structured, traditional society. It may be that adopting social roles that conformed to the norm was highly relevant to identity formation for women in this cohort. Therefore, in addition to testing measures that operationalise the theory of role quality based on autonomy need satisfaction (chapter 2), this thesis will also examine some measures of social role history satisfaction with regards to the relationship shown here between normative role histories and subsequent subjective health.

It is difficult to say how these findings relate to previous work, as previous studies have compared cross-sectional social role measures with cross-sectional health measures. One study (Stroud 1981) created social role histories to examine whether personality characteristics predicted role histories. With very few exceptions, such as Hope, Rodgers and Power's (1999) study of marital status at two ages in relation to psychological distress in the NCDS cohort, studies of relationships between social roles and health have been limited to cross-sectional measures. As a result, previous studies have been unable to compare normative and non-normative patterns or weak and strong long-term ties to the labour market over time.

Several studies have looked longitudinally at relationships between cross-sectional social role measures and subsequent mortality. In the ONS Longitudinal Study (LS), Weatherall and colleagues (1994) found that women who were not employed or not mothers according to the 1971 census were more likely to have died by 1985. Rather than an unqualified endorsement of multiple roles, the authors suggest that these results may be attributable to health selection out of employment and motherhood, but they did not test the selection hypothesis. Similarly, using census data in Finland, Martikainen (1995) found that women who were wives, mothers and employees had lower mortality than women in any other group, but due to additive rather than interactive effects of the three roles. He concludes that future research should focus on selection effects into the worker and

mother roles. This question -- whether relationships between social roles and health are explained by early health selection into particular social roles -- is the subject of the next chapter (8).

For the remainder of the thesis the two most prevalent social role histories will be combined into one normative reference group as there were no significant differences between them with regards to either health outcome. Also, regarding self-reported health, we have seen that the increased risk of reporting poor health was strong for each group of women who were *Lacking one main role*, while it was apparent, but weaker, for *Remarried mothers* and *Intermittent employed married mothers*. For the remaining investigation of relationships with self-reported health, *Childless* women, *Homemakers* and *Lone mothers* will be combined into one *Lacking one main role* category in that women in each of these groups is missing a key social role and their risk of reporting poor health was similar. Similarly, *Remarried mothers* and *Intermittent employed married mothers* will be combined into one *Other non-normative mothers* category in that they were not lacking a main role and not normative and their relationships with reporting poor health at 54 were also relatively similar.

# Chapter 7    Tables and Figures

**Table 7.1**    **Social role history categories among women in the NSHD 1946 birth cohort – a brief description for easy reference**

| | |
|---|---|
| **Normative** | **Women married to one man up to age 53, mothers, with relatively strong ties to the labour market.** |
| Late entry normative | Married to same man up to age 53, mothers, full-time homemaker at age 26 and employed thereafter. |
| Early entry normative | Married to same man up to age 53, mothers, equally divided between women employed at all four ages of data collection, and women employed at three of the four ages, one of which was 26. |
| **Lacking one main role** | **Women lacking one of the main social roles of mother, employee or wife.** |
| Childless | Did not have children. A little under half were unmarried, strong ties to the labour market, similar to women in the Early entry normative group. |
| Homemakers | Full-time homemakers at three or four of the four ages of data collection, married mothers. |
| Lone mothers | The majority were lone mothers as the result of a divorce or separation. Only seven were never married and ever fewer were widows. Two-thirds were employed at three or four ages of data collection. The remaining third were equally split between those employed two of the four ages of data collection and those employed less frequently. |
| **Other non-normative mothers** | **Do not fit either group above and make up sizeable groups.** |
| Remarried mothers | Lone mothers who remarried by the age of 53. Two-thirds were employed at three or four ages of data collection. The remaining third were equally split between those employed two of the four ages of data collection and those employed less frequently. |
| Intermittent employed married mothers | Married to same man up to age 53, mothers, employ two of the four ages of data collection, so labour market ties not as strong as Normative women and not as weak as Homemakers. |

**Table 7.2    Proportion reporting fair or poor health at ages 26 and 54 by social roles at ages 26 and 53 among women in the NSHD 1946 birth cohort**

| NSHD 1946 cohort | Age 26 | | Age 54 | |
|---|---|---|---|---|
| SOCIAL ROLES | N=1171* | % reporting fair or poor health | N=1171* | % reporting fair or poor health |
| Employed outside the home | 531 | 10 | 901 | 28 |
| Married with children | 164 | 16 | 650 | 27 |
| Married, no children | 197 | 6 | 56 | 32 |
| Lone mothers | 27 | 15 | 146 | 30 |
| Unmarried, no children | 143 | 7 | 49 | 22 |
| Full-time homemakers | 527 | 11 | 94 | 38 |
| Married with children | 490 | 10 | 81 | 35 |
| Other homemakers | 37 | 16 | 13 | 62 |
| Unemployed | 10 | 10 | 21 | 38 |
| Retired | | | 59 | 29 |
| Other (inc. full-time students) | 12 | 42 | 20 | 20 |
| Stopped working due to illness | | | 76 | 87 |
| Missing | 91 | N/a | 0 | N/a |
| Overall $\chi^2$ and p value** | 25.10 | 0.001 | 11.93 | 0.154 |

*For a detailed description of the self-reported health sample (sample B) to be used throughout the remainder of the thesis see figure 7.2, p.131.
**Excludes missings and women who reported stopping work due to illness.


**Table 7.3    Proportion reporting fair or poor health at age 54 by family role histories* among women in the NSHD 1946 birth cohort**

| NSHD 1946 cohort | N=1171** | % reporting fair or poor health at age 54 |
|---|---|---|
| Married with children | 676 | 29 |
| Non-normative family role histories combined | 495 | 37 |
| Married (or remarried) no children | 74 | 38 |
| Remarried with children | 170 | 38 |
| Lone mothers | 184 | 36 |
| Unmarried no children | 67 | 34 |

Overall: $\chi^2$ = 7.29 p = 0.122

Comparing non-normative combined with married mothers: $\chi^2$ = 7.94 p = 0.005
*See section 7.2.1 for a description of the family role history variable.
**For a detailed description of the self-reported health sample (sample B) to be used throughout the remainder of the thesis see figure 7.2, p.131.

**Table 7.4    Proportion reporting fair or poor health at age 54 by work role histories\* among women in the NSHD 1946 birth cohort**

|  | N=1171\*\* | % reporting fair or poor health |
|---|---|---|
| **Normative work role histories combined** | **839** | **30** |
| Late entry | 334 | 27 |
| Early entry | 505 | 32 |
| **Non-normative work role histories combined** | **332** | **40** |
| Intermittent employed | 194 | 37 |
| Homemaker | 138 | 43 |

Overall: $\chi^2$ = 12.93, p=0.005
*See section 7.2.1 and appendix 2 for a detailed description of the work role history variable.
**For a detailed description of the self-reported health sample (sample B) to be used throughout the remainder of the thesis see figure 7.2, p.131.

**Table 7.5    Proportion reporting fair or poor health at age 54 by social role histories\* among women in the NSHD 1946 birth cohort**

|  | N=1171\*\* | % reporting fair or poor health |
|---|---|---|
| **Normative** | **453** | **27** |
| Late entry normative | 224 | 24 |
| Early entry normative | 229 | 29 |
| **Lacking one main role** | **442** | **38** |
| Childless | 141 | 36 |
| Homemakers | 117 | 42 |
| Lone mothers | 184 | 36 |
| **Other non-normative mothers** | **276** | **33** |
| Remarried mothers | 151 | 33 |
| Intermittent employed married mothers | 125 | 35 |

Overall: $\chi^2$ = 16.35, p=0.012 for detailed 7-category role history groups
* For a detailed description of the social role history variable see section 7.2.1.
** For a detailed description of the self-reported health sample (sample B) to be used throughout the remainder of the thesis see figure 7.2, p.131.

## Table 7.6 Proportion of obese women at ages 26, 36, 43 and 53 by social roles at the same ages among women in the NSHD 1946 birth cohort

| NSHD 1946 cohort | Age 26 | | Age 36 | | Age 43 | | Age 53 | |
|---|---|---|---|---|---|---|---|---|
| SOCIAL ROLES | N=1433* | % obese | N=1433* | % obese | N=1433* | % obese | N=1433* | % obese |
| Employed outside the home | 633 | 2 | 855 | 6 | 1135 | 12 | 1097 | 23 |
| Married with children | 209 | 4 | 629 | 6 | 840 | 13 | 789 | 24 |
| Married, no children | 229 | 2 | 71 | 4 | 77 | 10 | 63 | 16 |
| Lone mother | 35 | 3 | 82 | 5 | 155 | 14 | 190 | 21 |
| Unmarried, no children | 160 | 1 | 73 | 7 | 63 | 8 | 55 | 26 |
| Full-time homemakers | 658 | 2 | 378 | 9 | 181 | 18 | 116 | 41 |
| Married with children | 608 | 2 | 350 | 8 | 147 | 19 | 98 | 41 |
| Other homemakers | 50 | 0 | 28 | 11 | 34 | 15 | 18 | 39 |
| Unemployed | 13 | 0 | 43 | 2 | 5 | 0 | 25 | 24 |
| Retired | | | | | | | 66 | 23 |
| Other | 15 | 0 | 55 | 4 | 13 | 15 | 22 | 22 |
| Stopped working due to illness | | | | | | | 107 | 41 |
| Missing | 114 | N/a | 102 | N/a | 99 | N/a | 0 | N/a |
| Overall $\chi$ and p value** | 31.03 | 0.005 | 9.84 | 0.774 | 23.77 | 0.049 | 20.24 | 0.009 |

*For a detailed description of the obesity sample (sample C) to be used throughout the remainder of the thesis see figure 7.2, p. 131.
** Excluding missings and women who reported stopping work due to illness.

## Table 7.7 Proportion of obese women at age 53 by family role histories* among women in the NSHD 1946 birth cohort

| NSHD 1946 cohort | N=1433** | % obese at age 53 |
|---|---|---|
| Married with children | 819 | 26 |
| Non-normative family role histories combined | 614 | 25 |
| Married (or remarried) no children | 86 | 21 |
| Remarried with children | 208 | 26 |
| Lone mothers | 247 | 24 |
| Unmarried no children | 73 | 30 |

$\chi^2$ = 2.40, p=0.663
*See section 7.2.1 for a description of the family role history variable.
*For a detailed description of the obesity sample (sample C) to be used throughout the remainder of the thesis see figure 7.2, p. 131.

**Table 7.8     Proportion of obese women at age 53 by work role histories\* among women in the NSHD 1946 birth cohort**

| NSHD 1946 cohort | N=1433** | % obese at 53 |
|---|---|---|
| **Normative work role histories combined** | **1016** | **23** |
| Late entry | 406 | 23 |
| Early entry | 610 | 23 |
| **Non-normative work role histories combined** | **417** | **32** |
| Intermittent employed | 235 | 27 |
| Homemaker | 182 | 39 |

$\chi^2$ = 20.94, p<0.001 for more detailed, 4-category groups
\*See section 7.2.1 & appendix 2 for a description of the work role history variable.
\*For a detailed description of the obesity sample (sample C) to be used throughout the remainder of the thesis see figure 7.2, p. 131.

**Table 7.9     Proportion obese at age 53 by social role histories\* among women in the NSHD 1946 birth cohort**

| NSHD 1946 cohort | N=1433** | % obese |
|---|---|---|
| **Normative** | **547** | **23** |
| Late entry normative | 268 | 24 |
| Early entry normative | 279 | 21 |
| **Lacking one main role** | **555** | **28** |
| Childless | 159 | 25 |
| Homemakers | 149 | 38 |
| Lone mothers | 247 | 24 |
| **Other non-normative mothers** | **331** | **27** |
| Remarried mothers | 183 | 24 |
| Intermittent employed married mothers | 148 | 32 |

$\chi^2$ = 19.53, p=0.003
\* For a detailed description of the social role history variable see section 7.2.1,.
\*\* For a detailed description of the obesity sample (sample C) to be used throughout the remainder of the thesis see figure 7.2, p. 131.

**Figure 7.1    1946 cohort women: Sample A.**

Original birth cohort – females only
N=2,547

Eligibility by age 26
116 dead
237 emigrated or abroad
68 permanent refusals
**Women eligible for analysis by age 26**
**N=2,126**

Women with a valid work role history
N = 1,803
Late entry = 436
Early entry = 719
Intermittent employed = 320
Homemakers = 241
Other = 87

Women with a valid marital history
N = 1,519
At last contact:
Married once = 923
Remarried = 234
Separated/divorced = 222
Never married = 76
Widowed = 64

Women with a valid parental history
N = 2,002
No children at age 53 = 218
Mother by age 53 = 1,784

Women with a valid marital history AND parental history
N = 1,498
Married with children = 847
Remarried with children = 211
Re/married no children = 88
Lone mothers = 260
Unmarried no children = 92

SAMPLE A
Women with a valid work role history,[a] a valid marital history AND a valid parental history
N = 1,457
Late entry normative = 269
Early entry normative = 286
Childless = 162
Homemakers[b] = 151
Lone mothers = 254
Remarried mothers[c] = 185
Intermittent employed married mothers = 150

a    Women in the 'Other' work role history category are excluded.
b    Homemaking lone mothers (n=30) and homemaking childless women (n=4) are included in *Lone mother* and *Childless* categories respectively.
c    Homemaking remarried mothers (n=25) are included in *Homemaker* category.

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**Figure 7.2     1946 cohort women: samples B and C.**

| |
|---|

**SAMPLE A**
Women with a valid work role history,[a] a valid marital history AND a valid parental history
**N = 1,457**
Late entry normative = 269
Early entry normative = 286
Childless = 162
Homemakers[b] = 151
Lone mothers = 254
Remarried mothers[c] = 185
Intermittent employed married mothers = 150

**Women with a valid measure of self-reported health at age 54**
**N = 1,294**
Good health = 879
Poor health = 415

**Women with a valid BMI measure at age 53**
**N=1,494**
Not obese = 1110
Obese = 384

**SAMPLE B**
Valid self-reported health-social role history sample
**N = 1,171[d]**
Late entry normative = 224
Early entry normative = 229
Childless = 141
Homemakers = 117
Lone mothers = 184
Remarried mothers = 151
Intermittent employed married mothers = 125

**SAMPLE C**
Valid obesity-social role history sample
**N = 1,433[d]**
Late entry normative = 268
Early entry normative = 279
Childless = 159
Homemakers = 149
Lone mothers = 247
Remarried mothers = 183
Intermittent employed married mothers = 148

a     Women in the 'Other' work role history category are excluded.
b     Homemaking lone mothers (n=30) and homemaking childless women (n=4) are included in *Lone mother* and *Childless* categories respectively.
c     Homemaking remarried mothers (n=25) are included in *Homemaker* category.
d     In the final step of figure 7.2, women are excluded from samples B or C if they do not have a valid measure of self-reported health at 54 or obesity at 53 (more so for the former than the latter) together with a valid social role history measure. Appendix 3 (pp. 221-222) examines differential exclusion by social role history category.

# Chapter 8  Are relationships between social role histories and later health explained by early health selection?

## 8.1    Introduction

In a review of work examining the health consequences among women of combining paid work with motherhood, Macran (1993) concludes the "a major stumbling block is the failure to consider the impact of health selection" (p. 20). A decade later, this stumbling block remains. This chapter examines whether relationships between social role histories and subsequent poor health are explained by health status in early adulthood or adolescence among women in the 1946 birth cohort. The previous chapter (chapter 7) showed that women who adopted non-normative social role patterns over their adult lives were more likely to report poor health at age 54, while women with weak long-term ties to the labour market were more likely to be obese at age 53. Does health in early life explain these relationships? Obesity, we have seen (chapter 3), is known to 'track' over the lifecourse. It is entirely possible that women who were obese at 53, were also likely to be obese in their teens, twenties or early thirties, and this early obesity may have been a factor in their subsequent non-employment. Chapter 1 showed that previous investigations into the direction of relationships between social roles and health have mainly been confined to a few cross-sectional studies which attempted to control for health selection by adjusting relationships between role and health for the presence of a long-term illness (Bartley, Popay & Plewis 1992; Fokkema 2002; Macran *et al.* 1994). Studies addressing this question in longitudinal data have been limited to cross-sectional social role measures (Hibbard & Pope 1993) or examined selection in relation to divorce and lone parenthood specifically (Hope, Power & Rodgers 1999; Hope, Rodgers & Power 1999). This chapter examines the influence of both early physical and mental health as well as personality type on the increased poor subjective health in middle age of women with non-normative role histories and finds no evidence for selection. In addition to early mental health, the influence of BMI at several age points from adolescence throughout adulthood on the increased obesity in middle age among women with weak long-term ties to the labour market is examined. The chapter shows that body mass index (BMI) increases significantly faster with age for long-term *Homemakers* than for women in *Normative* role histories.

## 8.2    Measures and methods

The previous chapter described the social role history variable and two health outcome variables (self-reported health at age 54 and obesity at age 53) (pp. 116-117), as well as the eligible samples that are used throughout the remainder of the thesis (figures 7.1 and 7.2, pp. 130-131). This section describes the measures of early health and the analytical techniques that are used in this chapter to investigate the direction of relationships between social roles and health among women in this cohort.

### 8.2.1   Measures of early health

The measures of self-reported health at age 26 and obesity at ages 26, 36 and 43 used here are identical to those used as outcome health measures in the cross-sectional analysis of social roles and health in the previous chapter (see section 7.2.2 and 7.2.3). Namely, dichotomised between excellent or good health compared with fair or poor health for self-reported health, and a BMI of 30 or more for obesity. In addition to early obesity, this chapter includes measures of mean BMI at ages 15, 26, 36 and 43, mainly due to the small number of obese women at the earlier ages. This chapter also investigates the influence of early mental health in relation to social roles and both self-reported health at 54 and obesity at 53. The measure of early mental health used is a summary measure of mental health episodes between ages 15 and 32. This measure distinguishes between those with a major mental health episode, defined as being admitted to a psychiatric hospital, and those who reported experiencing minor nervous illnesses, as well as those who reported no such illnesses between these ages. In addition to early mental heath, at age 26, a measure of neuroticism and extroversion, derived from the Maudsley Personality Inventory (Eysenck 1958), was collected.

### 8.2.2   Methods used to investigate the direction of relationships between social roles and health among women in the 1946 birth cohort

This chapter and each of the remaining empirical chapters (9 and 10) examine the relationship between the role history variable (in which work and family role histories were combined, see figure 7.1, p. 130) and their relationship with self-reported health at age 54 and obesity at age 53. The remainder of this chapter is divided into two sections, one presenting results for self-reported health at age 54 and the other presenting results for obesity at age 53. Each of these sections is sub-divided into separate sections for early physical and early mental health. Each of these sub-sections first briefly notes the unadjusted relationships between the early health variables and both social role histories and later health. This is followed by multivariable analysis which was conducted using

logistic regression in SPSS version 9 for windows as was done in chapter 6. However, many variables in longitudinal data sets that are measured at multiple points over time in the same individuals are time dependent, that is some of the variation seen at time two is dependent on variation at time one, and so on. BMI is one such variable as tracking of BMI over the lifecourse is well-known (Power, Lake & Cole 1997, Serdula *et al.* 1993). Customary linear models do not take such time dependence into account. Liang and Zeger (1986) developed generalised estimating equations that take account of the correlation among values for a given subject.

For obesity, where measures of BMI exist for repeated ages, generalised estimating equations are used, in addition to standard multivariable analysis, to look at differences in the probability of being obese for women in each social role history at each age, allowing for the correlation between BMI measures on the same woman. Generalised estimating equations were run in Stata intercooled version 7. The social role history samples (samples B and C described in figure 7.2, p. 131) are used where ever possible. When categorical variables are added to multivariable models with social roles, they include a missing category in order to maintain consistent samples between tables. However, SPSS version 9 for windows does not allow for the inclusion of missing values on continuous explanatory variables in logistic regression. At ages 15 and 26, continuous BMI is used because the number of obese women is small. When continuous BMI is used, women without valid values for BMI are excluded and sample sizes are smaller than the standard sample (sample C described in figure 7.2, p. 131). In each case unadjusted and adjusted stages in the model are shown so that any change in relationships due to the reduction in sample can be seen.

## 8.3    Results: self-reported poor health at age 54

### 8.3.1   Does self-reported poor health at age 26 explain the increased reported poor health at age 54 of women with non-normative social role histories?

Almost half of the women who reported fair or poor health at age 26 also reported fair or poor health at age 54. This compared with just over a quarter of women who reported excellent health at age 26 and just over a third of those who reported good health at age 26. Perhaps surprisingly, self-reported health at age 26 did not significantly predict subsequent social role patterns ($\chi^2$ = 2.24 p = 0.326). In the unadjusted model, relationships between social role histories and self-reported health at age 54 confirmed what was seen in the previous chapter (chapter 7) (table 8.1, model 1, p. 142). Women in

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either of the non-normative groups were significantly more likely to report poor health than women in the *Normative* group, with women *Lacking one main role* more at risk of reporting poor health with an odds ratio of 1.69 (95% CI = 1.27-2.24) than women in the *Other non-normative mother* group (1.43, 1.04-1.98). Also, in the unadjusted model, women who reported fair or poor health at age 26 were significantly more likely to have reported fair or poor health at age 54. Despite the strong tracking of reporting poor health, women in both groups of non-normative social role histories remained significantly more likely to report poor health at 54 after the inclusion of self-reported health at age 26 in the multiple regression (table 8.1, model 2, p. 142).

### 8.3.2 Does early mental health explain the increased reported poor health at age 54 of women with non-normative social role histories?

A little under half (43-48%) of women in each of the social role groups had had some kind of mental health episode in adolescence or early adulthood. Over half (52%) of women who had at least one major mental health episode, and 38% of those with at least one minor mental health episode, between ages 15 and 32, reported having fair or poor health at age 54. This compares with just over a quarter of women with no mental health episodes between these ages reported having fair or poor health at age 54. As with self-reported health at age 26, early mental health did not predict women's social role histories $(\chi^2 = 2.08, p = 0.720)$.

In the unadjusted model, women who had had a mental health episode, and particularly a major mental health episode, between the ages of 15 and 32 were significantly more likely to report poor health at age 54 (table 8.2, model 1, p. 142). Despite this, both groups of non-normative social role histories were significantly more likely to report poor health at 54, both before and after the inclusion of mental health episodes in early adulthood in the model (table 8.2, model 2, p. 142).

So, although both self-reported health at age 26 and mental health between ages 15 and 32 significantly predicted reporting poor health at age 54, neither explained the higher risk of reporting poor health at age 54 of women who followed non-normative social role patterns. This, along with the lack of any significant association between early health and subsequent social role patterns, indicates that the relationships seen between social role histories and subjective health at 54 are not explained by early health selection into non-normative social role combinations.

Neuroticism score at age 26 was significantly associated with reporting fair or poor health at age 54 (p < 0.001), but extroversion score was not (p = 0.104). Neuroticism was not associated with subsequent social role histories (p = 0.848) and did not influence the high risk of reporting poor health at 54 among women in non-normative social role histories (not shown).

## 8.4    Results: obesity at age 53

### 8.4.1    *Does body mass in adolescence and early adulthood explain the increased likelihood of being obese at age 53 among women with weak ties to the labour market?*

Unlike with self-reported health, measures of BMI exist across the life course for women in this cohort. Here, BMI at ages 15, 26, 36, 43 and 53 are used to examine the relationship between BMI and social role histories from adolescence into late middle age. First, conventional statistics are used to describe these relationships at each age. Then, generalised estimating equations are used to examine these relationships at all ages simultaneously while accounting for the correlation between BMI measures on each woman over time.

### *Obesity by age and role history*

Unadjusted analysis confirmed the well-known association between obesity in early life and obesity in later life. Nearly all of the women who were obese at age 36 or 43 were also obese at age 53 (94%, $\chi^2$ = 174.23, p < 0.001; and 91%, $\chi^2$ = 364.95, p < 0.001, respectively). Conversely, less than a quarter (23%) of non-obese women at age 36 and less than a fifth (19%) of non-obese women at age 43 were obese at age 53. BMI at ages 15 and 26 were also both significantly, positively associated with an increased likelihood of being obese at age 53 (p< 0.001 and p = 0.012 respectively). The proportion of obese women is too small at these ages to look at obesity per se.

Women who adopted the long-term *Homemaker* role history were more likely to be obese than women in other social role groups at the age of 36, but were not more likely than other women to be obese at age 26 (figure 8.1, p. 145). Chapter 4 showed that a large proportion of women in this cohort entered the labour market between ages 26 and 36 as their children grew older. The appearance of increased obesity among women who remained at home during the same period could suggest obesity-related selection into the long-term full-time homemaking role, i.e. obese women were less to likely to enter the

labour market than their peers. Alternatively, the fact that we do not see a high prevalence of obesity among long-term *Homemakers* until after the main exodus of their peers into the labour market could equally suggest that the obesity is the result of long-term full-time homemaking. Certainly, the period between ages 26 and 36 was an important period in the lifecourse of women in this cohort in terms of both work role transitions and changing patterns of obesity.

At age 43, although the prevalence of obesity was still higher among *Homemakers*, there was no longer significant variation in obesity by social role histories overall as the prevalence of obesity increased more generally and women in other social role groups 'caught-up' with *Homemakers* to some extent (figure 8.1, p. 145). Between ages 43 and 53, there was a large increase in the prevalence of obesity for all women, but the absolute increase for *Homemakers* was one of the largest, with a jump from 21% to 38% between these two ages (figure 8.1, p. 145). Also, it was not until this age (53) that the relatively higher rates of obesity for *Intermittent employed married mothers* appeared. The absolute increase in prevalence of obesity between ages 43 and 53 were largest for this group, increasing from only 14% to nearly a third at 32% (figure 8.1, p. 145).

In summary, figure 8.1 shows, first, that *Homemakers* became more obese than their peers between ages 26 and 36 when the majority of their peers entered the labour market. Second, figure 8.1 shows that there was a further relative increase for *Homemakers* between ages 43 and 53, as evidenced by the greater increase in obesity prevalence – in absolute, not relative terms -- between these two ages for *Homemakers* compared with other women. Also, figure 8.1 shows that the higher risk of obesity in *Intermittent employed married mothers* to be obese at age 53 occurs entirely between ages 43 and 53. Modelling these data using generalised estimating equations supports these findings (appendix 4, figure 4.A, p. 223). They show that long-term full-time *Homemakers*, and to a lesser extent *Intermittent employed married mothers*, were more likely to be obese than other women at all ages (*Homemakers*: $p < 0.001$, *Intermittent employed married mothers*: $p = 0.038$, compared with the *Normative* group). This supports the idea of obesity-related selection out of the labour market. However, in addition, as in figure 8.1, generalised estimating equations also show a larger absolute increase in obesity for women in this two groups, and especially long-term *Homemakers*, relative to their peers between ages 43 and 53, suggesting that there is an increased risk of becoming obese related to long-term occupation of the full-time homemaker role, in addition to any obesity-related selection effect.

## Mean BMI by age and role history

The proportion of obese women before age 36 is negligible for women in every group, making it difficult to determine whether the relationships which begin to appear at age 36, do indeed have their origins at an earlier age. In order to avoid this difficulty, mean BMI by social role history for each age was also considered. *Homemakers* had a higher mean BMI at every age (figure 8.2, p. 143), and significantly so at 26, 36 and 53 (age 26: p = 0.034, age 36: p = 0.029, age 53: p = 0.001). As with the proportion obese, the increase in mean BMI between ages 43 and 53 was greater for *Homemakers* than for women in other social role groups (figure 8.2, p. 145). The slope in mean BMI remained fairly constant for most women between ages 36 and 53, while for *Homemakers*, the slope became steeper between 43 and 53. Although *Intermittent employed married mothers* appeared to have a slightly higher mean BMI at ages 43 and 53, there were no significant differences in mean BMI for women in any of the other groups (non-*Homemakers*) at any age (figure 8.2, p. 145). Modelling these data using generalised estimating equations confirmed that long-term *Homemakers*, and to a much smaller extent, *Intermittent employed married mothers*, had a higher mean BMI than women in the *Normative* group from age 15 onwards (appendix 4, figure 4.B, p. 223).

As with the proportion obese, results for mean BMI suggest two things. First, that there is some body mass-related selection out of work in early adulthood, and, second, that there was a real increase in the relatively high BMI of *Homemakers* between ages 43 and 53, suggesting an additional role quality effect. When age by social role interaction terms were included in the generalised estimating equation model, there was a significant age by *Homemakers* interaction[18] (p = 0.014, figure 8.3, p. 146, and table 8.3, p. 143). The mean BMI of long-term *Homemakers* increased significantly more with age than it did for women in the *Normative* group. Although this difference in trajectory began prior to age 26, figure 8.3 shows that the gap between *Homemakers* and women in other social role histories continued to widen at each age, long after selection into long-term *Homemaking* is most likely to have occurred. The same occurs for *Intermittent employed married mothers*, but on a much smaller (and non-significant) scale.

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[18] The social role history-age interaction model for mean BMI using general estimating equations was also run with an age-squared term, but this was not significant. The linear age term described the shape of this relationship better than the curved term.

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***Mean BMI prior to role history establishment (ages 15 and 26)***

Examination of women's size in different social role groups over their adult lives is illustrative. Another way of looking at the question of selection versus causation is to see if early BMI explains the increased risk of obesity at age 53 among women with weak long-term ties to the labour market. Multivariable analysis with was conducted with continuous BMI rather than obesity due to the small numbers of women who were obese at young ages. This necessitated the use of slightly smaller samples that exclude those with missing BMI values at ages 26 or 15, respectively. The size of effects was similar in the reduced samples to those in the full samples. Inclusion of BMI at age 26 in the model reduced the odds ratio of obesity at age 53 for *Homemakers* compared with the *Normative* group slightly, but certainly did not explain the difference between women in the *Homemaker* and *Normative* groups (table 8.4, p. 143). The odds of being obese at 53 for *Homemakers* were reduced from 2.25 (1.50-3.40) to 2.01 (1.24-3.27). The risk of being obese at age 53 actually increased for *Intermittent employed married mothers* compared with the *Normative* group after the inclusion of BMI at age 26 from an odds ratio of 1.55 (1.01-2.38) to 1.81 (1.10-2.98). Findings were similar adjusting for BMI at 15 rather than age 26 (table 8.5, p. 144). Using generalised estimating equations to examine the influence of BMI at ages 26 and 15 on the relationship between social role histories and obesity at 53 confirmed that neither BMI at age 26 or BMI at age 15 explained the increased obesity of *Homemakers* at age 53 (appendix 4, tables 4.A and 4.B, p. 225).

In summary, neither BMI at 26 or 15 accounted for the increased likelihood of obesity at age 53 among women with weak long-term ties to the labour market. Also, an examination of obesity and mean BMI across adolescence and adulthood suggested two things. First, that women who followed the long-term *Homemaking* pattern were larger than other women prior to adopting that pattern, suggesting some body mass-related selection out of the labour market in early adulthood. But also that the increase in obesity between ages 43 and 53 was greater for long-term *Homemakers* and *Intermittent employed married mothers* than for women with stronger ties to the labour market, supporting the notion of a role quality effect alongside any initial selection effect. To test formally whether the BMI trajectories over time varied across the different social role groups, techniques that deal with correlated data were used. Generalised estimating equations confirmed the relationships seen using conventional methods and showed that *Homemakers* had a steeper increase in mean BMI between 26 and 53 than women in the *Normative* group.

### 8.4.2  Does early mental health explain the increased likelihood of being obese at age 53 among women with weak ties to the labour market?

Nearly a third (32%) of women who had had a major episode, and 29% of those who had had a minor mental health episode between ages 15 and 32 were obese at age 53, compared with under a quarter of women who had no episode. These early mental health episodes were not significantly associated with social role histories (8.3.2) and did not explain the increased likelihood of being obese at 53 of either long-term *Homemakers* or *Intermittent employed married mothers* (table 8.6, p. 144).

## 8.5    Discussion

None of the relationships between social role histories and self-reported health or obesity in later life among women in this cohort were explained by early physical or mental health. In multivariable models, neither self-reported health at age 26, nor early mental health, (both of which significantly predicted reporting poor health at 54, but not social role histories in unadjusted analysis) influenced the increased risk of reporting poor health at 54 among women in non-normative social role histories. Neither did the inclusion of early mental health influence the increased risk of being obese at 53 among women with weak long-term ties to the labour market. For obesity, where it was possible to examine five age points between adolescence and middle age, there may have been a small amount of selection in that *Homemakers* were more likely to be obese throughout the period examined (ages 15 to 53) so that their increased risk for obesity was not entirely subsequent to long-term social role occupation. However, the analysis of BMI over late adolescence and adulthood also showed a steeper increase in mean BMI between ages 26 and 53 for *Homemakers* than for women in other social role groups. Taken together, the evidence suggested that there may have been some obesity-related selection out of paid employment in early adulthood, but that this did not account for the relationships seen between social role histories and later obesity.

This is one of the few studies to address the question of health-related selection and the homemaking role in longitudinal data. We have seen that several studies have attempted to examine health selection in cross-sectional data by distinguishing between acute and chronic health. Using this technique, two studies found evidence for the existence of a selection effect (Bartley, Popay & Plewis 1992; Fokkema 2002) while another found that the increased risk of reporting poor health among full-time homemakers remained after adjusting for limiting long-standing illness (Macran *et al.* 1994). Janzen and Muhajarine

(2003) conducted a longitudinal study in which health outcomes were examined two years after information on social roles was collected, but did not have any measures of health at baseline or prior to social role occupation, and so could not address the selection question directly. Hibbard and Pope's (1991, 1993) are perhaps the only previous studies to examine relationships between social roles and health longitudinally. Using a sample of people registered with a health care organisation in the United States, they examined social roles in relation to mortality, ischemic heart disease, stroke and malignancy taken from medical records (or vital statistics) 15 years later. Even after adjusting for self-reported health at baseline, non-employed women had a 70% greater chance of death than employed women. However, without any indication of social role duration, a health measure two years prior to baseline may not have been early enough to capture health state prior to social role occupation. In two separate studies, Hope and his colleagues (1999) examined whether psychological distress at age 23 explained the increased prevalence of psychological distress at age 33 among lone mothers or divorced people. In the case of lone mothers, they found that very little of the elevated psychological distress at age 33 was explained by psychological distress at age 23, while the increased psychological distress of divorced men and women involved both selection and causation. With regards to obesity specifically, the tracking of obesity is well established (Hardy, Wadsworth & Kuh 2000; Power, Lake & Cole 1997; Serdula *et al.* 1993). Obesity related selection out of marriage has been shown for women (Gortmaker *et al.* 1993), but obesity related selection out of the work role has not been examined.

This chapter has established that the relationships seen between social role histories and health in middle age are not explained by early health selection into particular social role patterns. The next chapter (chapter 9) investigates the influence of the remainder of potential confounding or mediating factors on the relationship between social role histories and later health as described in chapter 3.

# Chapter 8    Tables and figures

**Table 8.1    Self-reported health at age 54 by social role histories and self-reported health at age 26 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1171* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 453 | 1.00 | | 1.00 | |
| Lacking one main role | 442 | 1.69 | 1.27-2.24 | 1.65 | 1.24-2.19 |
| Other non-normative mothers | 276 | 1.43 | 1.04-1.98 | 1.39 | 1.01-1.93 |
| P value | | 0.001 | | 0.003 | |
| Reports good health at age 26 | 967 | 1.00 | | 1.00 | |
| Reports fair or poor health at age 26 | 114 | 2.00 | 1.35-2.96 | 1.96 | 1.32-2.90 |
| Missing | 90 | 1.46 | 0.94-2.29 | 1.38 | 0.88-2.16 |
| P value | | 0.001 | | 0.002 | |

*For a detailed description of the self-reported health sample (sample B) to be used throughout the thesis, see figure 7.2, p. 131.

**Table 8.2    Self-reported health at age 54 by social role histories and summary mental health between ages 15 and 32 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1171* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 453 | 1.00 | | 1.00 | |
| Lacking one main role | 442 | 1.69 | 1.27-2.24 | 1.71 | 1.28-2.28 |
| Other non-normative mothers | 276 | 1.43 | 1.04-1.98 | 1.40 | 1.01-1.95 |
| P value | | 0.001 | | 0.001 | |
| *Early mental health* | | | | | |
| No episodes | 640 | 1.00 | | 1.00 | |
| Minor | 448 | 1.75 | 1.35-2.27 | 1.74 | 1.34-2.26 |
| Major | 65 | 3.77 | 2.24-6.36 | 3.85 | 2.28-6.52 |
| Missing | 18 | 2.28 | 0.89-5.89 | 2.37 | 0.91-6.14 |
| P value | | <0.001 | | <0.001 | |

*For a detailed description of the self-reported health sample (sample B) to be used throughout the thesis, see figure 7.2, p. 131.

**Table 8.3 Regression coefficients for mean BMI by interactions between social role histories and age using generalised estimating equations among women in the NSHD 1946 birth cohort.**

| Social role histories * age | Coefficient | 95% CI |
|---|---|---|
| Normative * age | 0.00 | |
| Childless * age | -0.03 | -0.07-0.01 |
| Homemaker * age | 0.05 | 0.01-0.09 |
| Lone mothers * age | -0.01 | -0.04-0.02 |
| Remarried mothers * age | 0.00 | -0.03-0.03 |
| Intermittent employed married mothers * age | 0.01 | -0.02-0.04 |

**Table 8.4    Obesity at age 53 by social role histories and BMI at age 26 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1276* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 507 | 1.00 | | 1.00 | |
| Childless | 137 | 1.14 | 0.73-1.77 | 1.21 | 0.72-2.03 |
| Homemaker | 129 | 2.25 | 1.50-3.40 | 2.01 | 1.24-3.27 |
| Lone mothers | 210 | 0.97 | 0.66-1.43 | 1.15 | 0.73-1.79 |
| Remarried mothers | 164 | 1.04 | 0.68-1.58 | 1.21 | 0.75-1.95 |
| Intermittent employed married mothers | 129 | 1.55 | 1.01-2.38 | 1.81 | 1.10-2.98 |
| p value | | 0.002 | | 0.049 | |
| BMI age 26 | 1276 | 1.60 | 1.50-1.70 | 1.59 | 1.50-1.70 |
| P value | | <0.001 | | <0.001 | |

*Sample C (figure 7.2, p. 131), minus exclusions for women with a missing valid BMI at age 26.

**Table 8.5    Obesity at age 53 by social role histories and BMI at age 15 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1103* | Model 1: Unadjusted OR | 95% CI | Model 2: Adjusted OR | 95% CI |
|---|---|---|---|---|---|
| Normative | 429 | 1.00 | | 1.00 | |
| Childless | 123 | 1.21 | 0.77-1.90 | 1.19 | 0.73-1.95 |
| Homemaker | 112 | 2.21 | 1.43-3.41 | 2.32 | 1.45-3.73 |
| Lone mothers | 189 | 0.85 | 0.56-1.29 | 0.92 | 0.60-1.43 |
| Remarried mothers | 145 | 0.90 | 0.57-1.41 | 0.88 | 0.54-1.42 |
| Intermittent employed married mothers | 105 | 1.52 | 0.95-2.41 | 1.52 | 0.92-2.50 |
| p value | | 0.002 | | 0.004 | |
| *BMI age 15* | 1103 | 1.36 | 1.28-1.44 | 1.36 | 1.28-1.44 |
| P value | | <0.001 | | <0.001 | |

*Sample C (figure 7.2, p. 131), minus exclusions for women with a missing valid BMI at age 15.

**Table 8.6    Obesity at age 53 by social role histories and summary of mental health episodes between ages 15 and 32 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1433* | Model 1: Unadjusted OR | 95% CI | Model 2: Adjusted OR | 95% CI |
|---|---|---|---|---|---|
| Normative | 547 | 1.00 | | 1.00 | |
| Childless | 159 | 1.16 | 0.77-1.75 | 1.15 | 0.76-1.73 |
| Homemaker | 149 | 2.14 | 1.45-3.14 | 2.17 | 1.47-3.19 |
| Lone mothers | 247 | 1.08 | 0.76-1.54 | 1.07 | 0.75-1.52 |
| Remarried mothers | 183 | 1.06 | 0.71-1.57 | 1.01 | 0.68-1.50 |
| Intermittent employed married mothers | 148 | 1.60 | 1.08-2.39 | 1.63 | 1.09-2.44 |
| p value | | 0.002 | | 0.001 | |
| **Early mental health** | | | | | |
| No episodes | 792 | 1.00 | | 1.00 | |
| Minor episode(s) | 535 | 1.29 | 1.01-1.66 | 1.34 | 1.04-1.73 |
| Major episode(s) | 83 | 1.49 | 0.91-2.43 | 1.54 | 0.94-2.54 |
| *Missing* | *23* | *0.91* | *0.33-2.47* | *0.91* | *0.33-2.50* |
| p value for trend | | 0.021 | [exc. missing] | 0.010 | [exc. missing] |

*For a detailed description of the obesity sample (sample C) to be used throughout the thesis, see figure 7.2, p. 131.

Figure. 8.1 Proportion obese by social role histories at ages 15, 26, 36, 43 and 53 among women in the 1946 birth cohort
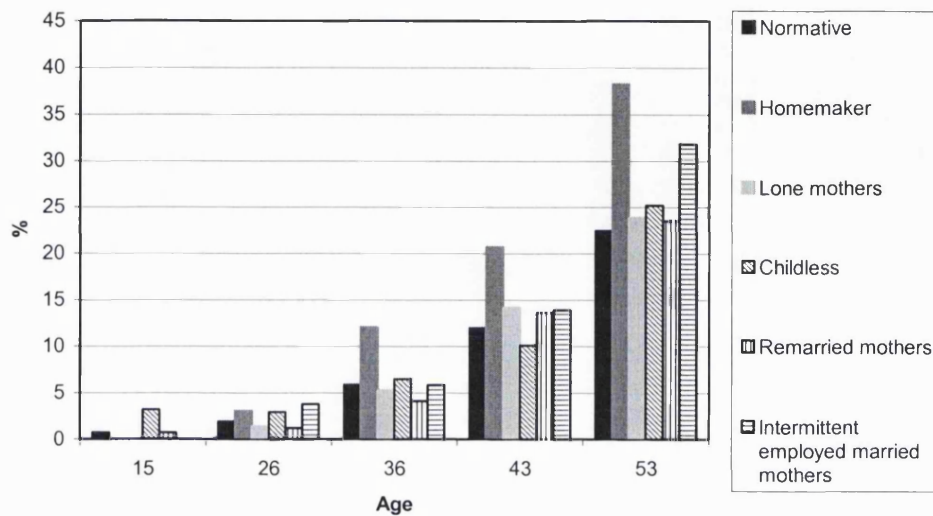
Overall (excluding women with missing values): age 15: $\chi^2 = 11.50$, p = 0.042; age 26: $\chi^2 = 4.03$, p = 0.545; age 36: $\chi^2 = 10.15$, p = 0.071; age 43: $\chi^2 = 9.08$, p = 0.106; age 53: $\chi^2 = 18.99$, p = 0.002



Figure. 8.2 Mean BMI by social role histories at ages 15, 26, 36, 43 and 53 among women in the 1946 birth cohort
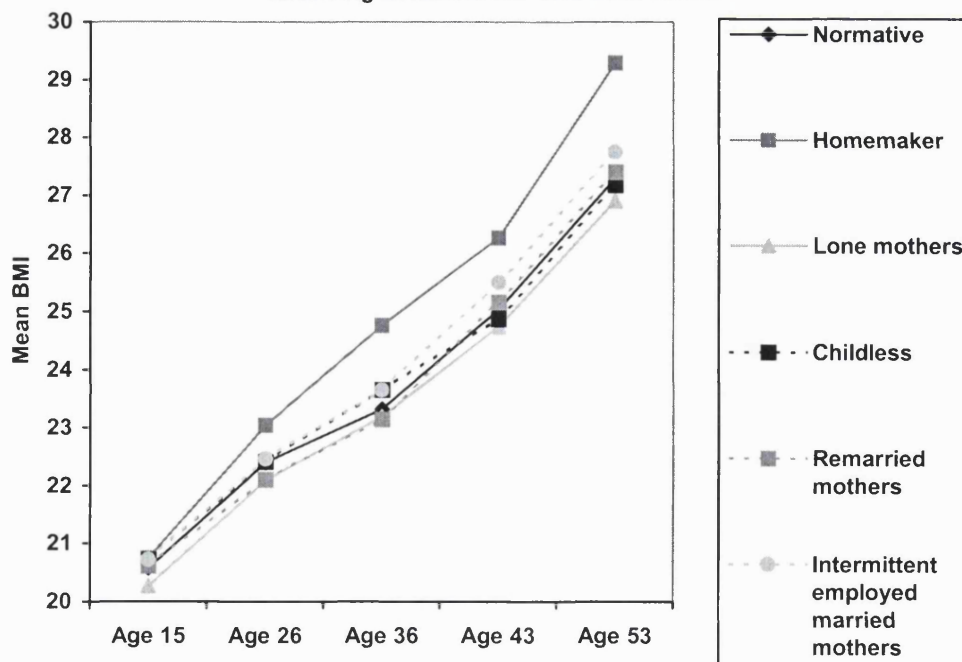
Figure 8.3 Mean BMI by interactions between social role histories and age at ages 15, 26, 36, 43 and 53 using generalized estimating equations among women in the NSHD 1946 birth cohort.
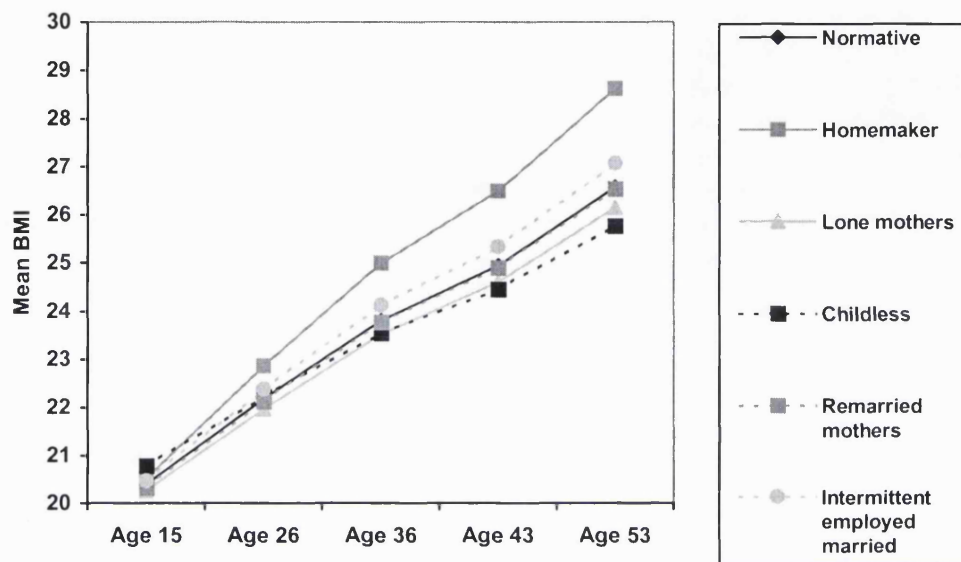
# Chapter 9 Longitudinal relationships between social role histories and health: an examination of confounding and mediating factors

## 9.1 Introduction

The previous chapter (8) established that neither the increased poor health of women with non-normative role histories, nor the relatively high risk of obesity among *Homemakers* was the result of health selection into these roles. This chapter examines additional potential confounding and mediating factors that may account for these relationships. As in the cross-sectional analysis (chapter 6), education and adult social class (both head of household and women's own) are examined as potential confounding factors. We have seen (chapters 1 & 6) that higher educational attainment is associated with childlessness and delayed family formation for pursuit of a career in this cohort of women, while social class is associated with both women's marital status and labour force participation. In addition to the factors considered in cross-section, analysis of women in the 1946 cohort includes examination of two potential confounding factors in relationships between role and health that were not available in the HSE: childhood social class, and parity (in relation to obesity specifically). Studies have shown childhood social class to be an independent predictor of adult obesity (Hardy, Wadsworth & Kuh 2000; Langenberg *et al.* 2003; Parsons *et al.* 1999). In addition, the link between fertility and women's labour force participation is well established (Brewster & Rindfuss 2000) and some studies show relationships between parity and obesity (Braddon *et al.* 1986; Harris, Ellison & Holliday 1997; Rossner 1997). As in cross-sectional analysis (chapter 6) the potentially mediating influence of mental health on the relatively high risk of poor subjective health in middle age of women with non-normative role histories and of obesity in middle age among long-term *Homemakers* is examined. This chapter is divided into separate sections for self-reported health at 54 and obesity at age 53. We will see that, while little of the relatively high rate of poor subjective health in middle age among women with non-normative role histories is explained by the factors included, parity in particular appears to explain some of the increased risk of obesity of long-term *Homemakers*.

## 9.2.    Measures and methods

This section describes the measures of potential confounding or mediating factors, as well as the analytical techniques, used in this chapter. The social role history and health outcome variables are those described in chapter 7 (pp. 114-117).

### 9.2.1  Socio-economic and education measures

Based on the longitudinal framework described in chapter 3 (figure 3.1, p. 66), childhood social class, education and adult socio-economic circumstances are the potential confounders under examination in this chapter. This section describes how these constructs are operationalised.

### Childhood social class

The Registrar General's social class of their father's occupation when cohort women were 11 years old was used as a measure of childhood socio-economic circumstances. If father's occupation at age 11 was unknown, similar measures at age 16 or 4 years were used. The variable is categorised into four groups: classes I and II combined, followed by III Non-Manual, III Manual, and classes IV and V combined.

### Education

The level of the highest educational or training attainment by 26 years, as classified by the Burnham scale (DES 1972), was categorised into: degree level, 'A' level or equivalent, 'O' level or equivalent, vocational or sub 'O' level qualifications, and those with no qualification.

### Adult socio-economic circumstances

Social class based on the occupation of the head of household at age 43 was used, as this was the age of data collection in which households tended to reach their highest class level over adulthood. Social classes I and II are combined as are social classes IV and V for purposes of analysis here, so that the categories used are identical to those used for the childhood social class measures.

As mentioned in chapter 6, household level measures provide the best indication of women's access to socio-economic resources but own occupational class provides a picture of women's own working conditions and financial incentives for being employed. Therefore, the social class of women's own occupation at age 43 (or 36 if 43 was not

available) was also examined. Women with weak long-term ties to the labour market (i.e.

*Homemakers* and *Intermittent employed married mothers*) are excluded. The categories

used for own social class are the same as those used for head of household's social class.


### 9.2.2   Mental health measures

The 1946 cohort data set includes a variety of mental health measures. These are, at age

43, the Psychiatric Symptom Frequency (PSF) scale, for which interviewers rated 19

symptoms of anxiety or depression on scales from zero to five, indicating frequency of

occurrence over the previous 12 months.[19] At age 53 the GHQ28 was used. The GHQ28 is

a scaled version of the original 60 item GHQ.[20] Here both the PSF and the GHQ28 are

used as continuous measures.


### 9.2.3   Parity measure

The number of children women had had was collected and updated at each wave of data

collection up to age 53, and was categorised into one (n=236), two (n=786), three (n=387),

four to six (n=163) and no children (n=218).


### 9.2.4   Methods used to examine potential confounding and mediating factors in relationships between role histories and health in middle age.

Unadjusted relationships in simple cross-tabulations between education or socio-economic

factors and role histories are presented, as in previous chapters, showing overall $\chi^2$ and p

values. Subsequent multivariable analysis uses logistic regression in the same way as for

chapters 6 and 8. Samples A, B or C (as described in figures 7.1 and 7.2, pp. 130-131) are

used for all analysis with two exceptions. For the analysis of own social class,

*Homemakers* and *Intermittent employed married mothers* were excluded as own social

class was not available for three-quarters of *Homemakers* and nearly a third of *Intermittent*

*employed married mothers*. For models including the continuous measures of GHQ28 or

the PSF women with missing values (n = 28 for PSF and n = 13 for GHQ28) were

excluded.

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[19] Principal components analysis showed that one main factor is sufficient to encapsulate much of the
information (Rodgers 1994), so a simple summary measure is used. Details regarding the reliability and
external validity of the PSF have been reported elsewhere (Rodgers 1986).

[20] It was created in order for investigators to differentiate specific symptomologies from the general psychiatric
illness factor measured by the original GHQ. The scales derived by principal components analysis are somatic
symptoms, anxiety and insomnia, social dysfunction, and severe depression (for further details regarding the
GHQ28 see Goldberg & Hillier 1979). Here, the total GHQ28 has been used.

## 9.3 Results: self-reported health at age 54

### 9.3.1 Does childhood social class explain the increased reported poor health at age 54 of women with non-normative role histories?

*Childless* women and *Early entry normative* women (the two groups with the strongest ties to the labour market) were more likely to come from a non-manual class than women in the other groups (table 9.1, p. 160). Half of *Childless* and *Early entry normative* women came from non-manual households compared with 37-39% of women in other groups (except for *Intermittent employed married mothers* who were somewhere between the two at 43%). However, there was little variation in childhood social class between women with different social role histories overall (p = 0.055).

Neither was there a significant relationship between childhood social class and reporting fair or poor health at age 54 (p = 0.125) (appendix 5, p. 225). As childhood social class was not strongly associated with either social role histories or self-reported health at age 54 it was unlikely to act as a confounder in relationships between the two, and further analysis confirmed this (not shown).

### 9.3.2 Does education explain the increased reported poor health at age 54 of women with non-normative social role histories?

Educational qualifications strongly predicted social role histories (table 9.1, p. 160). Long-term *Homemakers* and *Lone mothers* were the least likely to have any educational qualifications. Only half of *Homemakers* and 57% of *Lone mothers* had some educational or vocational qualification. *Childless* women were the most likely to have educational qualifications, with over three-quarters having some educational or vocational qualification, and they were also the most likely to have a degree at 10%. *Early entry normative* women, with strong ties to the labour market, were as likely as *Childless* women to have earned an 'A' level qualification or higher (39% of women in both groups had an 'A' level qualification or a degree). Conversely, *Late entry normative* women who also had relatively strong ties to the labour market, but not as strong as those of *Early entry normative* women, were almost as likely as *Lone mothers* to have no educational qualifications at 42%.

Perhaps surprisingly, educational qualifications were not significantly associated with reporting fair or poor health at age 54 (p = 0.508) (appendix 5, p. 225). This lack of relationship between education and self-reported health at age 54 suggests that education

is unlikely to confound relationships between social role histories and self-reported health at age 54, and further analysis confirmed this (not shown).

### 9.3.3 Do adult socio-economic circumstances explain the increased reported poor health at age 54 of women with non-normative social role histories?

**Social class of head of household at age 43**

As with education, social class of head of household at age 43 was strongly and significantly associated with social role histories (table 9.1, p. 160). *Childless* women and *Early entry normative* women, the two groups with the highest levels of educational qualifications, were also most likely to be in a professional or managerial household in terms of the head of household's social class at age 43. About 60% of women in these groups were in I or II class households and only 6-8% were in IV or V class households. *Childless* women were especially likely to live in a non-manual household with over three-quarters of these women living in a non-manual household. These were also the two groups of women with the strongest ties to the labour market in their own right. The distribution of head of household social class for *Intermittent employed married mothers* was similar to women in these two groups. Long-term *Homemakers*, and particularly *Lone mothers* were most likely to live in a routine or semi-routine occupational household. Just over a third of *Lone mothers* lived in a household in social class I or II (compared with over half of women overall). For both *Lone mothers* and *Homemakers*, 16-17% lived in a household in social class IV or V and 42% lived in a manual household generally.

For women in this cohort, it was not women in more affluent households who were most likely to remain at home full-time and long-term, as was the case among generations of women prior to this cohort. In this cohort women in the more privileged households were those with the strongest ties to the labour market long-term. These results correspond with Joshi's work described in chapter 1 (Joshi 1996, Joshi & Hinde 1993) showing class convergence in the labour force participation of women in this cohort. In terms of family roles, *Lone mothers* were more likely to be in IV/V class households and *Childless* women in I/II class households, which reflected a combination of their own high level occupations and their marriages to men in occupations at similar levels to their own.

There was a significant gradient in reporting fair or poor health at age 54 according to the social class of the head of household in which women lived (appendix 5, p. 225). Twenty-seven per cent of women who were in professional or managerial households at age 43

reported fair or poor health at age 54 compared to 45% of women who were in routine or semi-routine manual occupation households at age 43 ($\chi^2 = 21.87$, p < 0.001).

Relationships between social role histories and reporting poor health at 54 persisted after adjusting for head of household's social class (table 9.3, model 2, p. 161). The odds of reporting poor health for women in either category of non-normative social role history (*Lacking one main role* or *Other non-normative mothers*) were hardly attenuated after the inclusion of social class of head of household into the model.

### Own social class at age 43

Social roles do not appear to be working as proxy measures for household socio-economic circumstances with regards to self-reported health in later life, but what about women's own occupational position? Chapter 1 presented previous work showing that women's own occupations were more important in determining their ties to the labour market than their husband's occupation for women in this cohort compared with their mothers' generation.

Overall, women's own social class was only weakly associated with their social role histories (table 9.2, p. 161). *Early entry normative* and *Childless* women were more likely to be in a professional or managerial occupation at 45% and 44% respectively compared with 29-31% among women in other social role histories. Women in each of the social role history groups were about equally likely to be in a non-manual occupation (at about 70%), except *Lone mothers* who were the most likely not to not have been employed since at least age 36 (at 15%).

There was a significant gradient in reporting fair or poor health at age 54 by women's own occupational social class at age 43 ($\chi^2 = 8.39$, p = 0.039, appendix 5, p. 225) which was weaker than the relationship for social class of head of household. A quarter of women in professional or managerial occupations at age 43 reported poor health at age 54 compared with 35% of women in skilled or semi-skilled manual occupations at age 43.

Own social class did not confound the relationship between social role histories and self-reported health at age 54 (not shown).

### 9.3.4 Does mental health mediate the increased reported poor health at age 54 of women with non-normative social role histories?

Both of the mental health measures was significantly associated with reporting poor health at age 54 (PSF & GHQ-28: p for trend < 0.001 for both, not shown). Women *Lacking one main role* were significantly more likely to have poor mental health at ages 43 and 53 than women in other social role histories (PSF: p = 0.010, GHQ28: p = 0.044, not shown). Looking at specific social role histories, *Homemakers* and *Lone mothers* had higher mean GHQ28 scores than women in *Normative* groups (not shown). The inclusion of mental health at either age 43 or 53 into multiple logistic regression models with social role histories reduced the risk of reporting poor health among women *Lacking one main role*, but it remained significant in both cases (tables 9.4 & 9.5, models 2, p. 162). The inclusion of mental health at age 43 or 53 reduced the risk of reporting poor health among *Other non-normative married mothers* somewhat less.

### 9.3.5 Summary of results for self-reported health at age 54

This section has shown that adult socio-economic circumstances were more likely than early life factors to be potential explanations for relationships between social role histories and self-reported health at age 54. Neither of the early life factors, childhood social class or education, were significantly associated with self-reported health at age 54. Household social class at age 43 was much more strongly associated with both social role histories and self-reported health at 54 than women's own social class at age 43. Despite this strong association, the inclusion of social class of head of household into the multiple regression model did not reduce the increased risk of reporting fair or poor health among women in non-normative social role groups. Mental health in middle age (either at age 43 or 53) reduced the odds of reporting poor health at age 54 among women *Lacking one main role* more than any of the early life or socio-economic factors. However, their risk of reporting poor health at age 54 remained strong and significant. It appears that some of the relationship between social roles and subjective health is associated with poor mental health, but that these relationships are not reducible to mental health entirely. The increased risk of reporting poor health in each of the non-normative groups was reduced slightly more when social class of head of household and mental health at ages 43 and 53 were combined in a multivariable model, but the risk for women *Lacking one main role* remained significantly raised (figures 9.1 and 9.2, p. 165; for the full model see appendix 5, p. 226).

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## 9.4    Results: obesity at age 53

Each of the socio-economic and education measures (childhood social class, educational qualifications, head of household social class at 43, and own social class at 43) was significantly associated with being obese at 53 in unadjusted analysis (appendix 5, p. 226). For each measure of social class (both adult and child) about a fifth of women in professional or managerial households (or occupations) were obese at 53 rising to 32-42% of women in IV or V class households (or occupations) ($p < 0.001$ for each measure). The gradient was steepest for social class of head of household at age 43 (at 42% of women in IV/V households obese at 53) and shallowest for childhood social class (at 32% of women in IV/V households). The social class of women's own occupation at age 43 was in between (at 36% of women in a IV or V class occupation). Similarly, there was a gradient in the likelihood of being obese at 53 according to women's educational qualifications, ranging from 16% of women with a degree to 32% of women with no qualifications being obese at age 53 ($p < 0.001$). Significant associations between childhood social class, education and adult social class and mean BMI among men and women in this cohort has been shown elsewhere (Hardy, Wadsworth & Kuh 2000; Langenberg *et al.* 2003).

### 9.4.1    Does childhood social class explain the increased likelihood of being obese at age 53 among women with weak ties to the labour market?

The previous section (section 9.3) showed that childhood social class was not associated with social role histories. *Homemakers* and *Intermittent employed married mothers* – the two groups of women with the weakest ties to the labour market – were shown in chapter 7 to be significantly more likely than women in *Normative* social role groups to be obese at age 53. However, *Homemakers* were identical to *Late entry normative* women in their distribution of childhood social class, and *Intermittent employed married mothers* were identical in their distribution of childhood social class to *Normative* women overall (table 9.1, p. 160). Therefore, childhood social class would not be expected to be a confounder in the increased risk of obesity at age 53 among *Homemakers* or *Intermittent employed married mothers* and further analysis confirmed this (not shown).

### 9.4.2    Does education explain the increased likelihood of being obese at age 54 among women with weak ties to the labour market?

Long-term *Homemakers* were the group of women who were most likely to have no educational qualifications (table 9.1, p. 160) and were significantly more likely to be obese than women in the *Normative* social role group. Multivariable analysis was used to look at

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whether a lack of educational qualifications explained the increased likelihood of being obese at 53 among *Homemakers*. In both the unadjusted and adjusted models, there was a significant gradient in the likelihood of being obese at 53 in terms of educational qualifications (table 9.6, models 1 and 2, p. 163). Women with no qualifications were particularly likely to be obese at age 53. Adjusting for educational qualifications explained a small amount of the increased risk for obesity among long-term *Homemakers* compared with the *Normative* group (table 9.6, model 2, p. 163). The increased risk of obesity at 53 for *Intermittent employed married mothers* compared with the *Normative* group increased slightly after the inclusion of educational qualifications.

### 9.4.3    Do adult socio-economic circumstances explain the increased likelihood of being obese at age 53 among women with weak ties to the labour market?

**Social class of head of household**

Long-term *Homemakers* were one of the groups shown to be most likely to live in a social class IV/V household, as seen in the previous section (section 9.3), and was also the group most likely to be obese at 53 seen in chapter 7. The distribution of household social class was similar for *Intermittent employed married mothers* and *Late entry normative* women, but *Intermittent employed married mothers* were less likely to live in a social class I/II household than *Early entry normative* women. It is therefore possible that the increased likelihood of obesity in *Homemakers* is attributable to deprived household socio-economic circumstances, but these circumstances are less likely to account for the increased likelihood of obesity among *Intermittent employed married mothers*.

There was a significant gradient in the likelihood of being obese at age 53 based on head of household social class at age 43 both before and after the inclusion of social role histories (table 9.6, models 1 and 3, p. 163). The influence of adjusting for social class of head of household on the increased likelihood of being obese at 53 for women with weaker ties to the labour market was very similar to that of education. The risk of being obese was reduced slightly, but remained strong and significant, for long-term *Homemakers* compared with the *Normative* group (table 9.6, model 3, p. 163). Adjustment for social class of head of household increased the risk of being obese at 53 among *Intermittent employed married mothers* compared with the *Normative* group slightly.

***Own social class***

The social class of women's own occupations (among those with relatively strong ties to the labour market) was not significantly associated with women's social role histories. The two groups of women with an increased risk of obesity at age 53 compared with *Normative* women – *Homemakers* and *Intermittent employed mothers* -- were the very groups who could not be included in analysis of own social class due to their low levels of labour market participation (table 9.2, p. 161). Therefore, it is unlikely that own social class acts as a confounder in the increased obesity at age 53 among women with weak ties to the labour market and further analysis confirmed this (not shown).

### 9.4.4   Does mental health mediate the likelihood of being obese at age 54 among women with weak ties to the labour market?

GHQ28 at age 53 was significantly associated with being obese at the same age, but PSF score at age 43 was not (p for trend = 0.722, not shown). We have seen (section 9.3.4) that mental health at age 53 was associated with social role histories. In the reduced sample (sample C excluding women without a valid GHQ28 score at age 53) the increased risk of obesity among *Intermittent employed married mothers* was no longer significant, but relationships with obesity for women in every other social role groups was unchanged. The inclusion of GHQ28 at age 53 reduced the decreased risk of obesity at age 53 among *Homemakers* only slightly (table 9.7, p. 164).

### 9.4.5   Does parity explain the increased likelihood of being obese at age 54 among women with weak ties to the labour market?

Long-term *Homemakers* were more likely to have large families than women in other social role histories (figure 9.3, p. 166). A fifth of *Homemakers* had four or more children compared with 6% of *Normative* women and 10-11% of women in the other three social role histories. The majority of *Homemakers* had three or more children, at 58%. *Intermittent employed married mothers* were also more likely to have three or more children at 41% compared with about a third of women in the other three groups.

Parity was also significantly associated with being obese at age 53. Thirty-six per cent of women who had 4-6 children and 30% of women who had three children were obese at age 53 compared with 23% of women who had one or two children. The proportion of nulliparous women who were obese at age 53 was similar to the proportion of obese women who had three children. Perhaps it was the fact that *Homemakers*, and to a lesser

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extent, *Intermittent employed married mothers* had more children than their peers in other social role histories that explains their increased likelihood of being obese in late middle age. When parity was included in a multiple logistic regression model with social role histories, it reduced the increased risk of being obese at 53 among long-term *Homemakers* more than any other factor considered in this thesis, although the relationship remained strong and significant (table 9.8, p. 164). Parity did not influence the increased likelihood of being obese at 53 among *Intermittent employed married mothers.*

### 9.4.6 Summary of results for obesity at age 53

Although each of the measures was significantly associated with being obese at age 53, only education, social class of head of household, mental health at age 53 and parity were significantly associated with social role histories. The social role group that was most likely to be obese at age 54 was *Homemakers*. They were also the group least likely to have any educational or vocational qualifications, one of the most likely to live in a IV/V class household, to have poor mental health at age 53 and the most likely to have three or more children. The other group of women significantly more likely to be obese at 53 than women in the *Normative* groups was *Intermittent employed married mothers*. They actually faired slightly better than *Normative* women in terms of education and household social class and did not differ significantly from *Normative* women in terms of mental health at age 53. *Intermittent employed married mothers* were more likely than *Normative* women to have had three of more children. In multivariable analysis education and household social class behaved almost identically in their influence on the increased risk of obesity among women in these two groups. The increased risk obesity among *Homemakers* was reduced slightly while the increased risk among *Intermittent employed married mothers* increased very slightly, if anything, when either education or social class of head of household were included in the model. Mental health at age 53 reduced the risk of obesity among *Homemakers* about as much as social class of head of household. The increased risk of obesity at 53 among *Homemakers* was reduced more by parity than by education, social class or mental health. Parity hardly reduced the risk for obesity among *Intermittent employed married mothers* at all.

The differing influence of household social class and education on the risk of obesity for these two groups of women (*Homemakers* and *Intermittent employed married mothers*) is what we might expect considering their very different distribution of both of these factors. Long-term *Homemakers* were much less likely to live in advantaged households or have any educational qualifications compared with women who followed the *Normative* pattern,

and the increased obesity of long-term *Homemakers* partly reflects this. However, neither household socio-economic circumstances nor education explained the increased risk for obesity among long-term *Homemakers* entirely. *Homemakers* remained significantly more likely than women who followed *Normative* patterns to be obese at 53, even after the inclusion of social class of head of household or educational qualifications. Family size appears to be on the pathway of increasing risk for obesity in late middle age among long-term *Homemakers*. A larger family size would have meant that these women were likely to have stayed at home with small children longer than their peers who had fewer children. A fully-adjusted model that included education, social class, mental health and parity reduced the odds of obesity at 53 among *Homemakers* to its lowest level at 1.72 (1.14-2.58), but did not reduce it entirely (figures 9.4 and 9.5, p. 167, for the full model see appendix 5, p. 227).

## 9.5    Discussion

This chapter examined the influence of potential confounders and mediators on the increased poor subjective health in middle age of women with non-normative social role histories, or the increased obesity in middle age of women with weak long-term ties to the labour market. The factors selected as potential confounders based on previous evidence of their associations with subjective health and obesity or social roles were childhood social class, education and adult social class (head of household and own). This chapter also examined the potential mediating effect of mental health on relationships between role histories and health in middle age. Looking at the influence of education and socio-economic factors on the relatively poor subjective health in middle age of women with non-normative role histories, adult household socio-economic circumstances were more important than early life factors (education and childhood social class) or the social class of women's own occupation. Adjustment for social class of head of household had very little influence on the increased risk of reporting poor health among women in either non-normative role history group. Two measures of mental health in middle age were associated with both subjective health in middle age and role histories, but as with social class of head of household, did not explain the increased poor subjective health of women with non-normative role histories.

It is difficult to compare these results with previous work as there are no comparable studies. As discussed in chapter 6, many studies have examined the influence of education or class on the relatively high poor subjective health of full-time homemakers or lone mothers in cross-section. The majority of studies (Arber 1997; Bartley, Popay &

Plewis 1992; Bartley *et al.* 1999; Hope, Power & Rodgers 1999; Macran *et al.* 1994) are consistent with what was found here, that socio-economic circumstances did not explain relationships between social roles and self-reported health, although none of these studies examined relationships between role histories and health in middle age. Mental health has been examined as a separate outcome rather than a mediator in relationships between roles and health in existing work, and, again, studies of roles and mental health have mainly been cross-sectional (Bartley, Popay & Plewis 1992; Gove 1978, 1984; Gove & Geerkin 1977; Hope, Power & Rodgers 1999; McLanahan & Adams 1987; Nathanson 1975, 1980; Voydanof & Donnelly 1989).

While work has examined obesity in relation to family roles (Gortmaker *et al.* 1993; Sobal, Rauschenbach & Frongillo 1992), no previous study has focused on relationships between work roles and obesity in women, let alone confounding and mediating factors to relationships between work roles and obesity. However, previous work has established links between childhood social class (Hardy, Wadsworth & Kuh 2000; Langenberg *et al.* 2003; Parsons *et al.* 1999), adult social class (Langenberg *et al.* 2003; Sobal & Stundard 1989), parity (Braddon *et al.* 1986; Harris, Ellison & Holliday 1997; Rossner 1997) and obesity in adulthood.

This chapter has shown that social roles are not acting primarily as proxy measures for socio-economic circumstances or educational attainment in their relationships with health in later life. All but one aspect of the longitudinal framework described in chapter 3 has now been tested. It has been shown that the relationships between social role histories and health in middle age are unlikely to be due to health selection, or to the soci-economic circumstances of women with different role trajectories. Can the relationships between role histories and health be explained in terms of the quality of women's experiences? Chapter 10 operationalises the theories of role quality raised by this thesis and studies the contribution they make to relationships between social role histories and subsequent health among women in this cohort.

## Table 9.1    Education and socio-economic circumstances by social role histories among women in the NSHD 1946 birth cohort

| Childhood social class | N = 1457* | Normative % | Late entry normative % | Early entry normative % | Lacking one main role % | Childless % | Homemakers % | Lone mothers % | Other non-normative mothers % | Remarried mothers % | Intermittent employed married mothers % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I/II | 354 | 27 | 22 | 31 | 26 | 36 | 22 | 22 | 24 | 24 | 23 |
| IIINM | 227 | 18 | 17 | 19 | 16 | 13 | 17 | 16 | 16 | 13 | 20 |
| IIIM | 452 | 32 | 31 | 31 | 33 | 29 | 32 | 36 | 35 | 38 | 31 |
| IV/V | 350 | 25 | 30 | 20 | 22 | 21 | 29 | 26 | 26 | 25 | 26 |
| *Missing* | *74* | - | - | - | - | - | - | - | - | - | - |
| Overall $\chi^2$, p value** | | 32.28 | p = 0.055 | | | | | | | | |
| **Educational qualifications** | | % | % | % | % | % | % | % | % | % | % |
| Degree | 70 | 6 | 4 | 8 | 6 | 10 | 4 | 4 | 3 | 1 | 5 |
| A level or equivalent | 328 | 25 | 19 | 31 | 24 | 29 | 20 | 22 | 21 | 14 | 29 |
| O level or equivalent | 357 | 26 | 29 | 24 | 23 | 31 | 19 | 20 | 30 | 34 | 24 |
| Vocational/sub-O level | 123 | 8 | 7 | 9 | 9 | 6 | 7 | 11 | 11 | 12 | 10 |
| No qualification | 796 | 35 | 42 | 29 | 39 | 24 | 50 | 43 | 36 | 39 | 31 |
| *Missing* | *65* | - | - | - | - | - | - | - | - | - | - |
| Overall $\chi^2$, p value** | | 89.12 | p < 0.001 | | | | | | | | |
| **Social class of head of household** | | % | % | % | % | % | % | % | % | % | % |
| I/II | 721 | 56 | 49 | 63 | 48 | 59 | 53 | 37 | 51 | 46 | 59 |
| IIINM | 170 | 9 | 11 | 7 | 16 | 18 | 5 | 21 | 12 | 13 | 10 |
| IIIM | 348 | 27 | 31 | 22 | 23 | 17 | 26 | 25 | 26 | 29 | 22 |
| IV/V | 151 | 8 | 8 | 8 | 14 | 6 | 16 | 17 | 11 | 12 | 9 |
| *Missing* | *76* | - | - | - | - | - | - | - | - | - | - |
| Overall $\chi^2$, p value** | | 81.29 | p < 0.001 | | | | | | | | |

* For a description of the social role history sample (sample A) see figure 7.1, p. 130

** Missings are excluded for all proportions, $\chi^2$ s, and p values.

**Table 9.2** Social class of own occupation by social role histories among women with relatively strong long-term ties to the labour market in the NSHD 1946 cohort

| Own social class | N = 1156* | Late entry normative % | Early entry normative % | Childless % | Lone mothers % | Remarried mothers % |
|---|---|---|---|---|---|---|
| I/II | 402 | 29 | 45 | 44 | 30 | 31 |
| IIINM | 380 | 41 | 30 | 27 | 31 | 40 |
| IIIM | 68 | 6 | 7 | 7 | 5 | 5 |
| IV/V | 177 | 20 | 13 | 11 | 18 | 16 |
| *Not working since age 36 or longer* | *92* | *3* | *5* | *11* | *15* | *9* |
| *Missing* | *37* | - | - | - | - | - |
| Overall $\chi^2$, p value** | | 15.98 | p = 0.067 | | | |

\* Sample A excluding *Homemakers* and *Intermittent employed married mothers*
\*\* Excludes missings and women not employed since age 36 or longer

**Table 9.3** Self-reported health at age 54 by social role histories and social class of head of household at age 43 (or most recent) among women in the NSHD 1946 birth cohort

| Social role histories | N=1171* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 453 | 1.00 | | 1.00 | |
| Lacking one main role | 442 | 1.69 | 1.27-2.24 | 1.64 | 1.23-2.18 |
| Other non-normative mothers | 276 | 1.43 | 1.04-1.98 | 1.41 | 1.01-1.96 |
| P value | | 0.001 | | 0.003 | |
| *Social class of head of household* | | | | | |
| I/II | 623 | 1.00 | | 1.00 | |
| IIINM | 143 | 1.28 | 0.87-1.90 | 1.20 | 0.80-1.78 |
| IIIM | 253 | 1.74 | 1.28-2.37 | 1.74 | 1.27-2.37 |
| IV/V | 116 | 2.20 | 1.47-3.30 | 2.12 | 1.41-3.19 |
| *Missing* | *36* | *2.17* | *1.10-4.28* | *1.97* | *0.99-3.91* |
| P value | | <0.001 | | <0.001 | |

\* For a description of the sample (sample B) see figure 7.2, p. 131

**Table 9.4    Self-reported health at age 54 by social role histories and mental health at age 43 (PSF) among women in the NSHD 1946 birth cohort**

| Social role histories | N=1143* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 446 | 1.00 | | 1.00 | |
| Lacking one main role | 432 | 1.68 | 1.26-2.24 | 1.56 | 1.17-2.10 |
| Other non-normative mothers | 265 | 1.37 | 0.98-1.90 | 1.33 | 0.95-1.87 |
| P value | | 0.002 | | 0.011 | |
| Mental health at age 43 (PSF) | 1143 | 1.04 | 1.03-1.05 | 1.04 | 1.03-1.05 |
| P value | | <0.001 | | <0.001 | |

*Sample B minus exclusions for women with a missing PSF score.

**Table 9.5    Self-reported health at age 54 by social role histories and mental health at age 53 (GHQ28) among women in the NSHD 1946 birth cohort**

| Social role histories | N=1158* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 447 | 1.00 | | 1.00 | |
| Lacking one main role | 438 | 1.71 | 1.28-2.27 | 1.62 | 1.19-2.20 |
| Other non-normative mothers | 273 | 1.46 | 1.05-2.02 | 1.41 | 0.99-2.01 |
| P value | | 0.001 | | 0.009 | |
| Mental health at age 53 (GHQ28) | 1158 | 1.10 | 1.08-1.11 | 1.10 | 1.08-1.11 |
| P value | | <0.001 | | <0.001 | |

* Sample B minus exclusions for women with a missing GHQ-28 score.

**Table 9.6** Obesity at age 53 by social role histories, educational qualifications and social class of head of household at age 43 (or most recent) among women in the NSHD 1946 birth cohort

| Social role histories | N=1433* | Model 1: Unadjusted OR    95% CI | | Model 2: Education- adjusted OR    95% CI | | Model 3: Social class- adjusted OR    95% CI | |
|---|---|---|---|---|---|---|---|
| Normative | 547 | 1.00 | | 1.00 | | 1.00 | |
| Childless | 159 | 1.16 | 0.77-1.75 | 1.25 | 0.83-1.90 | 1.21 | 0.80-1.84 |
| Homemaker | 149 | 2.14 | 1.45-3.14 | 2.00 | 1.35-2.96 | 2.06 | 1.39-3.05 |
| Lone mothers | 247 | 1.08 | 0.76-1.54 | 1.03 | 0.72-1.48 | 1.02 | 0.71-1.47 |
| Remarried mothers | 183 | 1.06 | 0.71-1.57 | 0.98 | 0.66-1.47 | 1.02 | 0.68-1.52 |
| Intermittent employed married mothers | 148 | 1.60 | 1.08-2.39 | 1.65 | 1.10-2.48 | 1.66 | 1.11-2.49 |
| p value | | 0.002 | | 0.004 | | 0.003 | |
| *Educational qualifications* | | | | | | | |
| Degree | 68 | 1.00 | | 1.00 | | N/a | |
| A level or equivalent | 323 | 1.21 | 0.60-2.44 | 1.18 | 0.58-2.40 | N/a | N/a |
| O level or equivalent | 351 | 1.73 | 0.87-3.45 | 1.76 | 0.88-3.53 | N/a | N/a |
| Vocational/sub O level | 123 | 1.90 | 0.89-4.06 | 1.92 | 0.89-4.13 | N/a | N/a |
| No qualification | 504 | 2.45 | 1.25-4.81 | 2.42 | 1.23-4.78 | N/a | N/a |
| *Missing* | *64* | *1.45* | *0.60-3.48* | *1.45* | *0.60-3.52* | *N/a* | *N/a* |
| p value for trend** | | <0.001 | | <0.001 | | N/a | |
| *Social class of head of household* | | | | | | | |
| I/II | 713 | 1.00 | | N/a | | 1.00 | |
| IIINM | 165 | 1.07 | 0.72-1.60 | N/a | N/a | 1.13 | 0.75-1.70 |
| IIIM | 340 | 1.34 | 1.00-1.80 | N/a | N/a | 1.37 | 1.02-1.85 |
| IV/V | 149 | 2.46 | 1.70-3.57 | N/a | N/a | 2.46 | 1.69-3.59 |
| *Missing* | *66* | *0.85* | *0.45-1.59* | *N/a* | *N/a* | *0.80* | *0.42-1.52* |
| p value for trend** | | <0.001 | | N/a | | <0.001 | |

\* For a description of the sample (sample C) see figure 7.2, p. 131
\*\* Excludes missings

**Table 9.7    Obesity at age 53 by social role histories and mental health at age 53 (GHQ28) among women in the NSHD 1946 birth cohort**

| Social role histories | N=1411* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 540 | 1.00 | | 1.00 | |
| Childless | 158 | 1.16 | 0.77-1.75 | 1.15 | 0.76-1.74 |
| Homemakers | 148 | 2.15 | 1.46-3.16 | 2.09 | 1.41-3.08 |
| Lone mothers | 241 | 1.04 | 0.72-1.49 | 1.00 | 0.70-1.44 |
| Remarried mothers | 179 | 1.05 | 0.70-1.57 | 1.04 | 0.70-1.55 |
| Intermittent employed married mothers | 145 | 1.49 | 0.99-2.24 | 1.50 | 0.99-2.25 |
| P value | | 0.002 | | 0.004 | |
| Mental health at age 53 (GHQ28) | 1411 | 1.02 | 1.01-1.03 | 1.02 | 1.01-1.03 |
| P value trend | | 0.004 | | 0.006 | |

*Sample C (see chapter 7, p. 131) minus exclusions for women with a missing GHQ28 score at age 53.

**Table 9.8    Obesity at age 53 by social role histories and number of children among women in the NSHD 1946 birth cohort**

| Social role histories | N=1433* | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 547 | 1.00 | | 1.00 | |
| Childless | 159 | 1.16 | 0.77-1.75 | 1.26 | 0.74-2.14 |
| Homemakers | 149 | 2.14 | 1.45-3.14 | 1.89 | 1.27-2.81 |
| Lone mothers | 247 | 1.08 | 0.76-1.54 | 1.05 | 0.74-1.51 |
| Remarried mothers | 183 | 1.06 | 0.71-1.57 | 1.04 | 0.71-1.55 |
| Intermittent employed married mothers | 148 | 1.60 | 1.08-2.39 | 1.58 | 1.06-2.37 |
| P value | | 0.002 | | 0.017 | |
| **Number of children** | | | | | |
| 1 | 177 | 1.00 | | 1.00 | |
| 2 | 642 | 0.98 | 0.66-1.45 | 0.97 | 0.65-1.45 |
| 3 | 324 | 1.42 | 0.93-2.16 | 1.31 | 0.85-2.01 |
| 4-6 | 123 | 1.91 | 1.15-3.18 | 1.71 | 1.02-2.86 |
| No children | 159 | 1.12 | 0.68-1.84 | -- | -- |
| Missing | 8 | -- | -- | -- | -- |
| P value | | 0.012 | | 0.046 | |

* For a description of the sample (sample C) see figure 7.2, p. 131

**Figure 9.1 Odds (95% C I) of reporting poor health at age 54 among women Lacking one main role in the NSHD 1946 birth cohort**
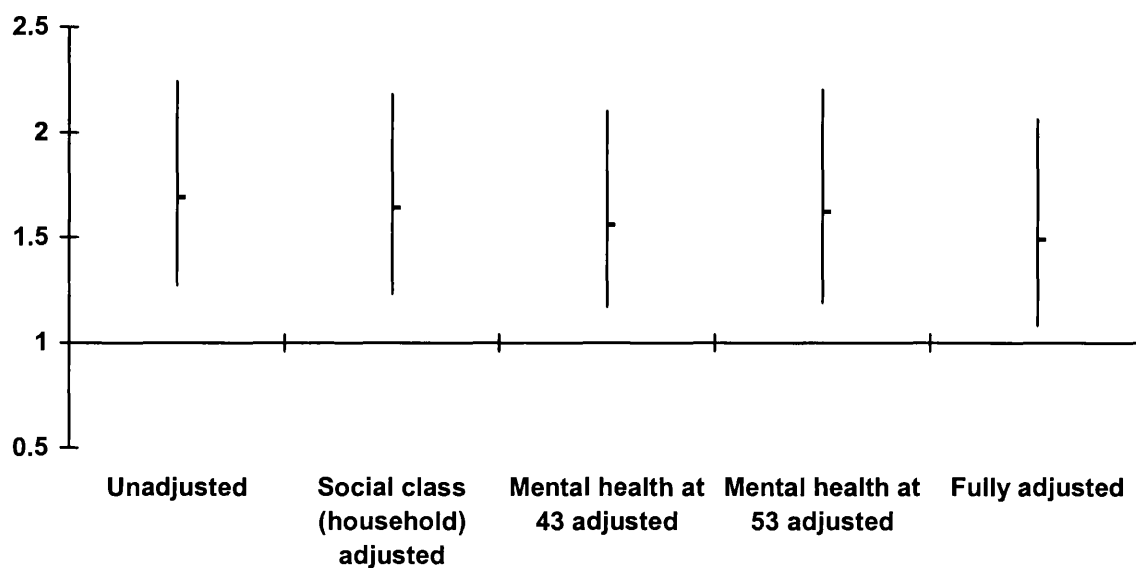


**Figure 9.2 Odds (95% C I) of reporting poor health at age 54 among Other non-normative mothers in the NSHD 1946 birth cohort**
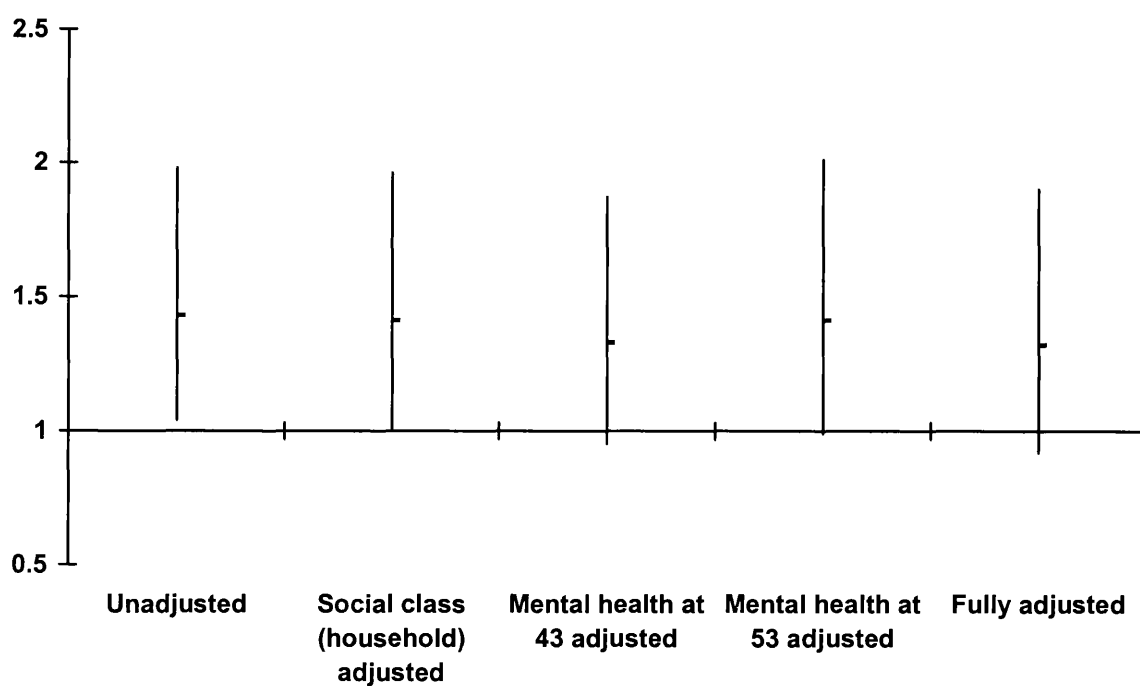
Figure 9.3 Number of children by social role history among women in the NSHD 1946 birth cohort
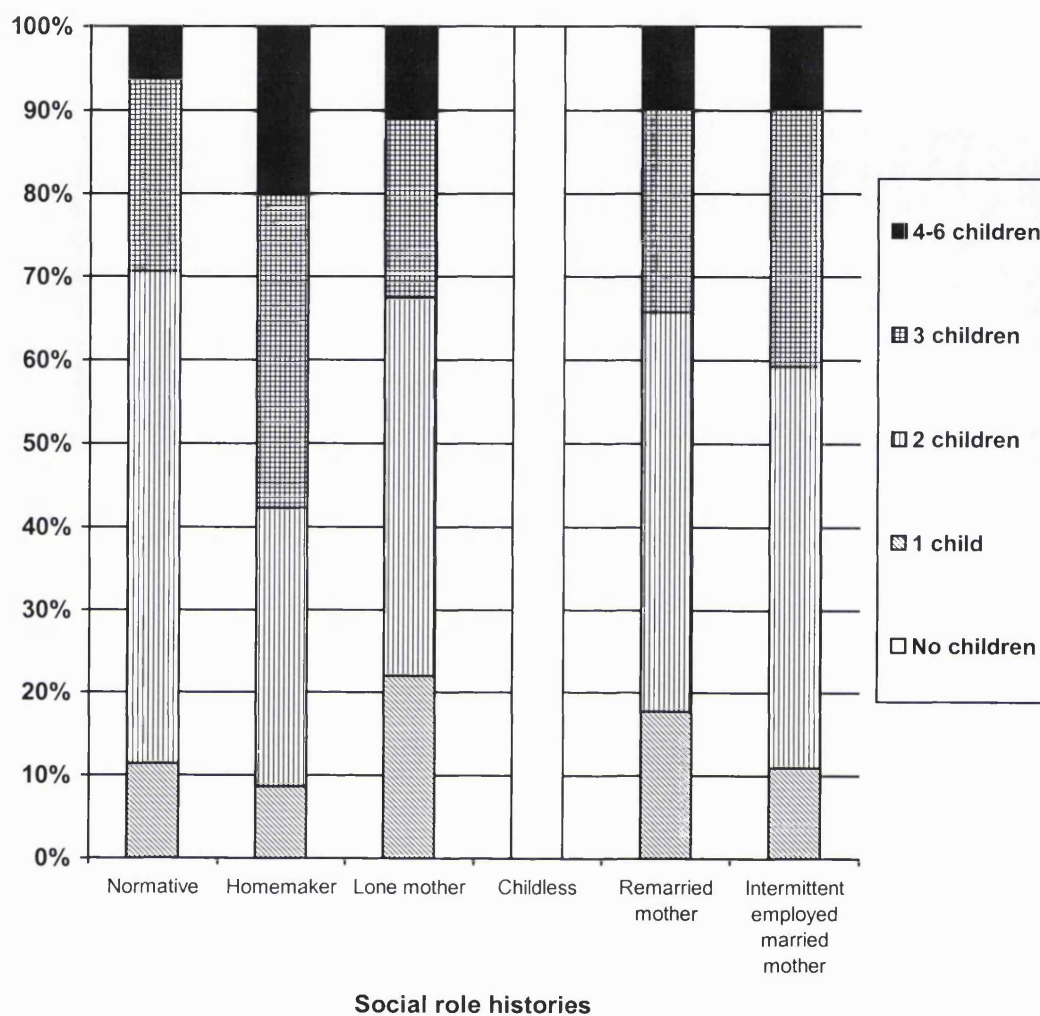
$\chi^2$ = 1508.92, p < 0.001

Figure 9.4 Odds (95% C I) of being obese at age 53 among long-term
Homemakers in the NSHD 1946 birth cohort
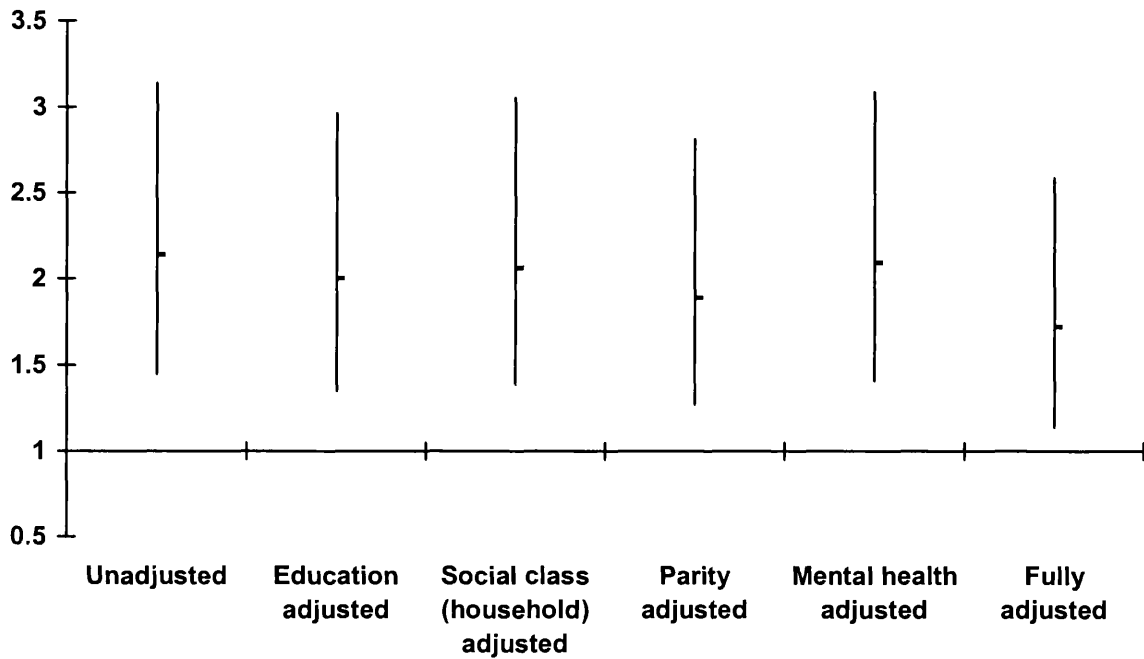


Figure 9.5 Odds (95% C I) of being obese at age 53 among Intermittent
employed married mothers in the NSHD 1946 birth cohort
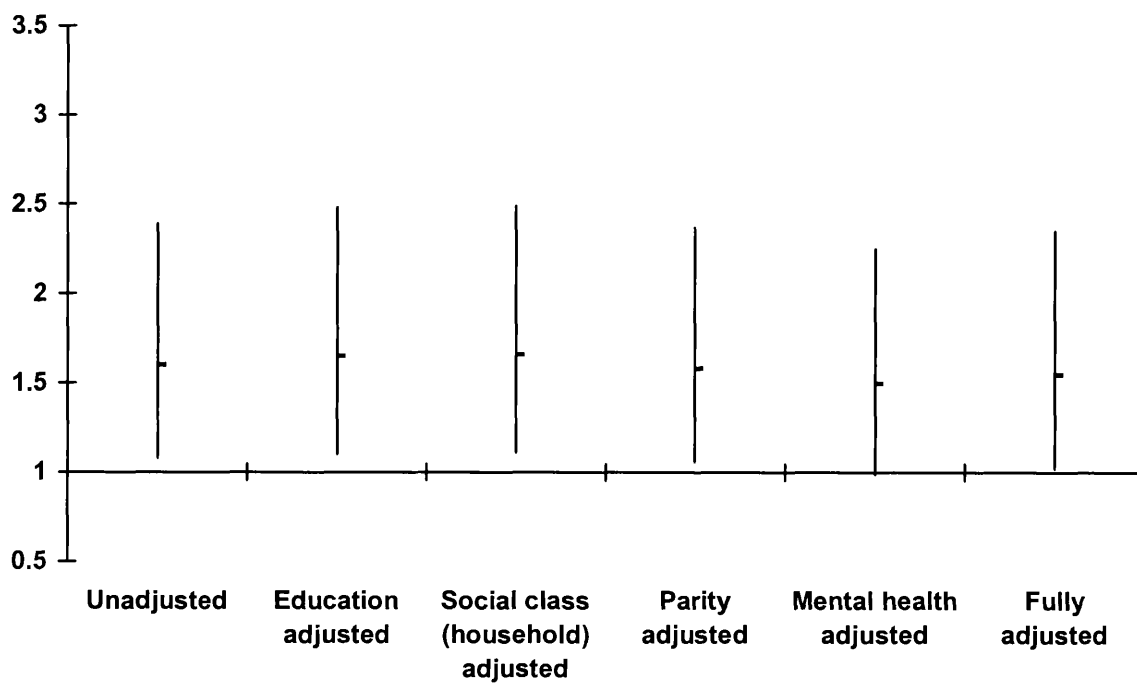
# Chapter 10    Social roles, role quality and health

## 10.1    Introduction

We have seen that women who did not follow the normative social role pattern of being married to one man, having children and maintaining fairly strong ties to the labour market were significantly more likely to report poor health at age 54 than their more normative peers. In addition, women with weaker long term ties to the labour market were more likely to be obese at age 53 than women who followed the normative social role pattern. Chapters 8 and 9 showed that these relationships were not explained by health selection into particular social role patterns or by socio-economic factors. This chapter explores whether specific concepts of role quality can explain why women who followed particular role histories were more likely to be obese or to perceive their health as being poor in middle age. One of these concepts of role quality, developed in chapter 2, is based on the idea of autonomy as a basic and universal human need. Results for obesity may work well for this hypothesis: long-term homemaking could lead to reduced opportunities for satisfaction of autonomy needs, eventually leading to an increased risk for obesity through a variety of potential pathways. Results for subjective health do not fit the concept of autonomy need satisfaction as well. It is difficult to attribute the increased likelihood of reporting poor health in every non-normative role history to unmet autonomy needs. The relatively poor subjective health in middle age of women in non-normative role histories suggests that normative social roles may have been an important component of identity formation for women in this cohort. Based on this alternative or additional theory of role quality, it is disappointment and dissatisfaction with not having achieved the norm that may explain the increased risk of reporting poor health in middle age among women in this cohort who did not adopt normative role histories. Measures relating to each of these theories of role quality were identified for various ages of data collection in the 1946 cohort data. This chapter introduces these measures and then examines the extent to which they explain the increased obesity of *Homemakers* or the poor subjective health of women with non-normative role histories. Results show that quality indicators are not related to obesity and influence relationships with subjective health among women with non-normative role histories, but not uniformly.

## 10.2 Role quality measures and methods

This section describes the measures of role quality that have been developed for this thesis. These measures are intended to capture two theoretical constructs that have been developed, role quality as satisfaction of autonomy needs and role quality as role satisfaction in relation to achieving the norm, using pre-existing measures in a pre-existing data set. The measures included were not specifically developed from a role quality perspective, but were chosen because the constructs they measure appear to fit well with one or other of the theories of interest here.

The first part of chapter 2 aimed to situate the debate on women's health and social roles within the context of social theory. It concludes that it was the agency aspect of social roles that may be important for explaining social role patterns in women's health that are not explained by more structural aspects such as socio-economic circumstances. From this, a theory of role quality was developed based on Doyal and Gough's (1991) theory of human need, one of which is the need for autonomy. Very few direct measures of autonomy exist. In Doyal and Gough's ecological analysis of health and autonomy in various countries throughout the world, they use literacy, employment, political representation and basic education as indicators of the prevalence of autonomy need satisfaction at the national level. One comprehensive, well-theorised, measure of psychological well-being that was included in the 1946 cohort data includes six dimensions, one of which is 'autonomy' (Ryff 1989a). In addition to this direct, but more general measure of autonomy, measures specifically related to role quality have also been identified. One of these measures aspects of women's main role at age 36 in terms of using skills and talents, the demands of the role and their enjoyment of the role. Perceived role strain is regarded as an indication that the role combination inhibits autonomy. Therefore, reported stress related to work and family at age 49 is used as an additional indicator of role quality related to the satisfaction of autonomy needs.

### 10.2.1 A direct measure of autonomy and wellbeing

As mentioned, a direct measure of autonomy included here is one of the six dimensions in Ryff's (1989a) measure of psychological well-being. The author defines 'autonomy' as being self-determined and independent. The other five dimensions include 'purpose in life' which the author defines as having goals in life and a sense of direction. 'Environmental mastery' which is defined as a sense of competence in controlling a complex array of external activities and making effective use of surrounding opportunities, 'personal growth' which is possessing a feeling of continued development. 'Self-acceptance' is defined as

possessing a positive attitude toward the self and 'positive relations with others' which is having warm, satisfying, trusting relationships with others. In the version of the Ryff instrument used here, each domain was measured by 7 items (see appendix 6, pp. 229-230), each with a 6-point response scale ranging from *completely disagree* to *completely agree* giving a score ranging from 6 to 42. Ryff developed her measure of psychological well-being in response to what she describes as a lack of theoretical formulation as the basis for previous measures of well-being, such as those measuring affect and life satisfaction. She draws on theories of positive psychological functioning, such as Maslow's conceptualisation of self-actualisation (see chapter 2, p. 44-46), in creating what she sees as the first theoretically-driven measure of positive psychological well-being (Ryff 1989a, 1989b).

The Ryff measure was included in the women's health postal questionnaire (see chapter 7 and footnote 17, p. 116). Looking at the items used to measure autonomy (appendix 6, pp. 228-229) in Ryff's well-being scale, it appears that the construct of autonomy being measured is quite different from autonomy as discussed in this thesis. The autonomy items in the Ryff scale appear to capture a concept about having strong opinions, in effect, about being opinionated. It is the domains of environmental mastery and purpose in life which seem closest to the concept of autonomy of interest here: having opportunities for participating in society to the best of one's ability and at the level considered to be full-participation in that society. The items measuring purpose in life appear to capture a concept of 'living actively' in a way, engaging actively in the business of life, while the items measuring environmental mastery appear to capture a concept of 'living effectively', being able to get things done. As a result, the three domains of 'autonomy' (range = 7.5-42.5, mean = 29.2), 'purpose in life' (range = 10.0-42.5, mean = 31.6), and 'environmental mastery' (range = 12.5-42.5, mean = 33.6) are included in analysis for this chapter.

### 10.2.2 Role-related autonomy needs at age 36

At age 36, a set of questions were asked about respondents' main role specifically. If women were employed outside the home at age 36, they were asked about their paid work. If women were keeping house full-time, they were asked identical questions about looking after the home. These questions centred around three aspects of women's main role. The first of these was whether women enjoyed their main role (92% said that they did). The second was how demanding they found their main role to be, both physically and emotionally (more than half of women found their main role physically and emotionally demanding). The third was whether they had any skills or talents that were going unused

in their main role (42% said that they did, but only 15% reported that they minded this). The categories for each of the three variables were assigned a score of 0 to 2 (0 as most positive and 2 as most negative) and combined to create a six-point autonomy need role quality scale. The final two categories on the six-point scale were combined into one 'very poor' category because there were too few women in the worst quality category. (see appendix 7, p. 230-231 for a detailed description of how these questions were combined to create a scale of autonomy-need related role quality at age 36). Once reported role enjoyment, demands and unused skills and talents were combined in this way, 9% of women were in an excellent quality main role, 23% had a good quality main role, 41% were in a fair quality role, 17% had a poor quality role and 10% were in a very poor quality role.

### 10.2.3 Role-related stress at age 49

Role related stress was collected as part of the women's health mail-out questionnaire that went to women in the cohort every year between the ages of 47 and 54. The measure of family and work stress used here is based on several relevant sets of questions about women's work and family lives. One asked identical questions about whether women's work or family lives had improved or got worse over the past year while another set of questions asked about any serious difficulties in their work or family lives over the last year. In addition to these, women were asked open-ended questions about whether anything in their lives had got worse or better in the past year. If women gave details of events related to work or family, these were also included in the measure of work and family stress. Work and family stress at age 49 (range = 0-11, mean = 1.81) was chosen because it contained the least amount of missing data of all the years for which work and family stress were collected. Family and work stress was used as a continuous variable (as a mean score), so 65 women without a valid measure of family and work stress at age 49 were excluded from the multiple regression model reducing the sample size to 1,106.

### 10.2.4 Role satisfaction

The increased risk of reporting poor health in late middle age among women in non-normative social role history groups compared with those in the *Normative* groups suggested that the concept of normative role-identity may be important in relation to the subjective health of women in this cohort in late middle age. In order to investigate this idea further, measures of role satisfaction were identified in the 1946 data. These covered regrets regarding family and work roles asked at age 36 and satisfaction with achievement in family and work roles, looking back, asked at age 43.

### Role satisfaction at age 36

At age 36 women were asked separate questions about whether, looking back, they wished they had done anything differently in their work or family lives. If the response was affirmative, short open-ended responses were collected and back coded into quantitative variables resulting in 78 categories regarding family life and 48 categories for work life. For the purposes of this thesis these categories were further combined. In both family and work domains, about a third of women had some regrets overall. In terms of family life, the most prevalent type of regrets were those related to poor quality relationship with someone in the family. However, some of the regrets (about 40% of family regrets overall) could be considered to be related to normative family role patterns. These were fairly equally split between regrets of having followed and regrets of not having followed the norm. Over 60% of the regrets related to not following the norm had to do with the number or timing of children. Nearly a fifth were regrets about losing a spouse to divorce or death and the remaining wished they had had children, had married or had married sooner. Of those whose regrets related to following the norm, over half regretted getting married, nearly a third thought they had married too young. Most of the rest thought they had had children too young and a few regretted having children at all. Nearly three-quarters of the poor family relationships were poor relationships with parents and over a fifth were poor relationships with spouses. Nearly a third of other regrets were related to the death or ill health of a parent; 15% were regrets relating to being an only child; 8% had to do with the ill health, disability or death of a child and the rest were miscellaneous. Therefore, for family regrets people were categorised as having no regrets, regrets related to not having followed the norm, regrets related to having followed the norm, regrets related to a specific poor-quality family relationship, and other miscellaneous regrets.

In terms of work life, the vast majority of regrets were related to the type of work that women were doing. Nearly a fifth of work life regrets related to the timing or pattern of women's work roles and most of these regrets were women who wished they had taken up work earlier. A few wished they had been able to work throughout their lives or at all. Of those with specific occupational regrets, half wished they had stayed in or taken up nursing or midwifery. Over 10% wished they had gone into teaching and about the same number wished they had pursued a career in the arts. The remaining wishes related to a wide variety of specific occupations. In terms of work roles, responders were categorised as having no regrets, regrets relating to the timing or pattern of work roles, specific regrets

about their occupation or more general regrets about their occupation. (Appendix 7, p. 232-233)

## Role satisfaction at age 43

At age 43 women were asked two sets of separate, but identical, questions about whether, looking back, they were satisfied with their accomplishments in their work and family lives and whether they felt they had more to achieve in their work and family lives. The question about achievement in working life was dropped, as feeling one had more to achieve at work did not fit with the concept of role dissatisfaction. Women were also asked whether they felt that opportunities in their working lives had been limited. The vast majority of responders reported being satisfied with their accomplishments in home life (93%) and working life (81%) at age 43. However, nearly three-quarters of responders reported having more to achieve in their home lives at age 43 and over half (54%) reported that opportunities in their working lives had been limited. The questions relating to working life were assigned scores of zero to two ranging from most satisfied to least satisfied and were combined to create a four-point work satisfaction scale. Similarly, the questions on accomplishments and having more to achieve at home were combined in the same manner to create a four-point home satisfaction scale. This was collapsed into a three-point scale due to small numbers in the least satisfied group. These two scales behaved identically with the health outcome measures and the social role history variable, and so were added together to create one five-point role satisfaction scale at age 43. The two most dissatisfied groups were combined due to their small numbers. See appendix 7, p. 232-234, for further details of how these questions were combined to create a role satisfaction scale at age 43 among women in the cohort. According to this scale, 14% of women were very satisfied with their work and family roles looking back at age 43. Over a third (36%) were satisfied, almost another third were neither satisfied nor dissatisfied. Just under a fifth were dissatisfied or very dissatisfied.

## 10.2.5 Methods used to examine the influence of roie quality on relationships between role histories and mental health in middle age

The analytical techniques used in this chapter are similar to those used in chapters 6 and 9. Logistic regression models of relationships between role histories and health in middle age are shown, first unadjusted, and then adjusted for the role quality indicator of interest. Unlike the previous chapter, both the three-category, and the more detailed six-category role history variables are included in each table of this chapter. The first p value of the table, which appears in bold, applies to the three-category variable, while the second p

value is that for the six-category role history variable. In the adjusted model of each table, the role quality variable is adjusted for the three-category role history variable.

## 10.3 Results: does role quality explain the increased reported poor health at age 54 of women with non-normative role histories?

### 10.3.1 A direct measure of autonomy and wellbeing

Women who reported poor health at age 54 had lower mean scores for 'purpose in life' and 'environmental mastery' than women who reported good health at age 54 ($p = 0.002$ for each). Among those who reported fair or poor health at age 54, mean 'purpose in life' score was 29.55 and mean 'environmental mastery' score was 31.67 compared with 32.40 and 34.41 respectively among those who reported good health at age 54. There were no differences in mean autonomy score between women who reported good or poor health at age 54.[21]

There were no significant differences in mean score for 'environmental mastery' ($p = 0.133$) or 'purpose in life' ($p = 0.263$) for women with different social role histories (not shown). Women in each of the social role histories had mean 'environmental mastery' scores ranging from 33.13 to 33.90 and mean 'purpose in life' scores ranging from 31.19 to 31.93. As expected, based on the lack of relationship between 'environmental mastery' and 'purpose in life' with social role histories, the inclusion of these measures in multivariable models did not influence relationships between social role histories and self-reported health at age 54 (appendix 8, p. 235).

### 10.3.2 Role-related autonomy needs at age 36

There was a significant trend in self-reported health at age 54 by the autonomy-related quality of women's main role at age 36. Forty per cent of women in very poor quality roles at age 36, compared with 29% of those in excellent quality roles, reported fair or poor health at age 54 (figure 10.1, p. 186).

Women in *Other non-normative* role histories were significantly more likely than women with *Normative* role histories to report being in poor quality main role at age 36 (38% versus 24%) (figure 10.2, p. 186).

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[21] The total well-being score at age 52 was also significantly lower for women who reported fair or poor health at age 54.

The significant trend in reporting fair or poor health at age 54 by the quality of women's main role at age 36 in the unadjusted model was no longer significant after it was included with social role histories in the multiple logistic regression model (table 10.1, p. 182). The inclusion of the quality of women's main role at age 36 hardly reduced the increased risk of reporting poor health among women in non-normative social role histories compared with the *Normative* group at all. Examination of the more detailed social role history variable[22] showed that quality of main role at 36 reduced the risk of reporting poor health at 54 for *Homemakers* more than any other measure of role quality compared with the *Normative* group, although their odds remained strong and significant. Also, the increased risk of reporting poor health at age 54 among *Intermittent employed married mothers* compared with the *Normative* group was also reduced somewhat when autonomy-related quality of main role at age 36 was included in the model. *Intermittent employed married mothers* were by far the most likely to be in a poor or very poor quality main role at age 36 at 42%.

### 10.3.3 Role-related stress at age 49

Family and work stress at age 49 was significantly associated with self-reported health at age 54 (p<0.001). Women who reported good health at age 54 had a mean stress score of 1.46 compared with 2.30 among women who reported fair or poor health at age 54 (not shown). Using the three category social role history variable, social role histories were not significantly associated with family and work stress at 49 (p = 0.313, not shown). However, the relationship between social role histories and family and work role stress was significant when the full social role category variable was used (p = 0.046, not shown). In particular, *Lone mothers* scored very high in terms of family and work stress.

In the reduced sample of women with a valid family and work stress score at age 49 (n = 1,106), there were minor changes in the odds of reporting fair or poor health at age 54. The greatest change was among *Lone mothers* whose odds dropped from 1.59 (1.10-2.29) in the full sample to 1.48 (1.02-2.16). In the adjusted model, family and work stress at age 49 reduced the increased odds of reporting poor health among women *Lacking one main role* compared with the *Normative* group somewhat, but when the full six-category social role history variable was used (rather than the collapsed three-category variable), family and work stress at age 49 was an important explanatory factor for *Lone mothers* in particular (table 10.2, model 2, p. 183). When family and work stress was added to the model the odds of reporting poor health among *Lone mothers* compared with the

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[22] Each of the tables in this chapter includes both the collapsed and the expanded versions of the role history variable. In both cases the combined *Normative* group is the reference category.

*Normative* group declined from 1.48 (1.02-2.16) to 1.29 (0.87-1.90). The majority of women in this group had experienced a divorce. It may be that family stress related to divorce explains much of the increased risk of reporting poor health at age 54 among women in this non-normative group in particular.

The odds of reporting poor health at age 54 among *Other non-normative mothers* increased compared with the *Normative* group with the inclusion of family and work stress at age 49 in the model (table 10.2, model 2, p. 183). Looking at the more detailed six-category role history variable, the inclusion of family and work stress increased the risk of reporting poor health for *Intermittent employed married mothers* in particular.

### 10.3.4 Role satisfaction

A second theory of role quality based on normative role identity has emerged from empirical investigation of the relationships between social role histories and subjective health in this relatively traditional cohort of women. This section investigates whether indicators of role satisfaction at ages 36 and 43 explain the increased likelihood of reporting poor health at age 54 among women with non-normative social role histories.

### Role satisfaction at age 36

Women who expressed regrets regarding their family lives at age 36 were significantly more likely to report fair or poor health at age 54 than those who had no regrets (figure 10.3, p. 187). However, regrets regarding women's work lives at age 36 did not significantly predict reporting fair or poor health at age 54 (p = 0.220, not shown), and did not influence relationships between role histories and self-reported health at age 54.

There was a significant relationship between social role histories and the proportion of women reporting regrets regarding their family life at age 36 (combining all four categories of family regrets described on p. 173). Women whose social role histories were non-normative were significantly more likely to report having regrets regarding their family lives at age 36 (39% of women *Lacking one main role* and 46% of *Other non-normative mothers*) than their more normative counterparts (at 29%) (figure 10.4, p. 187).

In the unadjusted model, women who had regrets regarding their family lives at age 36 were significantly more likely to report fair or poor health at age 54 (table 10.3, model 1, p. 184). Women who wished their families roles had been closer to the norm (as described on p. 172) were particularly more likely to report fair or poor health at age 54 (unadjusted

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OR = 2.06, 95% CI = 1.31-3.23). Including regrets in family life at age 36 in the multiple regression model with social role histories reduced the risk of reporting fair or poor health at age 54 for *Other non-normative mothers* compared with the *Normative* group (table 10.3, model 2, p. 184), and reduced the increased risk of reporting poor health slightly for women *Lacking one main role* compared with the *Normative* group. Analysis using the more detailed measure of social role histories showed that these reductions were greatest for *Remarried* and *Lone mothers*. These were, of course, the two groups of women who experienced a marital dissolution at some point between ages 26 and 53. Regrets regarding family life at age 36 slightly reduced the odds of reporting poor health at age 54 among *Childless* women and *Intermittent employed married mothers*, but it did not influence the risk of reporting poor health among *Homemakers*.

### Role satisfaction at age 43

There was a strong significant gradient in reporting self-reported health at age 54 by role satisfaction at age 43, with two-thirds (66%) of very dissatisfied women reporting fair or poor health compared with 22% of very satisfied women (figure 10.5, p. 188). Satisfaction with family and work life at age 43 was also significantly associated with social role histories. Women who followed non-normative social role patterns, and particularly women *Lacking one main role* (24%, 19% for *Other non-normative mothers*), were more likely to be dissatisfied with their work and family role looking back at age 43 than *Normative* women (13%, figure 10.6, p. 188). When role dissatisfaction at age 43 was examined by the more detailed social role variable, it became apparent that there were significant differences within the various groups of women *Lacking one main role*. Looking back on their lives, *Homemakers* and *Lone mothers* were by far the most likely to feel dissatisfied, at age 43, with their social role histories, at 27% and 28% respectively, while *Childless* women were among the least likely to be dissatisfied with their social roles, at 13% (figure 10.7, p. 189).

The gradient in the likelihood of reporting fair or poor health at age 54 by women's satisfaction with their work and family roles at age 43 remained strong after adjusting for social role histories (table 10.4, model 2, p. 190). The inclusion of role satisfaction at age 43 reduced the increased risk of reporting fair or poor health among women *Lacking one main role* compared with the *Normative* group further than any other factor included in this thesis; however, a significant risk still remained. The effect of including role satisfaction on the increased risk of reporting fair or poor health at age 54 among *Other non-normative mothers* compared with the *Normative* group was somewhat less. The inclusion of role

satisfaction at age 43 using the more detailed social role history measure reduced the risk of reporting poor health among *Homemakers*, *Remarried* and especially *Lone mothers* substantially. We have seen that *Homemakers* and *Lone mothers* were the most likely to be dissatisfied with their work and family roles, looking back at age 43 (at 27% and 28%, respectively). *Remarried mothers* were third most likely to express dissatisfaction with their work or family lives looking back at age 43 at 21% (figure 10.7, p. 189).

### 10.3.5 Fully-adjusted models for self-reported health at age 54

When quality of main role at age 36, family and work stress at age 49, regrets in family life at age 36 and role satisfaction at age 43 were included together in a model, the increased risk of reporting poor health in middle age of women *Lacking one main role* was reduced substantially (figure 10.8, p. 190; appendix 8, table 8.C, p. 236). Their odds of reporting poor health reduced from 1.64 (1.22-2.19) in the reduced sample of women with a valid family and work stress score (N=1106) to 1.39 (1.02-1.90). The risk of reporting poor health at age 54 among *Other non-normative mothers* declined less (figure 10.9, p. 190; appendix 8, table 8.C, p. 236). Looking at the six-category social role measure, the risk of reporting poor health at 54 among *Homemakers* declined from an unadjusted odds of 1.92 (1.24-2.99) to an adjusted odds of 1.68 (1.04-2.72) (appendix 8, table 8.C, p. 236). For *Lone mothers* the equivalent figures were 1.48 (1.02-2.16) to 1.08 (0.72-1.63). Risk of reporting poor health declined slightly for *Remarried mothers* and was virtually unchanged for *Childless* women and *Intermittent employed married mothers*. When social class of head of household and mental health at ages 43 and 53 were also included in this model, the risk of reporting poor health was reduced still further for *Homemakers* (by 20%) and for *Lone mothers* (by 34%) (appendix 8, table 8.D, p. 237). In addition, the risk among *Remarried mothers* declined further (by 19%). In contrast, risk of reporting poor health for *Childless* women and *Intermittent employed married mothers* increased very slightly.

## 10.4    Results: does role quality explain the increased likelihood of being obese at age 53 among women with weak ties to the labour market?

### 10.4.1 A direct measure of autonomy and wellbeing

Women who were obese at age 53 had a significantly lower mean 'purpose in life' score at age 52 at 30.68 than non-obese women at 31.81 (p = 0.020). There was no relationship between mean autonomy or environmental mastery scores (or the total well-being score based on all six of the Ryff well-being dimensions) at age 52 and obesity at age 53. The

inclusion of 'purpose in life' score in a multivariable model did not influence relationships between social role histories and obesity at 53 (not shown).

### 10.4.2 Role-related autonomy needs at age 36

There was no relationship between the autonomy-related role quality scale at age 36 and being obese at age 53 (p = 0.661) and this measure did not influence relationships between role histories and obesity at age 53 (not shown).

### 10.4.3 Role-related stress at age 49

Mean family and work stress scores at age 49 were slightly higher among women who were obese at age 53 (1.96) compared with those who were not (1.73) but this difference did not reach statistical significance (p = 0.062).

Role satisfaction measures are not shown for obesity as normative role satisfaction is hypothesised to be specifically relevant to subjective health. The specificity of this hypothesis was further supported by the fact that none of the role satisfaction measures were significantly associated with obesity at age 53 (family regrets age 36: p = 0.595, work regrets age 36: p = 532, satisfaction with main role age 43: p for trend = 0.961).

In summary, with the exception of 'purpose in life score' (which did not influence relationships between social role histories and obesity at age 53 in a multivariable model) none of the measures of role quality included here were significantly associated with being obese at age 53.

## 10.5    Discussion

The purpose of this final chapter of empirical work was to examine the contribution of measures relating to two theories of role quality to the relationship between role histories and health in middle age. The first of these theories, autonomy need satisfaction, was developed in chapter two in relation to agency aspects of roles and Doyal & Gough's (1991) theory of human need. The second theory of role quality emerged from empirical work with the cohort women, which showed that women in each of the role history groups that was not normative (being married to one man throughout, having had children and having maintained relatively strong ties to the labour market) were more likely to report poor health at age 54 than women who had conformed to the norm. Considering this finding in the context of the very traditional social environment within which these women formed their social roles suggested that a concept of normative role satisfaction might

have explanatory importance for women in this cohort with regards to role histories and subjective health in middle age. Measures that were extracted from the cohort data to operationalise autonomy needs included a direct psychological measure of autonomy and related aspects of well-being, a scale of autonomy-related role quality regarding women's main role at age 36, and family and work related stress at age 49. For role satisfaction, regrets regarding family and work life at age 36, and a scale of satisfaction with work and family roles looking back at age 43 were created.

The increased obesity of long-term *Homemakers* related to a lack of opportunities for autonomous agency as hypothesised in chapter 2 is readily conceived. The silent dissatisfactions of housewives were made public in the US in the early 1960s by Friedan's (1963) *Feminine Mystique*, in which she uncovered much unhappiness behind the mystique of feminine domestic fulfilment. In Britain, people made the same discovery as Friedan, though a little later (Gavron 1966; Oakley 1974a, b). However, this chapter showed that none of the measures of role quality included here explained the increased obesity in middle age among long-term *Homemakers*, as none of the measures were associated with obesity in middle age. If the quality of the homemaking role was important for understanding the increased likelihood of long-term *Homemakers* to be obese in later middle age, it was not captured by the measures of role quality included here.

Regarding autonomy-related role quality and subjective health, quality of women's main role at age 36 and family and work stress at 49 were both associated with self-reported health in middle age and with social role histories. Quality of main role at 36 did not influence the risk of reporting poor health among women in non-normative role histories across the board, but did explain some of the poor subjective health in middle age among *Homemakers* specifically. Family and work stress at 49 reduced the increased risk of poor subjective health at age 54 among *Lone mothers* in particular and *Intermittent employed married mothers* to a lesser extent.

Regarding role satisfaction, regrets regarding family life at age 36 reduced the risk of poor subjective health in middle age among *Lone* and *Remarried mothers* specifically. Dissatisfaction with work and family roles looking back at age 43 reduced the risk of poor subjective health in middle age among *Homemakers* and *Remarried mothers* somewhat, and reduced the risk of poor subjective health for *Lone mothers* to a great extent. After adjustment for all measures of role quality, the poor subjective health of *Homemakers* was reduced substantially, and that of *Lone mothers* was entirely explained. Further adjustment

for social class of head of household and mental health at ages 43 and 53, reduced the increased risk of reporting poor health among *Homemakers* to non-significance.

This chapter has shown that the influence of role quality on the increased risk of poor subjective health in middle age among women with non-normative role histories was not consistent across the non-normative groups. The two groups for whom the role quality indicators had the greatest influence were long-term *Homemakers* and *Lone mothers*. These also happen to be the two groups of women most consistently found to have poor subjective health in previous cross-sectional work (Arber 1997; Bartley, Popay & Plewis 1992; Bartley *et al.* 1999; Hope *et al.* 1999; Lahelma *et al.* 2002; Macran *et al.* 1994; McDonough *et al.* 2002 ). They are also the two groups which may be hypothesised as having the heaviest restrictions in terms of opportunities for autonomy/agency in terms of the theory of role quality described in chapter 2. They are not necessarily the two most socially 'deviant' groups of women with regard to normative role histories. *Childless* women are arguably more socially deviant than long-term *Homemakers* in this particular cohort of women. Of course, we have seen that *Homemakers* and *Lone mothers* on the one hand, and *Childless* women on the other are very different in terms of educational attainment and access to socio-economic resources.

Schooler and colleagues (1983) looked at aspects of housework quality that were conceptually close to a model of work-related autonomy needs and which overlapped with the measure of quality of main role at age 36 used here to some extent. As with quality of main role at 36 used here, the Schooler study found that high levels of psychological distress among full-time homemakers was partly explained by role demands. McDonough and colleagues (2002) examined the influence of chronic stress on relationships between roles and subjective and mental health and found that employed women and mothers had better health than homemakers or childless women despite their higher levels of chronic stress. They also found that chronic stress explained the higher levels of self-reported poor health among divorced compared with married women which is similar to the results found for family and work stress here. The McDonough study did not examine lone mothers per se.

# Chapter 10 Tables and figures

## Table 10.1 Self-reported health at age 54 by social role histories and quality of main role at age 36 among women in the NSHD 1946 birth cohort

| Social role histories | N=1171[a] | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| **Normative** | **453** | **1.00** | | **1.00** | |
| **Lacking one main role** | **442** | **1.69** | **1.27-2.24** | **1.66** | **1.24-2.20** |
| Homemakers | 117 | 2.00 | 1.31-3.05 | 1.85 | 1.20-2.84 |
| Lone mothers | 184 | 1.59 | 1.10-2.29 | 1.58 | 1.09-2.27 |
| Childless | 141 | 1.57 | 1.05-2.35 | 1.56 | 1.04-2.33 |
| **Other non-normative mothers** | **276** | **1.43** | **1.04-1.98** | **1.41** | **1.01-1.96** |
| Remarried mothers | 151 | 1.37 | 0.92-2.05 | 1.39 | 0.93-2.07 |
| Intermittent employed married mothers | 125 | 1.51 | 0.99-2.30 | 1.40 | 0.91-2.15 |
| **P value[b]** | | **0.001** | | **0.002** | |
| P value[c] | | 0.012 | | 0.033 | |
| *Excellent role quality age 36[d]* | 86 | 1.00 | | 1.00 | |
| Good | 220 | 0.89 | 0.51-1.55 | 0.87 | 0.50-1.52 |
| Fair | 435 | 1.32 | 0.80-2.19 | 1.26 | 0.76-2.10 |
| Poor | 182 | 1.17 | 0.67-2.05 | 1.12 | 0.64-1.96 |
| Very poor | 114 | 1.59 | 0.88-2.89 | 1.47 | 0.81-2.69 |
| *Missing* | *134* | *1.04* | *0.57-1.88* | *0.97* | *0.53-1.76* |
| P value for trend[e] | | 0.037 | | 0.072 | |

a For a description of the sample (sample B) see figure 7.2, p. 131
b Applies to three-category social role history variable.
c Applies to six-category social role history variable.
d In the adjusted model 2, the role quality variable is adjusted for the three-category role history variable rather than the six-category social role history variable.
e Excludes missings.

**Table 10.2    Self-reported health at age 54 by social role histories and family and work stress at age 49 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1106[a] | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| **Normative** | **429** | **1.00** | | **1.00** | |
| **Lacking one main role** | **420** | **1.64** | **1.22-2.19** | **1.54** | **1.14-2.08** |
| Homemakers | 108 | 1.92 | 1.24-2.99 | 1.91 | 1.22-3.01 |
| Lone mothers | 176 | 1.48 | 1.02-2.16 | 1.29 | 0.87-1.90 |
| Childless | 136 | 1.63 | 1.08-2.45 | 1.63 | 1.07-2.49 |
| **Other non-normative mothers** | **257** | **1.46** | **1.04-2.04** | **1.52** | **1.08-2.14** |
| Remarried mothers | 142 | 1.38 | 0.92-2.09 | 1.42 | 0.93-2.16 |
| Intermittent employed married mothers | 115 | 1.55 | 1.00-2.40 | 1.66 | 1.05-2.60 |
| **P value[b]** | | **0.003** | | **0.010** | |
| P value[c] | | 0.026 | | 0.033 | |
| *Family and work stress age 49[d]* | 1106 | 1.32 | 1.23-1.41 | 1.32 | 1.23-1.41 |
| P value for trend | | <0.001 | | <0.001 | |

a For a description of the sample (sample B) see figure 7.2, p. 131
b Applies to three-category social role history variable.
c Applies to six-category social role history variable.
d In the adjusted model 2, the role quality variable is adjusted for the three-category role history variable rather than the six-category social role history variable.

**Table 10.3 Self-reported health at age 54 by social role histories and regrets in family life at age 36 among women in the NSHD 1946 birth cohort**

| Social role histories | N=1171[a] | Model 1: Unadjusted | | Model 2: Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| **Normative** | **453** | **1.00** | | **1.00** | |
| **Lacking one main role** | **442** | **1.69** | **1.27-2.24** | **1.60** | **1.20-2.14** |
| Homemakers | 117 | 2.00 | 1.31-3.05 | 1.99 | 1.30-3.05 |
| Lone mothers | 184 | 1.59 | 1.10-2.29 | 1.44 | 0.99-2.10 |
| Childless | 141 | 1.57 | 1.05-2.35 | 1.52 | 1.01-2.28 |
| **Other non-normative mothers** | **276** | **1.43** | **1.04-1.98** | **1.30** | **0.93-1.81** |
| Remarried mothers | 151 | 1.37 | 0.92-2.05 | 1.18 | 0.78-1.78 |
| Intermittent employed married mothers | 125 | 1.51 | 0.99-2.30 | 1.43 | 0.93-2.19 |
| **P value[b]** | | **0.001** | | **0.010** | |
| P value[c] | | 0.012 | | 0.025 | |
| *Regrets in family life at age 36[d]* | | | | | |
| No regrets | 677 | 1.00 | | 1.00 | |
| Wishes closer to norm | 88 | 2.06 | 1.31-3.23 | 1.93 | 1.22-2.14 |
| Regrets following norm | 78 | 1.80 | 1.11-2.91 | 1.30 | 0.93-1.81 |
| Poor family relationship | 127 | 1.42 | 0.95-2.12 | 1.39 | 0.93-2.08 |
| Other regret | 116 | 1.52 | 1.01-2.30 | 1.51 | 0.99-2.28 |
| *Missing/DK* | *85* | *1.64* | *1.03-2.62* | *1.55* | *0.97-2.48* |
| P value | | 0.004 | | 0.012 | |

a For a description of the sample (sample B) see figure 7.2, p. 131
b Applies to three-category social role history variable.
c Applies to six-category social role history variable.
d In the adjusted model 2, the role quality variable is adjusted for the three-category role history variable rather than the six-category social role history variable.

**Table 10.4**   Self-reported health at age 54 by social role histories and satisfaction with work and family life looking back at age 43 among women in the NSHD 1946 birth cohort

| Social role histories | N=1171[a] | Model 1: Unadjusted OR | 95% CI | Model 2: Adjusted OR | 95% CI |
|---|---|---|---|---|---|
| **Normative** | **453** | **1.00** | | **1.00** | |
| **Lacking one main role** | **442** | **1.69** | **1.27-2.24** | **1.55** | **1.16-2.08** |
| Homemakers | 117 | 2.00 | 1.31-3.05 | 1.87 | 1.20-2.90 |
| Lone mothers | 184 | 1.59 | 1.10-2.29 | 1.32 | 0.90-1.93 |
| Childless | 141 | 1.57 | 1.05-2.35 | 1.64 | 1.09-2.48 |
| **Other non-normative mothers** | **276** | **1.43** | **1.04-1.98** | **1.37** | **0.98-1.91** |
| Remarried mothers | 151 | 1.37 | 0.92-2.05 | 1.27 | 0.84-1.90 |
| Intermittent employed married mothers | 125 | 1.51 | 0.99-2.30 | 1.51 | 0.98-2.33 |
| **P value[b]** | | **0.001** | | **0.012** | |
| P value[c] | | 0.012 | | 0.043 | |
| *Satisfaction with work and family life at age 43[d]* | | | | | |
| Very satisfied | 144 | 1.00 | | 1.00 | |
| Satisfied | 395 | 1.34 | 0.85-2.11 | 1.33 | 0.85-2.11 |
| Neither satisfied or dissatisfied | 359 | 1.72 | 1.09-2.71 | 1.75 | 1.11-2.76 |
| Dissatisfied | 93 | 3.57 | 2.02-6.30 | 3.38 | 1.91-5.99 |
| Very dissatisfied | 110 | 4.37 | 2.53-7.56 | 4.17 | 2.41-7.22 |
| *Missing* | 70 | *1.78* | *0.94-3.38* | *1.64* | *0.86-3.12* |
| P value for trend[e] | | <0.001 | | <0.001 | |

a For a description of the sample (sample B) see figure 7.2, p. 131

b Applies to three-category social role history variable.

c Applies to six-category social role history variable.

d In the adjusted model 2, the role quality variable is adjusted for the three-category role history variable rather than the six-category social role history variable.

e Excludes missings.

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Figure 10.1 Proportion reporting fair or poor health at age 54 by quality of main role at age 36 among women in the NSHD 1946 birth cohort



Quality of main role at age 36
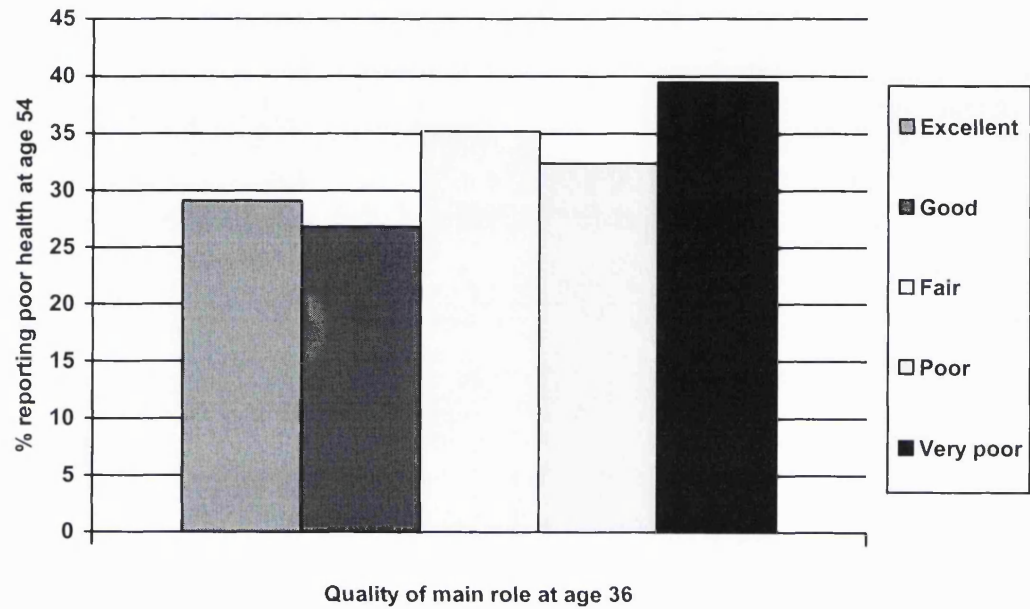
P for trend = 0.036

Figure 10.2 Proportion with poor or very poor quality main role at age 36 by social role history among women in the NSHD 1946 birth cohort



Quality of main role at age 36
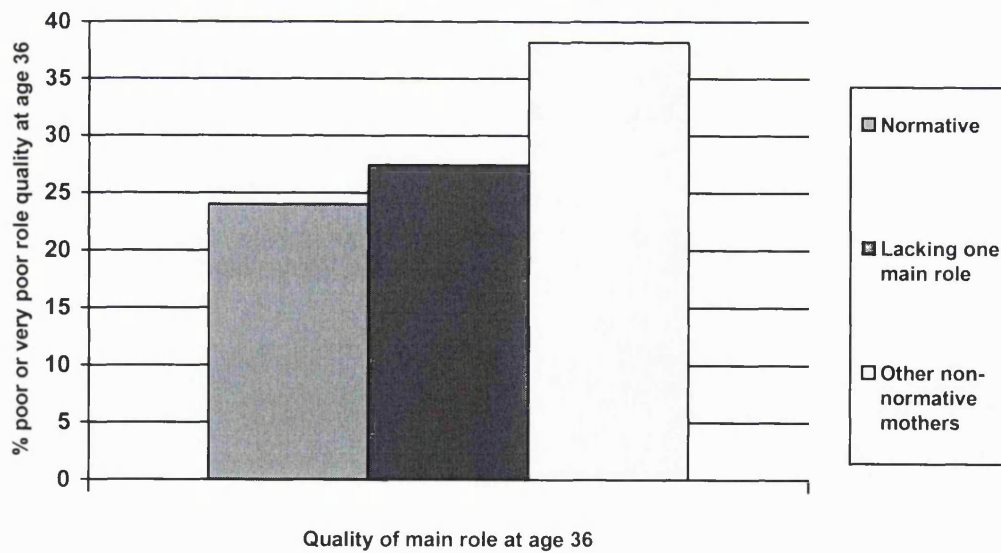
$\chi^2 = 23.05$, p = 0.003

Figure 10.3 Proportion reporting fair or poor health at age 54 by regrets in family life at age 36 among women in the NSHD 1946 birth cohort
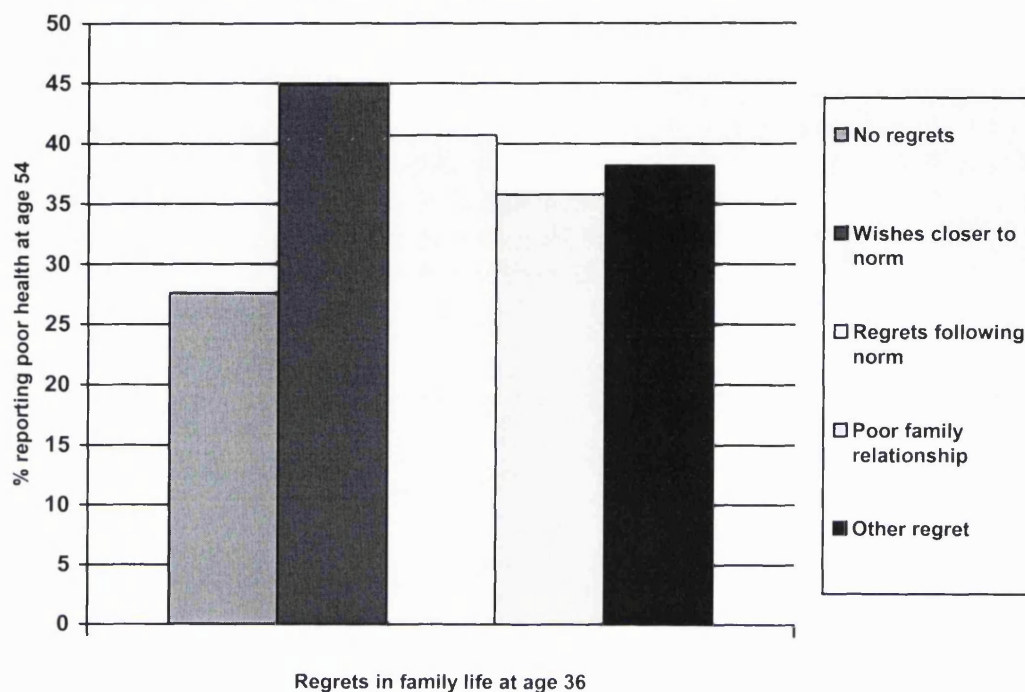
$\chi^2 = 19.07$, p = 0.001



Figure 10.4 Proportion with some family life regrets at age 36 by social role histories among women in the NSHD 1946 birth cohort
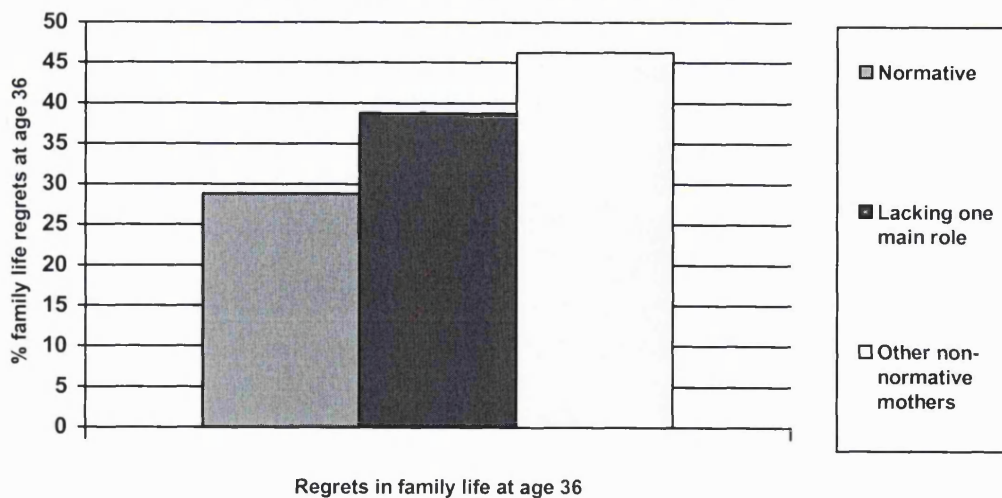
$\chi^2 = 38.39$, p < 0.001

Figure 10.5 Proportion reporting fair or poor health at age 54 by satisfaction with work and family life looking back at age 43 among women in the NSHD 1946 birth cohort
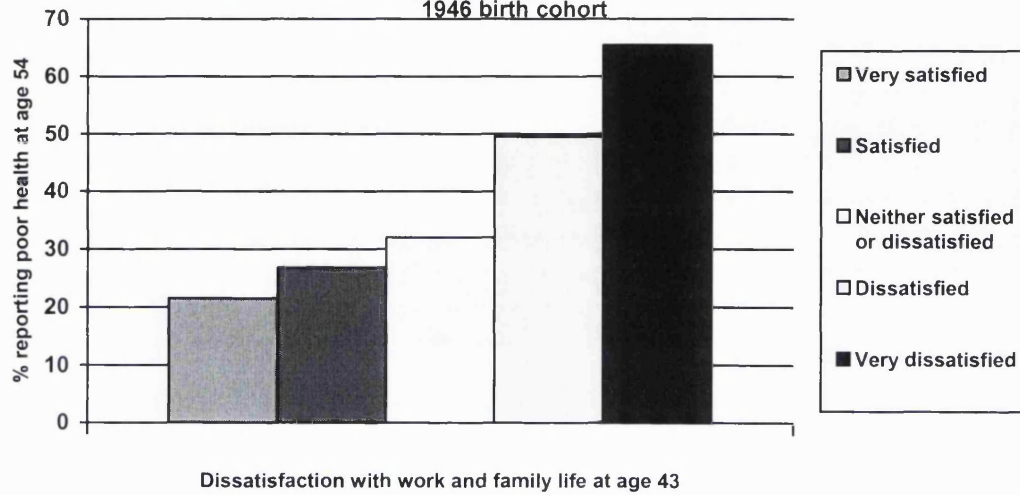
P for trend < 0.001



Figure 10.6 Proportion dissatisfied or very dissatisfied with work and family like looking back at age 43 by social role history (3 category) among women in the NSHD 1946 birth cohort
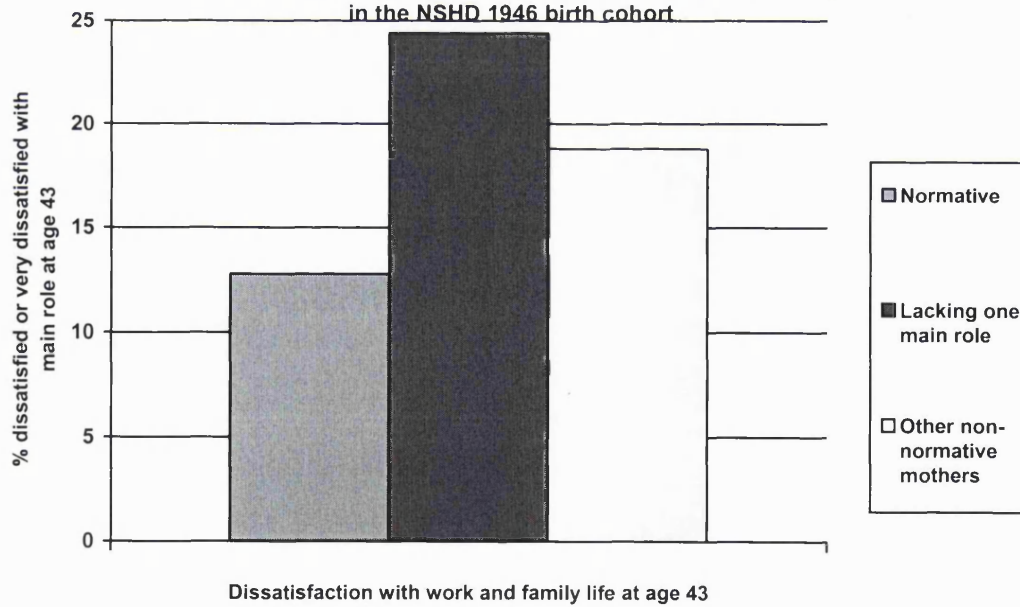
$\chi^2 = 21.06$, p = 0.007

Figure 10.7 Proportion dissatisfied or very dissatisfied with work and family life looking back at age 43 by social role history (7 category) among women in the NSHD 1946 birth cohort
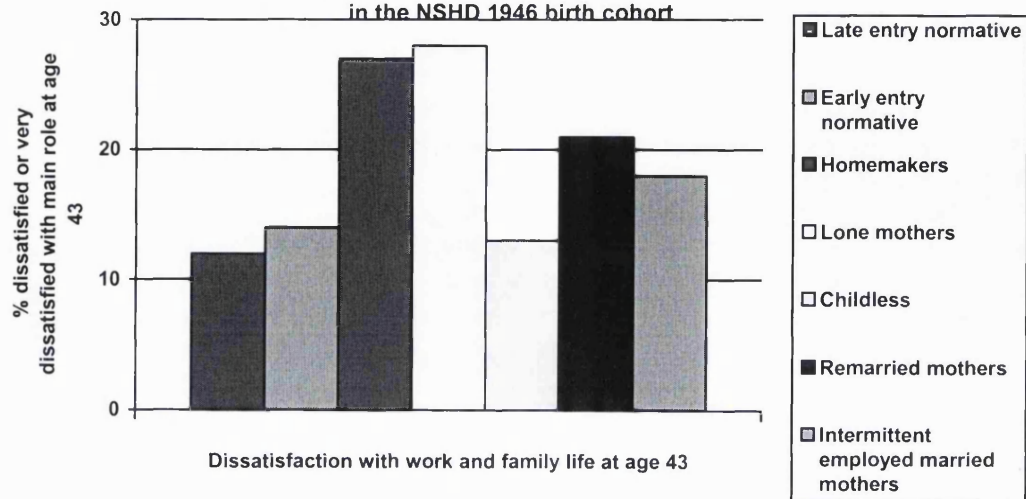
$\chi^2 = 18.09$, p < 0.001

Figure 10.8 Odds (95% C I) of reporting poor health at 54 among women
Lacking one main role in the 1946 birth cohort



Figure 10.9 Odds (95% C I) of reporting poor health at 54 among Other non-
normative mothers in the 1946 birth cohort
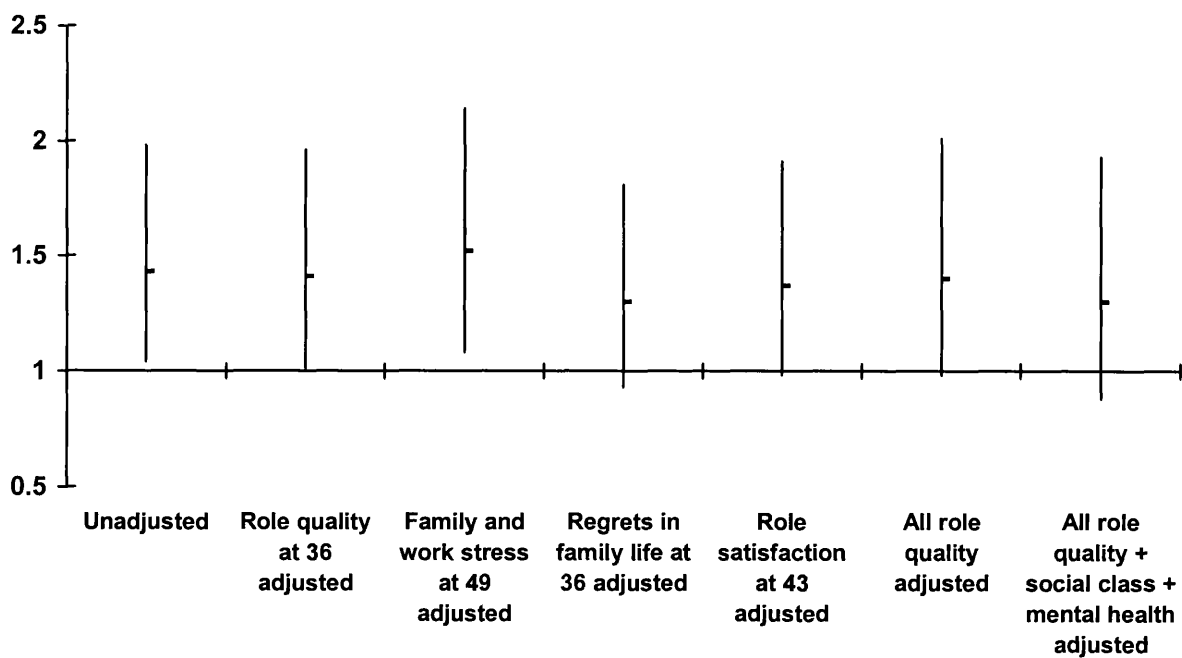
# Chapter 11    Conclusions of the study, a theory of normative role identity and implications for future work

## 11.1    Introduction

The examination of longitudinal relationships between social roles and health uncovered two key findings. These were the poor subjective health in middle age of women who had followed non-normative role histories, and the increased risk of being obese in middle age among women with weak long-term ties to the labour market. A longitudinal framework (see chapter 3) was used to investigate whether these relationships were explained by early health selection, education, or socio-economic circumstances. While the poor health of women in certain social role groups was influenced by the inclusion of education or socio-economic circumstances, for the most part relationships between social roles and health persisted after adjusting for each of these potential confounders. Chapter 2 developed a theory of role quality based on the agency aspects of roles, in which quality was defined by opportunities for satisfying autonomy needs. This theory was operationalised using pre-existing measures in the 1946 cohort data, and they only explained the poor subjective health in middle age among *Lone mothers* in particular. This chapter presents an overview of these results, and those from cross-sectional analysis of the HSE. For results relating to subjective health, an alternative causal theory relating to normative role satisfaction is described. Limitations of the study are presented and the thesis closes by focusing on implications the study has for future work.

## 11.2    Subjective health and the normative role

This study has shown the importance of studying relationships between roles and health longitudinally. One of the research questions driving this thesis was to examine the relationship between social roles over the long-term and subsequent health. Cross-sectional analysis showed that full-time homemakers and unemployed women were more likely to report poor health in every age group than mothers who were living with a partner and working. In some respects relationships between social roles and self-reported health in the 1946 cohort in cross-section at age 53/54 showed results similar to those shown for women in the 1998 HSE. In cross-sectional analysis of women in the 1946 cohort by age, women who were full-time homemakers or unemployed at age 53 were more likely to report poor health at 54 than mothers who were married and employed. Examining social role histories over the adult lives of women born in 1946 uncovered a more general

relationship with subjective health: those who followed a non-normative[23] path were more likely to feel unhealthy in middle age. The importance of being normative was suggested in looking at the cross-sectional analysis of self-reported health across ages in the cohort data. At age 26, when the majority of women in the 1946 cohort were at home full-time with children, their self-reported health was better than that of employed married mothers. When this role combination applied to only a minority, self-reported health was worse in married homemakers than in employed married mothers. However, even looking at the same women by age in the cohort data, cross-sectional analysis was unable to determine whether the women who were full-time homemakers at age 53 were the same women as those who were full-time homemakers at age 26, for instance. The results of this study suggest the need to study the influence of long-term social role histories on health. For example, if normative role histories are important for subjective health, cross-sectional results may be misleading depending on whether women are captured at a time in their lives when their current role was in line with the norm. Also, it may be that not having followed the norm becomes more problematic for people as they grow older and the time they have left to achieve socially-derived expectations runs low.

### 11.2.1 Subjective health, the normative role and selection

Another research question raised for examination in this thesis was whether relationships between social role histories and health were explained by health selection in which women with poor health in early life were more likely to adopt particular social role histories. Chapter 8 showed that neither self-reported health at age 26 nor mental health between ages 15 and 32 were significantly associated with social role histories, and did not explain the increased reported poor health at age 54 of women in non-normative social role histories in comparison with women who had followed the norm.

Another factor which might be hypothesised as explaining the increased risk of reporting poor health among women in non-normative social role histories is personality type. It may be that the type of personality that is inclined to report poor health is also more likely to end up in non-normative social role histories. However, chapter 8 showed that neuroticism at age 26 was not associated with social role histories and did not influence the high risk of reporting poor health among women in non-normative social role histories relative to normative women. Therefore, the increased risk of reporting poor health among women in

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[23] By normative, I mean married to one man throughout adulthood, having children, and maintaining relatively strong ties to the labour market (sometimes after an initial spell of full-time homemaking when children were young).

non-normative social role histories (established in chapter 7) was not explained by early health selection into non-normative social role combinations (chapter 8). The next step was to determine whether this increased risk could be explained by socio-economic circumstances in early life or adulthood, or by education.

### 11.2.2 Subjective health, the normative role, education and socio-economic circumstances

Two further research questions posed in chapter 3 asked whether relationships between social roles and health were explained by early life social predictors of adult social roles, and whether adult social roles were acting as a marker for adult socio-economic circumstances in their relationships with health. Chapter 9 examined these relationships and found that neither childhood social class nor education was associated with self-reported health in middle age. There was a significant inverse gradient in the likelihood of reporting poor health in middle age by social class at age 43, looking at either head of household or own social class, and social class of head of household was significantly associated with women's social role histories. *Homemakers* and *Lone mothers* were most likely to live in a IV/V class household and women with relatively strong ties to the labour market (*Childless* and *Early entry normative* women) were most likely to live in a I/II class household. Despite its strong associations with both subjective health in middle age and social role histories, social class of head of household reduced the risk of reporting poor health among women in non-normative social role histories very little.

Socio-economic measures explained more of the relationships between social roles and health in cross-sectional analysis of the 1998 HSE. For instance, the increased risk of reporting poor health among homemakers living with a partner and children was explained by educational qualifications and household income. However, the increased risk of reporting poor health among other homemakers (mostly homemaking lone mothers) and unemployed women was not explained by socio-economic circumstances or education. One point to note is that it was household income (which was not included in analysis of the 1946 cohort) rather than social class that was important to relationships between social roles and health in cross-section. It may be that material circumstances are more important in these relationships than some of the other aspects, such as prestige or aspects of lifestyle, that may be captured by the Registrar General's measure of social class. In this light, the lack of influence of socio-economic measures in the longitudinal analysis need not negate a more material influence as being part of the explanation for poor subjective health of women in particular groups, such as has been described

elsewhere (Joshi 1996; McMunn, Karlsen & Nazroo forthcoming). However, material resources are certain to vary dramatically between women in different non-normative groups and are, therefore, unlikely to explain the poor subjective health in middle age of women with non-normative role histories more broadly.

Chapters 8 and 9 showed that the poor subjective health in middle age of women with non-normative role histories, and the obesity in middle age of long-term *Homemakers* in the 1946 cohort persisted after examination of each of the potential confounders of early health, childhood social class, education and adult socio-economic circumstances. This persistence of a role effect emphasises the importance of social roles as a structure that has relevance for health independent of class.

### 11.2.3 *Subjective health, the normative role and role quality*
This thesis asserted that consideration of roles must have a theoretical basis and the final research question addressed was whether relationships between social roles and health were mediated by theoretically-based measures of role quality. This thesis has made a theoretical contribution by developing a theory of role quality (chapter 2). A brief review of the history of social roles in relation to sociological theory concluded that the concept of agency has not been adequately emphasised in relation to social roles. Gidden's (1984) theory of structuration was drawn upon – the duality of structure and agency – as a framework for thinking about social roles. Within such a framework, opportunities for agency are both afforded and restricted by rules and resources associated with patriarchal structure. Equating agency with autonomy, chapter 2 then drew upon Doyal & Gough's (1991) theory of human need which postulates that all individuals need autonomy, regardless of their culture, in order to participate in society. Doyal & Gough raise the idea that certain social roles may restrict opportunities for satisfying autonomy needs. Chapter 2 added another pathway in Doyal & Gough's original model, linking restricted opportunities for autonomy need satisfaction in certain social roles to physical disease through their effect on mental health (a link that Doyal and Gough do discuss, but do not explicitly draw into their model). Thus, the theory of role quality developed for this thesis defines the quality of a role by the extent that it provides opportunities for autonomous or agentic action.

This theory was operationalised in the final empirical chapter of the thesis (chapter 10). Two measures were used to operationalise role-related autonomy. One was derived from a series of questions which asked women about their main role at age 36, such as whether

they enjoyed it, how demanding it was emotionally and physically, whether it used their skills and talents. The other was a measure of family and work stress collected at age 49. A measure of autonomy unrelated to social roles per se was also included (from the Ryff measure of psychological wellbeing). Only the first two role-related measures were associated with both self-reported health and social role histories. However, neither of these explained the increased likelihood of reporting poor health among women in non-normative social role histories in multivariable analysis, although each explained the increased risk for certain specific groups of women. For example, quality of main role at 36 reduced the odds of reporting poor health among *Homemakers* slightly while family and work stress explained the increased risk of reporting poor health among *Lone mothers.* This latter finding slightly contradicts findings in a more recent Canadian sample in which chronic stress did not influence pathways between social roles and either mental or self-reported physical health (McDonough, Walters & Strohschein 2002). The authors did find that chronic stress reduced, but did not eliminate, the greater likelihood of mental distress among divorced women in their sample compared with married women.

Measures of role quality explained much of the poor subjective health of women in certain, specific groups, mainly *Lone mothers* and *Homemakers.* However, the increased risk of reporting poor health in middle age among women with non-normative role histories more broadly was not explained by the measures used to operationalise role-related opportunities for satisfying autonomy needs. Indeed, it is difficult to see how every role history that deviates from the norm is lacking in opportunities for satisfaction of autonomy needs in comparison with the most normative groups. Rather, this relationship between non-normative role histories and subjective health in middle age raised an additional explanatory hypothesis.

### Role-identity Theory

A theory that appears to be particularly relevant for gaining a deeper understanding of the relationships uncovered here between normative roles and subjective health draws on social theory concerned with the centrality of roles in the formation of identity. The concept of role–identities (McCall & Simmons 1966, Stryker 1980, Stryker & Serpe 1982, Thoits 1991) was described in chapter 2 (p. 42-43). This theory asserts that self-conceptions are based on one's roles, defined as one's position in the social structure determined by enduring, normative, reciprocal relationships. Identities based on roles provide the individual with a sense of who she is in an existential sense, and also how she ought to behave. Thus, role-identities give individuals a sense of meaning and purpose in life and

provide behavioural guidance. Thoits (1991) described role expectations as normative expectations and asserted that the adequacy of individuals' identity performance in relation to these expectations has implications for self-evaluation. Failing to meet normative expectations in identity performance is hypothesised to result in decreased self-esteem, according to this theory. The possession of role-identities and the adequacy of various identity performances are major sources of individuals' self-conception and self-esteem, respectively, and therefore are important in the development and maintenance of psychological well-being. This theory served as a driving force for the multiple role hypothesis.

Thoits (1991) added to role-identity theory by developing the concept of identity-relevant stress. The basis of this concept is the idea that role-identities vary in their salience, or subjective importance, for individuals' self-conceptions (McCall & Simmons 1966, Rosenberg 1979, Stryker & Serpe 1982, Weigert et al. 1986). Multiple identities are organised hierarchically as individuals are likely to invest themselves in, or commit to, some social roles that they hold more strongly than others. Roles that are socioculturally appropriate in view of the individual's characteristics, that are prestigious or economically rewarding, and that are enacted competently are likely to be more salient in an individual's identity hierarchy than less normative, nonprestigious, or incompetently enacted roles (Hoelter 1983, Rosenberg 1979, Thoits 1991). The more salient the role-identity, the more meaning, purpose, and behavioural guidance the individual should derive from its enactment, and thus the more that identity should influence psychological well-being. Thoits' idea of identity-relevant stress postulates that strains which disrupt or threaten an individual's most salient role-identities should be more psychologically damaging than stressors which disrupt or threaten less valued role involvements. Other authors have expressed similar concepts. Brown and Harris (1978) also speculated that when events and difficulties deprive the person of an essential identity, feelings of hopelessness and depression result. Oatley and Bolton (1985) also tied the aetiology of depression to disruption in roles that are primary in providing the basis for a person's sense of self. Taking more of a life course perspective, Brown and McGill (1989) hypothesised that the accumulation of life events which are inconsistent with individuals' self-concepts – what they called 'identity-disruptions' – are threatening and thus illness provoking. This concept of accumulated identity-disruptions in relation to social roles fits well with the results seen in chapter 7. These results also beg the question as to whether identity-relevant stress or identity-disruptions could be applied to expected role-identities, an expected sense of self that never materialised.

The focus of role-identity theory is on the acquisition and enacting of behaviour patterns determined by norms and rules, emphasising the pre-eminence of the social whole over its individual parts. As social change became more rapid over the 1970s, theories emphasising a fixed social order appeared less able to describe a more fluid society (Giddens 1991). In order to understand why earlier theories emphasising the socialisation of norms and values are likely to be relevant for explaining relationships between role histories and subjective health in middle age among women in the 1946 cohort, it is useful to remind ourselves of the homogenous social environment in which they lived their formative years in terms of family formation and social role occupation.

Chapters 1 and 4 showed that during the twentieth century, marriage never took place so frequently or occurred at such early ages as in the 1960s. We have seen in chapter 1 that typically 60% of women born in the 1940s married between ages 19 and 23 with 91% married by the age of 30 (Kiernan & Eldridge 1987). Kiernan and Eldridge note:

> ...during the 1960s, when the majority of the 1940s generation married, there were strong societal norms governing the timing of marriage. Marriage was seemingly inevitable and young women were expected to have married by their early twenties. Since the beginning of the 1970s, there have been dramatic declines in marriage propensity, particularly at ages under 25 (p.60).

Effective contraception which liberated pre-marital sex from its previously strong connections with marriage and procreation, was not widely available until after the large majority of women in this cohort had begun to form their families. The same can be said for changing sexual mores, the emergence of cohabitation, and the reduction in gender differences in educational qualifications. Kiernan and Eldridge conclude:

> The generation of women born in the 1940s have the youngest age pattern of marriage ever recorded, since civil registration began in 1837, and have the highest proportions ever married of all cohorts born so far this century. Given changed sexual mores and patterns of union formation and the structural and ideological changes that have occurred over the recent past, it is unlikely that we will see a return to this pattern of marriage behaviour, at least in the foreseeable future (p.63).

### The 'timing-of-events' model

A theory that derives from developmental psychology rather than sociology, and so does not speak of social roles and identity, per se, has relevance for the relationships between social roles and subjective health seen in this cohort. The key idea of the 'timing-of-events' model was that adult development is paced by a sense of the 'average expectable life

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cycle' (Butler & Lewis 1977). This model hypothesised that stress along the life course is a manifestation of asynchrony in the timing of life events, with the unanticipated, rather than the anticipated, life event representing a traumatic event. Thus not being married by thirty-five may trigger anxiety if the individual's cultural expectation of appropriate timing has been violated. Neugarten (1968) a leading proponent of this view, suggested that a psychology of the life cycle is a psychology of timing. According to this view, people do not undergo crises in mid-life,[24] but a normal, gradual change in their time perspective, in which life is restructured in terms of time-left-to-live rather than time-since-birth, a shift accompanied by heightened introspection and stock taking. Furthermore, Neugarten suggested that chronological age was no longer the positive marker that it was early in life, that middle aged men and women look to their positions within different life contexts – body, career, family – rather than to chronological age for their primary cues in clocking themselves. Phasing in the different contexts of life are not always synchronous: A man may be 'on time' in the realm of work but 'off time' as a father of a preschool son born in a late or second marriage. The assumption in the timing-of-events model is that the phasing and the shifts in self-definition are structured largely by age norms rooted in culture and society, rather than in biology.

Rossi (1980) criticised the timing-of-events model as emerging out of life course patterns from the 1950s and early 1960s and therefore, not being relevant to cohorts born after the 1940s.

> Indeed, it may be the case, in very general terms, that the timing-of-events model of adult development emerged in a period of social history – the 1950s and early 1960s – more stable and with a more 'expectable life cycle' than either before or since (p. 16).

In light of the rapid changes in family formation that had occurred in the 1970s, Rossi suggested that if one accepts the timing-of-events model, "one would predict elevated stress at numerous decision points along the lifeline for many adults during the current period" (p. 17). Rossi was correct to highlight the historical specificity of the timing-of-events model, and its declining relevance in a more modern social environment. However, it may be that hypotheses and theories regarding social roles and identity that seem 'out-dated' in the modern context are potentially useful and accurate for describing these relationships for women in earlier cohorts. The results shown here suggest the deviation

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[24] The timing-of-events model was partly developed as an alternative to the 'mid-life crisis' model that achieved such popularity in the 1970s.

from the normative timing and sequence of social roles did have a detrimental effect on the subjective health of women in this particular cohort.

### *Role-identity for 1946 cohort women as part of a traditional modern society*

In a late modern society, as Giddens describes (1991), identity is formed in a social environment based on choice and risk and with internal reference to the self rather than the external references of strong social norms and traditions. Thus, the 'normative order' is no longer a major guiding force for identity formation in late modern society. The convergence or standardisation of social roles as documented throughout this thesis suggests that western society was more traditional, at least for women's social roles, than the late modernity described by Giddens at the time that some of the early role-identity theorists were writing. We have seen that there was a standardisation of social roles around the middle of the twentieth century, and that women born in the 1940s were very much a part of this standardisation. It may be that standardisation at this time reflected certain characteristics of a modernising society such as industrialisation, market economies, increasing life expectancies, or decreasing childhood mortality rates, but not yet a late modern society with its inward-looking self as described by Giddens.

Other authors have noted differences in identity formation between modern and traditional societies. Howard (2000) says:

> At earlier historical moments, identity was not so much an issue; when societies were more stable, identity was to a great extent assigned, rather than selected or adopted. In current times, however, the concept of identity carries the full weight of the need for a sense of who one is, together with an often overwhelming pace of change in surrounding social contexts – changes in the groups and networks in which people and their identities are embedded and in the societal structures and practices in which those networks are themselves embedded (p.367-8).

Another study (Helson *et al.* 1995) contrasted identities (using a psychological inventory) of women who were young adults in the 1950s with those who were young adults in the 1960s and found different identity types in the two cohorts. For example, 'independence' and 'high aspirations' were salient for the later cohorts as opposed to an interest in the 'motives of selves and others' in the earlier cohorts. Helson and colleagues also reported that identity types were associated with work and family patterns for the more recent cohort, but not the earlier cohort, for whom these role patterns, the authors note, had been more restricted.

It appears that Britain circa 1950 and 1960 leaned towards the traditional in the sense of normative, patriarchal structuring of social roles, at least for women. For women who were born in 1946, traditionally female social role patterns constituted the normative order – both its values and its norms in a Parsonian sense – that was strongly reinforced socially. As a result, cultural expectations about becoming a wife and mother at a relatively young age, and maintaining the nuclear family 'until death us do part', were internalised as personal expectations for women born in 1946. Alongside strong 'family values' during this period was a strong attachment to the labour force, albeit without the educational resources associated with a career and normally after a period of full-time homemaking when children were young. A large majority of women in this cohort successfully fulfilled normative expectations regarding both family and work role patterns. The minority who did not achieve, or were unable to maintain the norm – even groups who were highly educated and relatively affluent such as childless women, in this historical cohort would have become part of the socially deviant 'other' to some extent. These women appear to have paid a price for not following the norm, according to the results shown in relation to self-rated health in this thesis. This is not to suggest a simple equation in which adoption of the predominant demographic in a homogenous society is equated with happiness.

### Unfulfilled identity expectations and poor subjective health

There may exist at least two avenues through which women who did not follow the norm suffer in psychosocial terms. We have seen how theorists from all areas of social theory (from Parsons, to role-identity theory to Giddens and others) have described processes by which self-identity reflects the social environment in which it is formed. As Giddens (1984) himself says, "Tradition is more than a particular form of the experience of temporality; it represents the moral command of 'what went before' over the continuity of day-to-day life" (p. 200). In a strongly traditional society, value placed on following 'the norm' with regards to building an identity will be strong. Therefore, it would not be surprising for women in such a society who did not adopt the norm to feel dissatisfied, unfulfilled, or 'short-changed' in comparison with their peers. The subtle but powerful socialisation and internalisation of norms and values by women in this cohort may form an important component of the expectations they have for their own identity formation, including social role occupation, over their anticipated lives. Perhaps those who met these expectations were more likely to be satisfied with the identity they had created for themselves than those whose social role patterns did not succeed in meeting normative expectations over time. This is not to suggest that women born in 1946 were automatons unthinkingly or unconsciously following socially structured role patterns. Rather they are likely to have

been planful agents in the way they lived their lives.[25] However, rather than the planful reflexivity of identity formation in a modern world full of choices and fluidity as described by Giddens, the life course plan for women born in 1946 would have reflected the social environment of their time. It would have been based on traditional normative values of relatively little choice, fewer opportunities for change, but also fewer risks associated with change. So, with normative expectations regarding social role patterns internalised as aspects of women's self-identities, it is possible that the inability to achieve these expected identities might ultimately influence subjective health by late middle age when family formation is complete and work roles are well-established.

This idea was operationalised in chapter 10 using measures of family and work related regrets at age 36 and by deriving a measure of role satisfaction from questions women were asked about their achievements in work and family lives, looking back from age 43. Women whose social role histories were non-normative were significantly more likely to report having regrets regarding their family lives at age 36 and to be dissatisfied with their work and family roles looking back at age 43 than their more normative counterparts. Looking at more specific role history groups, long-term *Homemakers* and *Lone mothers* were by far the most likely to feel role dissatisfaction looking back at age 43, followed by *Remarried mothers*, while *Childless* women were among the least likely. The inclusion of either of these measures in multivariable analysis explained much of the increased risk of reporting poor health among *Lone* and *Remarried mothers* while dissatisfaction with work or family roles looking back at age 43 also reduced the risk of reporting poor health among *Homemakers* somewhat. Role satisfaction measures did not influence the subjective health of women in non-normative role histories uniformly.

There may be a second avenue through which non-normative role-identities might influence subjective health for women in the 1946 cohort. Their own dissatisfaction may be compounded by perceived social pressure, for example, through subtle reactions of disapproval during social interactions in the surrounding traditional society. Howard (2000) describes the social valuation of differing identity types, noting that identity categorisations are almost always accompanied by systems of evaluation of some categories as better or worse. Although it has more often been used in the context of studying criminal behaviour, the concept of deviance – social behaviour that departs from that regarded as 'normal' or socially acceptable – may be applicable here. Theorists in this field (most notably Becker

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[25] Graff (1995) has argued that an understanding of one's life course as a deliberate project became common during the nineteenth century.

1963) emphasised that conceptions of normality and deviance are relative to social context and are highly variable between societies and cultures. Symbolic interactionists have explored the effects of negative labels on individual's self-conceptions and the development of 'deviant identities'. In a strongly traditional social context which exhibits little variation in women's social role patterns, the concept of labelling of women who deviate from the norm, and the influence this might have on subjective health, is an explanatory hypothesis that warrants further study.

### 11.2.4 Subjective health, the normative role and mental health

The preceding sections have discussed psychosocial pathways between traditional social norms, role-identity and health. The link that has been drawn between normativity, self-identity and subjective health depends on mental health to some extent, assuming as it does a psychosocial process. In the 1946 cohort, women *Lacking one main role* were significantly more likely than *Normative* women to have poor mental health at ages 43 and 53. At age 53, *Homemakers* and *Lone mothers* in particular were significantly more likely than *Normative* women to have poor mental health. When mental health at ages 43 or 53 were included in multivariable models with role histories, they reduced the risk of reporting poor health at 54 among women *Lacking one main role* more than any socio-economic measure, but had less influence on the subjective health of *Other non-normative mothers*. When mental health was included in a full model with social class, they explained much of the poor subjective health of *Homemakers*, *Lone* and *Remarried mothers*. Similarly, in the HSE mental health reduced the increased risk of reporting poor health among full-time homemakers slightly, and among unemployed women more so. Clearly, relationships between social roles and subjective health are not reducible to mental health entirely. This might suggest that the phenomonon being captured here is mainly poor self-evaluation rather than mental health in a more clinical sense, and it is this self-evaluation that ultimately influences health, including both mental and physical health. Self-evaluation is distinct from the kind of diagnostic mental health that is captured by the PSF, and dissatisfaction in relation to long-term social role histories is unlikely to appear on the GHQ which collects information about the past 4 weeks compared with usual.

### 11.2.5 Subjective health, the normative role, social class, autonomy needs, role satisfaction and mental health

When indicators of role-related autonomy needs and role satisfaction were included in multivariable models with role histories, they explained some of the increased risk of reporting poor health in middle age among women with non-normative role histories. With

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the additional inclusion of social class of head of household at age 43 and mental health at age 53, this risk was reduced still further so that much of the increased risk was explained. However, the influence of role quality measures in particular was not uniform for women in different non-normative groups. For instance, the increased risk of reporting poor health in middle age among *Lone mothers* was entirely explained, while the risk for long-term *Homemakers* was largely reduced and the risk for *Childless* women was not reduced at all.

In summary, analysis of relationships between subjective health and role histories among women in the 1946 cohort has shown, first, that women with non-normative role histories had poor subjective health in middle age relative to their more normative peers. This may partly be to do with the development of non-traditional role identities in a strongly traditional social environment. However, analysis of indicators of role quality and role satisfaction also suggest that women with non-normative role histories in this cohort are diverse in terms of these identities and are likely to experience different levels and sources of stress and risk factors as a result.

### 11.3    Obesity and long-term homemaking

Relationships between social roles and obesity differed in the two samples of women studied here. In the 1998 HSE, among women in their late twenties and early thirties, childless women were significantly less likely to be obese than employed mothers living with a partner. Among women in their late thirties and early forties, it was single, childless women and homemaking lone mothers who were significantly more likely to be obese. Among women who were in their late forties and early fifties in 1998 there was no significant social role variation in the likelihood of being obese. These findings were very different from those among women in the 1946 cohort. Cross-sectional analysis of the relationship between social roles and obesity among women in the 1946 cohort at various ages showed full-time homemakers were more obese once full-time homemaking was no longer the normative work role (i.e. after age 26), but particularly at the two oldest ages (43 and 53). Longitudinal analysis revealed new relationships; specifically, that women with relatively weak long-term ties to the labour market were more likely than women in *Normative* role histories to be obese in middle age. A longitudinal perspective helped to highlight a key time in the lives of this cohort of women regarding labour market entry which was subsequently shown to be important in relation to social role patterns and obesity.

### 11.3.1 Obesity, long-term homemaking and selection

For women in the 1946 cohort measures of BMI were available at five age points, making it possible to look at BMI trajectories for women with different social role histories. Long-term *Homemakers*, the group of women most likely to be obese at age 53, had a higher mean BMI than *Normative* women from age 26, and showed a steeper increase in mean BMI between ages 15 and 53 than women in other social role groups. Taken together, the evidence suggested that there may have been some obesity-related selection out of paid employment in early adulthood, but that this did not account for the increased likelihood of being obese at 53 among *Homemakers*. Early mental health was also examined in relation to social role histories and obesity and was found not to influence this relationship.

### 11.3.2 Obesity, long-term homemaking, education and socio-economic circumstances

As with self-reported health, socio-economic circumstances influenced relationships between social roles and obesity more in the HSE, but as was the case with self-reported health, this appears to be largely due to the inclusion of household income. Among women in their late twenties and early thirties, the reduced risk of obesity among childless women, and in particular those living with a partner, was partly explained by adjustment for education and household income. Among women in their late thirties and early forties, the increased risk of obesity in homemaking lone mothers was reduced a little by adjustment for education, reduced to non-significance by social class of head of household, and reduced still further by the inclusion of household income. In contrast, the increased risk of obesity among single women in this age group (who had high levels of education and were in professional or high-paying occupations) was actually increased slightly further by the inclusion of education, household income or women's own occupational class. Thus, education, and particularly material resources, explained relationships with obesity for certain groups of women – lone mothers in particular – but not others.

In the 1946 cohort data, *Homemakers*, who were the most likely to be obese in middle age, were also the most likely to have no educational qualifications and to live in a social class IV/V household. However, inclusion of either education or social class of head of household in multiple regression models only reduced the increased risk of obesity in middle age among *Homemakers* slightly. Inclusion of education or social class of head of household actually increased slightly the risk of obesity in middle age among *Intermittent employed married mothers* (who were also more likely than *Normative* women to be obese

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in middle age). Therefore, potential pathways between long-term homemaking and obesity in middle age may begin with low educational attainment. Half of *Homemakers* in this cohort had no educational qualifications. It appears that long-term *Homemakers* in this cohort stopped their schooling before their peers and perhaps married young men who also terminated their education early, judging by the proportion of *Homemakers* in routine or semi-routine manual households. However, education and household socio-economic circumstances were clearly only part of the story of mid-life obesity for long-term *Homemakers* in this cohort. It may also be that long-term *Homemakers* married and started families younger than their peers as we have seen that previous work has shown education to be associated to age of marriage and childbearing in this cohort (Kiernan 1988, 1989; Kiernan & Diamond 1983; Kiernan & Eldridge 1987).

### 11.3.3 Obesity, long-term homemaking and parity

We have seen that long-term *Homemakers* in this cohort had more children than their peers in other role histories. Chapter 9 showed that both *Homemakers* and *Intermittent employed married mothers* were more likely than other women to have 3 or more children, and long-term *Homemakers* in particular were much more likely than women in other role histories to have 4-6 children. Family size has been shown to have important implications for women's work role patterns (Coleman & Salt 1992) and was also significantly associated with obesity at age 53 among women in this cohort. Parity explained more of the increased risk of obesity among *Homemakers* than any other factor considered, although the increased risk of obesity in middle age among long-term *Homemakers* remained. Therefore, it appears that family size is on the pathway of increasing risk for obesity in middle age among long-term *Homemakers*. With more children, these women were likely to have stayed at home with small children longer than their peers who had fewer children. When their children were eventually old enough for *Homemakers* to consider a return to the labour market, they may have found that they had very little human capital with which to enter. They were very likely to have no educational qualifications, and they would have had less work experience than their peers who had fewer children and entered the labour market earlier. In these circumstances *Homemakers* probably were unable to find a suitable job, or may have decided that any job they could have entered would not be worth the trouble financially. In any case, they remained out the labour market, for the most part.

### 11.3.4 Obesity, long-term homemaking and autonomy needs

Parity is only part of the explanation for increased obesity in middle age among long-term *Homemakers*. Psychosocial pathways between long-term homemaking and subsequent obesity are readily conceived. Feminist authors made the dissatisfactions of housewives public in the US in the early 1960s (Friedan 1963) and in Britain in the late 60s and early 70s (Gavron 1966; Oakley 1974a, b). The unhappiness described by those authors suggests a psychosocial pathway in which being at home full-time in the long-term might result in a negative psychological state, perhaps related to a lack of opportunities for autonomous agency as hypothesised in chapter 2. Chapter 10 identified measures used to operationalise the theory of role-related satisfaction of autonomy needs and examined their relationship with obesity in middle age and role histories. With the exception of 'purpose in life' score (on the Ryff measure of psychological well-being) none of these measures was associated with obesity in middle age. Also, none of them, including 'purpose in life' score, influenced the high risk of obesity in middle age among women with weak long-term ties to the labour market compared with *Normative* women. If the increased risk of being obese in middle age among women with weak long-term ties to the labour market works through autonomy or agency needs, these were not captured by the measures used to operationalise role-related autonomy need satisfaction here.

### 11.3.5 Obesity, long-term homemaking and mental health

This study also examined the extent to which mental health appeared to be on the pathway between long-term homemaking and obesity in middle age. Mental health at age 53 was significantly associated with obesity at 53 and *Homemakers* were significantly more likely than *Normative* women to have poor mental health at age 53. However adjustment for mental health at 53 reduced the risk of obesity in middle age among *Homemakers* very little, about as much as social class of head of household. Like household socio-economic circumstances, mental health appears to play a small part in the path between long-term homemaking and obesity in middle age. However, the lack of relationship with mental health at younger ages (36 and 43) raises the question of whether mental health is on the pathway to obesity or a concurrent outcome in middle age.

### 11.3.6 Obesity, long-term homemaking, education, social class, parity and mental health

In the 1946 cohort, adjustment for education, social class of head of household at 43, parity and mental health at 53 reduced the risk of obesity in middle age among long-term

*Homemakers* further than any of these factors considered on their own. However, an excess risk of obesity in this group remained. This suggests that other pathways have to be considered (see 11.4.1).

## 11.4    Limitations of the study

There are several limitations to the work included in this study. This section suggests some elements of potential relevance that have not been addressed in this study.

### 11.4.1 Obesity, long-term homemaking and health behaviours

The pathway between role quality and obesity hypothesised for this thesis was that psychosocial factors may lead to 'comfort eating' and/or inactivity (see chapter 3), along the line of Wilkinson's work (1991) describing health behaviours as coping mechanisms for dealing with the stress of social inequalities. Previous work in this cohort has shown educational attainment (of which we have seen *Homemakers* had very little) was associated with health behaviours that influence obesity. Cohort members with an 'A' level qualification or higher exercised more regularly (Kuh & Cooper 1992) and ate a diet closer to the current recommended intakes (Braddon *et al.* 1988) at age 36 than those with lower educational attainment.

While, it remains possible that having a large family leads long-term *Homemakers* to the behavioural risk factors through psychosocial pathways combined with proximity to food, analysis of role quality and mental health has not shown strong support for this. However, it is also possible that obesity among *Homemakers* occurs through behavioural risk factors, but without any of the psychosocial aspects described above. As a mother, having a lot of children usually means more time spent in proximity to food – preparing food for the family, feeding children, as well as less leisure time for physical activity, and this situation is likely to be particularly true for cohorts with more traditional gender role divisions. Caring for children has been shown to have both positive and negative influences on eating habits and physical activity (Roos *et al.* 1998; Sternfeld, Ainsworth & Quesenberry 1999). There may be pressure from children to adopt a healthy lifestyle, but the financial, time, and emotional demands of childcare may make it more difficult to do so, and may be moderated by living in a child-friendly neighbourhood. In middle age, there may be more time for active leisure activities when children leave home unless it is taken up by caring for frail parents (Wilcox *et al.* 2000). This study has not included an investigation of behavioural risk factors, mainly in order to maintain a manageable focus to the work, but also because diet is notoriously difficult to measure. Each of the samples

used here did include some measure of diet. Initial analysis showed that there was no relationship between these diet indicators and obesity in either sample. A more thorough investigation of both diet and physical activity may be warranted.

### 11.4.2 Full- versus part-time employment

In an effort to study women's long-term social role patterns and their influence on health in later life, role histories were created. In developing these histories every attempt was made to retain enough information to truthfully display social role patterns over various adult ages for women in the 1946 cohort, while producing a usable and manageable role history variable. In cross-sectional analysis too, it was necessary to combine certain groups in order to examine work and family roles in one variable of a practicable size. One fairly major piece of information that it was not possible to include was whether women had been employed full-time or part-time. Chapter 4 showed that women in the 1946 cohort tended to return to part-time employment by their mid-thirties, after spending a period at home full-time looking after young children. By age 43, more women in the cohort had entered full-time employment. However, throughout middle age a sizeable proportion of women remained in part-time employment so that, among those employed, only a little more were in full-time employment than in part-time employment at ages 43 and 53. Part-time employment continued to be prevalent in later cohorts. In the 1998 HSE, slightly more women aged 35-54 were in part-time employment than in full-time employment. Even in the youngest age group (25-34), in which many women did not have children, less than half were employed full-time. With such high levels of part-time employment among women in the UK, and in light of previous work showing polarising circumstances between women in full-time and part-time employment (see chapter 1, pp. 26-28), a comparison of relationships between health and role quality in these two groups would be worthwhile. An attempt was made to create a history variable capturing levels of full- versus part-time employment among employed women in the 1946 cohort. The resulting variable was not associated with either self-reported health or obesity, and a more detailed study of full- versus part-time employment in relation to health has been put aside for future work.

### 11.4.3 Social roles and health in men

As mentioned in a footnote in the introduction to this thesis, the scope of this work was limited to relationships among women – rather than comparisons between women and men – as a way to maintain a manageable focus in such a potentially broad topic area. The role overload hypothesis has been studied much more extensively among women. This focus on women appears to be based on two assumptions. First, that family roles are

only important to women, and, secondly, that, while women's social roles are changing, men's are not. Certainly, a move among men to take more responsibility in the domestic sphere has come much more slowly than that of women into the paid labour market. Rather than a move towards equally shared domestic labour between the genders, women have tended to pay other women to take on some of their domestic duties, although at least one qualitative study has shown that some households are truly 'halving it all' (Deutsch 1999). Some early studies of roles and health did examine these relationships in men and found that for men more roles were associated with better health (Thoits 1987), presumably because family role conferred emotional benefits without domestic labour responsibilities. More recent studies have shown that family roles in particular are salient for women's health, but not for men's (Arber 1991, Hibbard & Pope 1993, Janzen & Muhajarine 2003). With the increasing ability to, and popularity of, flexible working arrangements, are men and women beginning to share domestic responsibilities more equitably? If not, why not? If so, would men's increased domestic responsibilities change their relationship between roles and health, perhaps through reduced autonomy and in what ways? In addition to potential changes in men's domestic involvement, we know that there have been dramatic changes in the male labour force since the 1980s which may be associated in changes in men's health.

### 11.4.4 Measuring role-related agency/autonomy

The hypothesis that opportunities for satisfying autonomy needs explained relationships between social roles and health was tested and only partly supported by the evidence. This may mean that opportunities for autonomous action afforded by social roles are not associated with the poor health of women in non-normative roles, or the increased obesity of long-term *Homemakers*. On the other hand, it may be that the measures used did not adequately capture the construct of interest. The measures used were included in the cohort questionnaires to learn about the quality of women's work and family roles, and certainly role demands and role stresses can be conceived of as influencing opportunities for autonomy within a role. However, they were not created with the concept of role autonomy or role agency specifically in mind, limiting the ability of the study to answer this particular research question with confidence.

## 11.5  Conclusion

This study has shown relationships between social role histories over a 28 year time span and subsequent health in middle age. Women in the 1946 cohort with non-normative role histories had worse subjective health in middle age than their more normative

counterparts. These differences were not explained by health selection, education or socio-economic circumstances. Indicators of role quality based on either autonomy needs or role satisfaction explained the risk of poor subjective health in middle age among particular groups of women – mainly lone mothers – but did not explain the poor subjective health of women with other non-normative social role histories. Neither was the increased risk of poor subjective health in middle age among women in non-normative family role histories explained by mental health or personality type. For obesity at 53, women in the 1946 cohort with weak long-term ties to the labour market, and particularly long-term homemakers who had the weakest ties to the labour market, were at higher risk than their employed counterparts. Low educational attainment and having a relatively large number of children appeared to explain some of this risk for obesity, but certainly not all of it. In summary, role history effects on subjective health and obesity were strong and not entirely explained. What are the next steps to understanding relationships between roles and health?

It was argued that in the early adult social environment of young women in the 1946 cohort, 1960s Britain, conformity to traditional norms regarding social roles was an important part of socialised identities, at least for women. As a result, expectations of achieving normative role patterns were a part of gender identity for these women – a part of what it was to be a successful, or even 'normal', woman in the middle of twentieth century Britain. Women who were unable to achieve normative role patterns by their fifties might have suffered disappointment at not having met their own expectations in life. In addition, they may have experienced subtle differences in their treatment as part of a socially deviant identity, on either a conscious or unconscious level. The changing social context over the last three decades of the twentieth century, as described in chapter 1, means that social roles have also changed in their meaning over this period. For instance, changes in the prevalence of marriage raises questions about the equivalence of being married in different generations. Hunt (2002) notes:

> The social context and consequences of having a first child at an older age, or having no children, or a large family is likely to be different depending on whether a woman is challenging prevailing gender norms or reflecting them....The social and economic rewards and penalities, and the experience, of combining various roles will differ according to the prevailing social milieu (p.250).

As Hunt suggests, the experiences and health consequences for women who divorced or remained childless in the 1960s, when the nuclear family was strongly normative, will be very different for women who did the same in the 1990s, when social role patterns were

more fluid. It may be that identity formation in more recent cohorts of women is based less on norms and values associated with pre-established, traditional gender roles, and more on the choice making, risk taking, or reflexive soul searching characteristic of identities developed in late modern times as described by Giddens (1991).

One important next step will be to examine the concept of normative role satisfaction in more recent cohorts. As Giddens (1984) asked, "Is the expansion of a diversity of different forms of organization – in which the conditions of reproduction are reflexively monitored – a medium of emancipation from pre-established modes of exploitative domination?" (p. 206). Has rapid diversification in family roles led to the decreasing importance of following traditional norms for women's self-evaluation? Does the increased diversity in women's social roles signify increased emancipation from gender inequalities, or simply new forms of hegemony? One of the more recent British birth cohorts has included questions regarding satisfaction with relationships which would be helpful for shedding light on this subject (Ferri & Smith 2003). As Rossi (1980) said at the time when social role diversity was beginning to get underway:

> As researchers concerned for adult development and as feminists concerned for the lives of women, we need to be alert to these indicators of the direction of change in the larger society, or we will burden the future with research findings and political ideas relevant to one cohort of adults but irrelevant to an understanding of their successors (p.32).

In addition to studying relationships between role histories, role quality and health in more recent cohorts of women, it will be useful to focus some energy on developing a measure specifically designed to capture the concept of role-related autonomy or agency. Much academic work is currently focused on understanding psychosocial qualities of paid employment, such as demand and control or effort-reward imbalance. Much less work has studied qualitative aspects of unpaid, domestic labour (see chapter 1, pp. 28-30 for a description of studies that have gone some way towards this). A next step in understanding the relationship between social roles and health will be to explore the concept of role-related autonomy more deeply with a view to designing an instrument for capturing the construct specifically. In-depth qualitative interviews designed around the concepts of autonomy needs within roles, with people in a wide variety of social role combinations and histories may be a useful first step in this process.

Important next steps also including studying longitudinal relationships between roles and health in men, and potentially drawing international comparisons with countries with differing histories of development regarding gender divisions in work and family roles.

This work is, perhaps, the first to study relationships between social roles and women's health from a truly longitudinal perspective. Doing so has uncovered unknown relationships between role histories and health in women now in middle age that were not explained by education, socio-economic factors or health selection. It remains to be seen whether these results are generation and gender specific. In addition, this work has attempted to show that the concepts of agency and identity are relevant to thinking about social roles. Along with all social structures in the late modern age, work and family roles continue to change and diversify. This increasingly dynamic social environment, coupled with the persistent relationships found between roles and health warrants continued focus on relationships between social roles and health.

# Appendix 1. Cross-sectional relationships between social roles and health: an examination of confounding and mediating factors (chapter 6, supporting material)

**Table 1.A** Self-reported poor health and obesity by adult socio-economic indicators and educational qualifications among women age 25-54 in the 1998 HSE.

| | N | % currently reporting fair or poor health | N[a] | % currently obese |
|---|---|---|---|---|
| **Educational qualification** | 4687 | | 4255 | |
| Degree or some higher ed | 1181 | 13 | 1051 | 17 |
| A level or equivalent | 500 | 17 | 451 | 18 |
| O level or equivalent | 1741 | 16 | 1604 | 23 |
| No qualification | 1055 | 33 | 951 | 26 |
| Foreign/other | 203 | 22 | 189 | 24 |
| *Missing* | *7* | *14* | *4* | |
| Overall $\chi^2$, p value | | 164.49, <0.001 | | 34.31, <0.001 |
| **Social class of head of household** | 4687 | | 4255 | |
| I/II | 1817 | 13 | 1654 | 16 |
| IIINM | 652 | 20 | 590 | 18 |
| IIIM | 1256 | 22 | 1145 | 24 |
| IV/V | 865 | 27 | 782 | 26 |
| Other | 94 | 27 | 82 | |
| *Missing* | *3* | *33* | *2* | |
| Overall $\chi^2$, p value | | 84.54. 0.001 | | 55.11, <0.001 |
| **Household income [equivalised]** | 4170[b] | | 3811[b] | |
| Top quintile | 1051 | 12 | 951 | 15 |
| 2nd quintile | 1003 | 15 | 919 | 17 |
| Middle quintile | 932 | 19 | 859 | 23 |
| 4th quintile | 509 | 26 | 469 | 26 |
| Bottom quintile | 675 | 33 | 613 | 25 |
| Overall $\chi^2$, p value | | 146.32, <0.001 | | 46.11, <0.001 |
| **Own social class** | 4539[c] | | 4122[c] | |
| I/II | 1324 | 15 | 1188 | 17 |
| IIINM | 1641 | 16 | 1507 | 18 |
| IIIM | 351 | 22 | 314 | 23 |
| IV/V | 1211 | 26 | 1104 | 26 |
| Other | 12 | 8 | 9 | 11 |
| Overall $\chi^2$, p value | | 70.38, <0.001 | | 31.80, <0.001 |

a   Sample excludes n=432 women without a valid BMI measure.
b   Sample excludes women from households without a valid measure of household income.
c   Sample excludes women who were not active in the labour market at the time of the survey.

**Table 1.B** Self-reported health by social roles, educational qualifications, social class of head of household, household income and mental health among women aged 25-54 in the 1998 HSE.

| | | Age-adjusted | | Fully-adjusted | |
|---|---|---|---|---|---|
| *Social roles* | N = 4487 | OR | 95% CI | OR | 95% CI |
| Employed, living with partner and children | 1661 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 848 | 0.90 | 0.71-1.14 | 0.92 | 0.71-1.19 |
| Employed lone mothers | 329 | 1.19 | 0.87-1.65 | 0.79 | 0.56-1.13 |
| Employed, without partner or children | 435 | 1.11 | 0.83-1.50 | 1.07 | 0.78-1.47 |
| Full-time homemaker, living with partner and children | 659 | 1.44 | 1.13-1.83 | 1.14 | 0.88-1.48 |
| Full-time homemaker, other family role* | 352 | 2.40 | 1.83-3.15 | 1.45 | 1.06-1.99 |
| Unemployed | 72 | 3.11 | 1.87-3.15 | 1.72 | 1.00-2.96 |
| Other (inc. full-time students & retired) | 131 | 1.47 | 0.94-2.32 | 1.35 | 0.84-2.18 |
| p value | | <0.001 | | 0.033 | |
| *Educational qualifications* | | | | | |
| Degree | 1161 | 1.00 | | 1.00 | |
| 'A' level or equivalent | 488 | 1.32 | 0.97-1.79 | 1.22 | 0.88-1.67 |
| 'O' level or equivalent | 1685 | 1.18 | 0.94-1.48 | 0.99 | 0.77-1.26 |
| No qualification | 949 | 2.67 | 2.12-3.37 | 1.93 | 1.47-2.54 |
| Foreign/other | 199 | 1.94 | 1.32-2.85 | 1.52 | 1.00-2.29 |
| *Missing* | 5 | -- | -- | -- | -- |
| p value | | <0.001 | | <0.001 | |
| *Head of household social class* | | | | | |
| I/II | 1774 | 1.00 | | 1.00 | |
| IIINM | 626 | 1.63 | 1.26-2.11 | 1.34 | 1.01-1.78 |
| IIIM | 1202 | 1.79 | 1.46-2.20 | 1.42 | 1.12-1.79 |
| IV/V | 798 | 2.22 | 1.78-2.76 | 1.48 | 1.13-1.93 |
| Other | 85 | 2.23 | 1.30-3.85 | 1.22 | 0.67-2.21 |
| *Missing* | 2 | - | - | - | - |
| p value | | <0.001 | | 0.041 | |
| *Household income (equivalised)* | | | | | |
| Top fifth | 1046 | 1.00 | | 1.00 | |
| 2nd fifth | 979 | 1.17 | 0.90-1.53 | 0.98 | 0.74-1.30 |
| Middle fifth | 896 | 1.57 | 1.21-2.04 | 1.18 | 0.88-1.59 |
| 4th fifth | 453 | 1.85 | 1.37-2.51 | 1.24 | 0.87-1.76 |
| Bottom fifth | 624 | 3.18 | 2.45-4.13 | 1.65 | 1.17-2.31 |
| *Missing* | *489* | *1.57* | *1.16-2.13* | *1.21* | *0.87-1.68* |
| p value | | <0.001 | [exclu. missings] | 0.041 | [exc. missings] |
| *GHQ12* | | | | | |
| Score0-2 | 3548 | 1.00 | | 1.00 | |
| Score 4+ | 764 | 3.82 | 3.19-4.57 | 3.96 | 3.28-4.77 |
| *Missing* | *175* | *1.46* | *0.97-2.19* | *1.19* | *0.78-1.81* |
| p value | | <0.001 | | <0.001 | |

**Table 1.C**  Obesity by social roles, educational qualifications, social class of head of household and household income among women aged 25-34 in the 1998 HSE.

| HSE '98 | | Unadjusted | | Adjusted | |
|---|---|---|---|---|---|
| **Social roles** | N = 1413 | OR | 95% CI | OR | 95% CI |
| Employed, living with partner and children | 408 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 277 | 0.55 | 0.36-0.86 | 0.77 | 0.48-1.25 |
| Employed lone mothers | 85 | 0.70 | 0.36-1.34 | 0.60 | 0.30-1.19 |
| Employed, without partner or children | 193 | 0.44 | 0.25-0.75 | 0.55 | 0.31-0.97 |
| Full-time homemaker, living with partner and children | 260 | 0.96 | 0.64-1.43 | 0.89 | 0.58-1.34 |
| Full-time homemaker, other family role* | 115 | 1.18 | 0.71-1.95 | 1.01 | 0.55-1.89 |
| Unemployed | 24 | 0.85 | 0.28-2.55 | 0.71 | 0.23-2.18 |
| Other (inc. full-time students & retired) | 51 | 0.91 | 0.42-1.94 | 0.87 | 0.39-1.92 |
| p value | | 0.016 | | 0.493 | |
| **Educational qualifications** | | | | | |
| Degree | 393 | 1.00 | | 1.00 | |
| 'A' level or equivalent | 189 | 1.62 | 0.98-2.69 | 1.34 | 0.80-2.26 |
| 'O' level or equivalent | 639 | 1.95 | 1.33-2.84 | 1.42 | 0.94-2.15 |
| No qualification | 159 | 2.16 | 1.31-3.58 | 1.34 | 0.75-2.38 |
| Foreign/other | 33 | 1.53 | 0.56-4.19 | 1.12 | 0.40-3.14 |
| p value | | 0.009 | | 0.572 | |
| **Head of household social class** | | | | | |
| I/II | 474 | 1.00 | | 1.00 | |
| IIINM | 239 | 1.35 | 0.87-2.08 | 1.13 | 0.71-1.79 |
| IIIM | 392 | 1.66 | 1.15-2.40 | 1.16 | 0.77-1.73 |
| IV/V | 265 | 1.30 | 0.85-1.99 | 0.86 | 0.54-1.39 |
| Other | 43 | 1.83 | 0.84-4.00 | 1.17 | 0.51-2.68 |
| p value | | 0.092 | | 0.706 | |
| **Household income (equivalised)** | | | | | |
| Top fifth | 322 | 1.00 | | 1.00 | |
| 2$^{nd}$ fifth | 313 | 1.50 | 0.92-2.44 | 1.31 | 0.79-2.18 |
| Middle fifth | 269 | 2.20 | 1.36-3.55 | 1.77 | 1.04-3.03 |
| 4$^{th}$ fifth | 150 | 2.86 | 1.68-4.85 | 2.30 | 1.25-4.24 |
| Bottom fifth | 240 | 2.35 | 1.44-3.82 | 1.94 | 1.03-3.66 |
| *Missing* | *119* | *1.67* | *0.90-3.12* | *1.63* | *0.84-3.15* |
| p value | | <0.001 [excl missing] | | 0.049 [exc missing] | |

**Table 1.D**      **Obesity by social roles, educational qualifications, social class of head of household and household income among women aged 35-44 in the 1998 HSE.**

| HSE '98 | | Unadjusted | | Adjusted | |
|---|---|---|---|---|---|
| *Social roles* | N = 1397 | OR | 95% CI | OR | 95% CI |
| Employed, living with partner and children | 695 | 1.00 | | 1.00 | |
| Employed, living with partner, no children | 138 | 1.03 | 0.64-1.65 | 1.07 | 0.64-1.76 |
| Employed lone mothers | 126 | 1.27 | 0.79-2.03 | 1.07 | 0.64-1.78 |
| Employed, without partner or children | 98 | 1.68 | 1.03-2.74 | 1.75 | 1.04-2.93 |
| Full-time homemaker, living with partner and children | 216 | 1.26 | 0.86-1.84 | 1.22 | 0.82-1.83 |
| Full-time homemaker, other family role* | 91 | 1.86 | 1.13-3.05 | 1.45 | 0.80-2.62 |
| Unemployed | 14 | 1.86 | 0.57-6.03 | 1.36 | 0.40-4.60 |
| Other (inc. full-time students & retired) | 19 | 1.24 | 0.41-3.80 | 1.28 | 0.41-4.00 |
| p value | | 0.176 | | 0.561 | |
| *Educational qualifications* | | | | | |
| Degree | 355 | 1.00 | | 1.00 | |
| 'A' level or equivalent | 174 | 1.02 | 0.63-1.67 | 0.92 | 0.56-1.52 |
| 'O' level or equivalent | 554 | 1.37 | 0.97-1.94 | 1.08 | 0.74-1.57 |
| No qualification | 274 | 1.53 | 1.03-2.28 | 0.99 | 0.63-1.58 |
| Foreign/other | 38 | 2.66 | 1.29-5.51 | 1.92 | 0.90-4.11 |
| *Missing* | 2 | -- | -- | -- | -- |
| p value | | 0.041 | | 0.674 | |
| *Head of household social class* | | | | | |
| I/II | 581 | 1.00 | | 1.00 | |
| IIINM | 197 | 1.83 | 1.22-2.75 | 1.63 | 1.04-2.54 |
| IIIM | 363 | 1.83 | 1.30-2.57 | 1.77 | 1.20-2.62 |
| IV/V | 233 | 2.54 | 1.76-3.67 | 2.26 | 1.46-3.50 |
| Other | 22 | 1.37 | 0.45-4.16 | 1.14 | 0.36-3.66 |
| *Missing* | 1 | - | - | - | - |
| p value | | <0.001 | | 0.010 | |
| *Household income (equivalised)* | | | | | |
| Top fifth | 294 | 1.00 | | 1.00 | |
| 2nd fifth | 295 | 1.00 | 0.64-1.54 | 0.85 | 0.53-1.35 |
| Middle fifth | 308 | 1.40 | 0.93-2.11 | 1.04 | 0.65-1.68 |
| 4th fifth | 150 | 1.50 | 0.92-2.46 | 0.99 | 0.56-1.75 |
| Bottom fifth | 211 | 1.90 | 1.23-2.93 | 1.08 | 0.61-1.90 |
| *Missing* | *139* | *1.29* | *0.77-2.17* | *0.98* | *0.56-1.72* |
| p value | | 0.015 | [exc. missing] | 0.922 | [exc. missing] |

# Appendix 2.    Detailed description of the work role history variable (chapter 7)

## Late entry (N=436)

**292 (67%) were full-time homemakers at age 26 and employed thereafter. Of these:**

86 were employed part-time at each age thereafter.

86 were employed part-time at one age (usually 36, n=68) and full-time at the other two.

64 were employed full-time at each age thereafter.

56 were employed part-time at two ages and full-time at one age.

**18 (4%) followed the Late entry pattern from at ages 26, 36 and 43 but were retired at age 53.**

**23 (5%) followed the Late entry pattern, but had stopped working due to illness by age 53.**

**103 (24%) women very nearly fit the Late entry pattern of being a full-time homemaker at age 26 and employed thereafter. Of these:**

63 followed the Late entry work history pattern, but were missing at age 36, 43 or 53.

24 followed the Late entry pattern, but were unemployed at age 36, 43 or 53.

16 followed the Late entry pattern, but were recorded as 'other' at age 36, 43 or 53 (usually 36, n=12).

## Early entry (N=719)

**574 (80%) were employed at three or more ages, one of which is 26. Of these:**

91 were employed full-time at every age.

86 were employed at every age, full-time at three ages and part-time at one age.

64 were employed at every age, full-time at two ages and part-time at two ages.

43 were employed at every age, full-time at one age and part-time at three ages.

20 were employed part-time at every age.

106 were employed at three ages and full-time homemakers at one age (not 26)

29 were employed at three ages and unemployed at one age.

109 were employed at three ages and missing at one age.

26 were employed at three ages and recorded as 'other' at one age.

**25 (4%) were employed at two or three ages and retired at 53. Of these:**

20 were employed at three ages and retired at 53.

5 were employed at two ages, retired at 53 and unemployed, missing or recorded as
'other' at the fourth age.

**31 (4%) were employed at two or three ages, but stopped working due to illness by age 53. Of these:**

23 were employed at 26, 36 and 43 ages.

8 were employed at two ages, and unemployed, missing or recorded as 'other' at the
fourth age.

**89 (12%) were employed at two ages and unemployed, missing or recorded as 'other' at the other two ages.**

## *Intermittent employed (N=320)*

**131 (41%) were employed at two ages and at home full-time at two ages. Of these:**

74 were full-time homemakers at the first two ages and employed at the second two.

13 were full-time homemakers at the youngest and oldest ages, and were employed at the
two middle ages.

The remaining 44 were mixed.

**8 (3%) were retired at age 53 and fairly evenly divided between homemaking and employment prior to that age.**

**18 (6%) had stopped working due to illness by age 53, but were fairly evenly divided between homemaking and employment prior to that age.**

**163 (50%) were unemployed, missing or recorded as 'other' at one or two ages, and fairly evenly divided between employment and homemaking at other ages. Of these:**

94 were employed at one age, full-time homemakers at one age and unemployed, missing
or recorded as 'other' at two ages.

69 were employed at two ages and full-time homemakers at one age (not 26) and unemployed, missing or recorded as 'other' at one age.


## *Homemakers (N=241)*

**72 (30%) were full-time homemakers at three or four ages. Of these:**

22 were employed either at age 43 or at age 53, and were full-time homemakers at every other age.

21 were full-time homemakers at every age.

6 were part-time at age 26 or age 36, and were full-time homemakers at every other age.

5 were employed full-time at age 26 and were full-time homemakers at every age after.

17 were full-time homemakers at three ages and missing or recorded as 'other' at the fourth age.

1 was unemployed at age 26, and a full-time homemaker at every age after.


**16 (7%) were full-time homemakers at two (n=14) or three (n=2) ages and retired at age 53.**


**40 (16%) reported that they had stopped working due to illness by age 53 and were full-time homemakers at two (n=29) or three (n=11) ages prior.**


**113 (47%) were full-time homemakers at two ages and unemployed, missing or recorded as 'other' at one (n=70) or two (n=43) ages.**


## *Other (N=87).* Of these:

**73 were unemployed or recorded as 'other' at three (n=70) or four (n=3) ages.**


**2 reported that they were retired at age 53 by were unemployed or recorded as 'other' at every age prior.**


**12 reported that they had stopped work due to illness by age 53 by were unemployed or recorded as 'other' at every age prior.**

***744 women were missing at three (n=268) or four (n=476) ages.***

**These women are excluded from subsequent analysis.**

# Appendix 3.    Analysis of bias in samples B & C. (chapter 7)

**Table 3.A    Women with valid role history measures excluded from the final NSHD sample for longitudinal analysis.**

| Social role histories | Missing self-reported health at 54 %(n) | Missing BMI at 53 %(n) |
|---|---|---|
| Late entry normative | 17 (45) | 0.4 (1) |
| Early entry normative | 20 (57) | 3 (7) |
| Childless | 13 (21) | 2 (3) |
| Homemakers | 23 (34) | 1 (2) |
| Lone mothers | 28 (70) | 3 (7) |
| Remarried mothers | 18 (34) | 1 (2) |
| Dual track married mothers | 17 (25) | 1 (2) |

*Lone mothers* were significantly more likely to be excluded from the sample due to missing self-reported health information at 54 (p<0.001). Too few women were missing values for BMI at age 53 to draw reliable conclusions regarding response bias.

**Table 3.B    Self-reported health and obesity in the full sample of women with valid measures at each age.**

| NSHD 1946 cohort | Age 26 | | Age 26 | | Age 36 | | Age 43 | |
|---|---|---|---|---|---|---|---|---|
| SOCIAL ROLES | N=1852 | % reporting poor health | N=1782 | % obese | N=1433* | % obese | N=1433* | % obese |
| **Employed outside the home** | **891** | **10** | **858** | **3** | **1025** | **6** | **1290** | **12** |
| Married with children | 288 | 16 | 278 | 4 | 745 | 6 | 942 | 13 |
| Married, no children | 318 | 5 | 306 | 2 | 92 | 5 | 87 | 10 |
| Lone mother | 48 | 19 | 43 | 5 | 98 | 4 | 186 | 12 |
| Unmarried, no children | 237 | 7 | 231 | 3 | 90 | 9 | 75 | 8 |
| **Full-time homemakers** | **908** | **12** | **875** | **3** | **458** | **10** | **223** | **21** |
| Married with children | 835 | 12 | 809 | 2 | 419 | 10 | 180 | 21 |
| Other homemakers | 73 | 19 | 66 | 5 | 39 | 13 | 43 | 19 |
| Unemployed | 21 | 19 | 21 | 0 | 55 | 4 | 14 | 29 |
| Other | 31 | 33 | 27 | 0 | 94 | 5 | 18 | 22 |
| *Missing* | *1* | *0* | *1* | *0* | *17* | *0* | *99* | *23* |
| Overall $\chi$ and p value | 24.52 | <0.001 | 5.60 | 0.629 | 11.79 | 0.161 | 21.69 | 0.006 |

A comparison between the figures in this table and those in tables 7.2 & 7.6 (p. 126 & 128) shows that, at age 26, lone mothers (and other full-time homemakers to a lesser extent) who were excluded from the final sample were more likely to have reported having poor health than women in those categories who were included. Also, full-time homemakers, and particularly full-time homemakers with non-normative family roles at age 43, who were excluded from the final sample were more likely to have been obese at ages 36 and 43

than their counterparts who were included in the final sample. There were other small differences in the prevalence of obesity between the two samples for certain groups at ages 26 and 36, but the numbers of obese women were two small at these ages to make reliable estimates.

# Appendix 4.    Generalised estimating equations (chapter 8)

Figure 4.A Proportion obese by social role history at selected ages among women in the 46 birth cohort -- estimated using general estimating equations
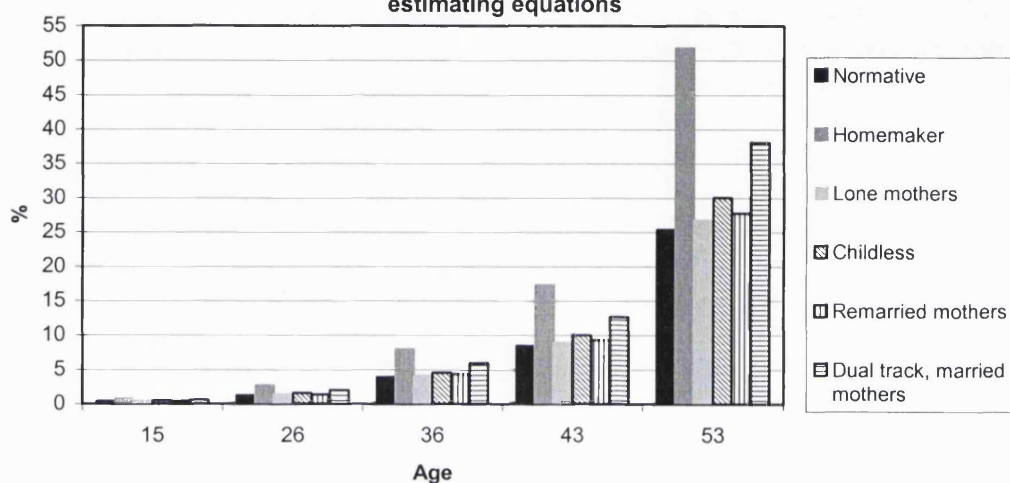


Figure 4.B Mean BMI by social role histories at selected ages using general estimating equations among women in the NSHD 1946 birth cohort. Model including social role histories and age
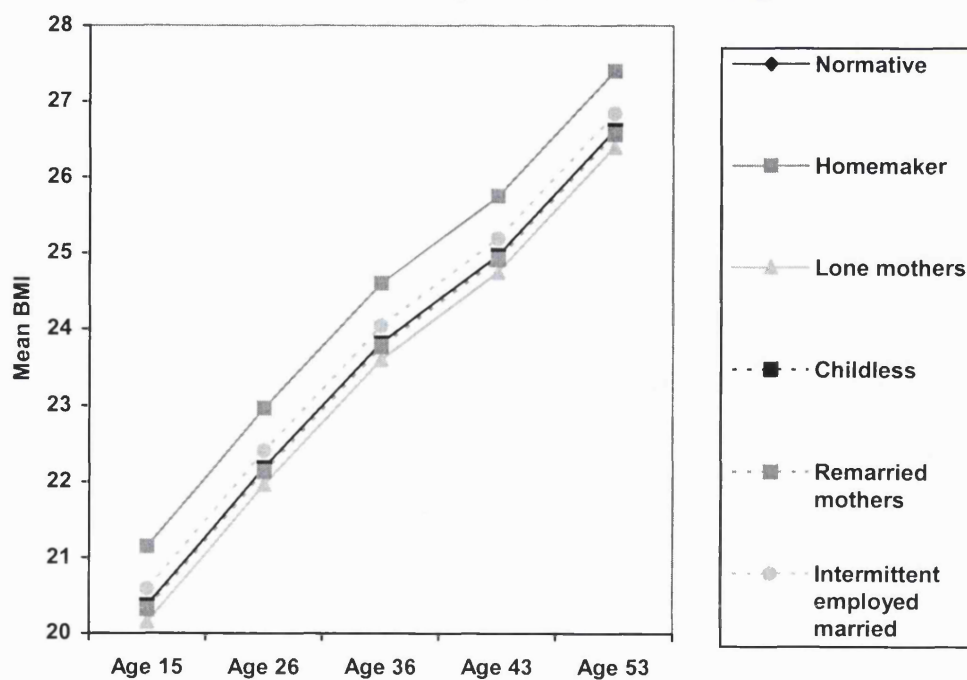
**Table 4.A** Obesity at age 53 by social role histories and BMI at age 26 among women in the NSHD 1946 birth cohort – using generalised estimating equations.

| Social role histories | N=1276* | OR | 95% CI |
|---|---|---|---|
| Normative | 507 | 1.00 | |
| Childless | 137 | 1.21 | 0.73-2.00 |
| Homemaker | 129 | 2.17 | 1.40-3.35 |
| Lone mothers | 210 | 1.12 | 0.72-1.77 |
| Remarried mothers | 164 | 1.04 | 0.66-1.64 |
| Intermittent employed married mothers | 129 | 1.55 | 0.97-2.49 |
| **BMI age 26** | 1276 | 1.62 | 1.50-1.73 |

*Sample C (see figure 7.2, p. 131), minus exclusions for women with a missing valid BMI at age 26.

**Table 4.B** Obesity at age 53 by social role histories and BMI at age 15 among women in the NSHD 1946 birth cohort – using generalised estimating equations.

| Social role histories | N=1103* | OR | 95% CI |
|---|---|---|---|
| Normative | 429 | 1.00 | |
| Childless | 123 | 1.19 | 0.75-1.89 |
| Homemaker | 112 | 2.14 | 1.37-3.33 |
| Lone mothers | 189 | 0.92 | 0.60-1.41 |
| Remarried mothers | 145 | 0.80 | 0.50-1.28 |
| Intermittent employed married mothers | 105 | 1.38 | 0.86-2.20 |
| **BMI age 15** | 1103 | 1.42 | 1.34-1.50 |

* Sample C (see figure 7.2, p. 131), minus exclusions for women with a missing valid BMI at age 15.

# Appendix 5.    Examining confounding and mediating factors for relationships between role histories and health in middle age: supporting work (Chapter 9)

**Table 5.A    Self-reported poor health at age 54 and obesity at age 53 by childhood and adult socio-economic indicators and educational qualifications among women in the NSHD 1946 birth cohort.**

| | N = 1433* | % obese at age 53 | N = 1171* | % reporting fair or poor health at age 54 |
|---|---|---|---|---|
| **Childhood social class** | | | | |
| I/II | 349 | 19 | 311 | 29 |
| IIINM | 221 | 21 | 189 | 28 |
| IIIM | 446 | 27 | 345 | 37 |
| IV/V | 345 | 32 | 268 | 32 |
| *Missing* | *72* | | *58* | |
| Overall $\chi^2$, p value** | | 18.13, p < 0.001 | | 5.73, p = 0.125 |
| **Educational qualification** | | | | |
| Degree | 68 | 16 | 64 | 28 |
| A level or equivalent | 323 | 19 | 289 | 30 |
| O level or equivalent | 351 | 25 | 309 | 31 |
| Sub-O level/technical qualifica | 123 | 27 | 95 | 36 |
| No qualification | 504 | 32 | 362 | 35 |
| *Missing* | *64* | | *52* | |
| Overall $\chi^2$, p value** | | 22.03, p < 0.001 | | 3.30, p = 0.508 |
| **Social class of head of household at age 43** | | | | |
| I/II | 713 | 22 | 623 | 27 |
| IIINM | 165 | 24 | 143 | 32 |
| IIIM | 340 | 28 | 253 | 39 |
| IV/V | 149 | 42 | 116 | 45 |
| *Missing* | *66* | | *36* | |
| Overall $\chi^2$, p value** | | 24.69, p < 0.001 | | 21.87, p < 0.001 |
| **Own social class at age 43** | | | | |
| I/II | 435 | 22 | 378 | 25 |
| IIINM | 424 | 20 | 367 | 33 |
| IIIM | 175 | 33 | 57 | 37 |
| IV/V | 211 | 34 | 158 | 35 |
| Not employed since age 36 or longer | 234 | 36 | 182 | 42 |
| *Missing* | *54* | | *29* | |
| Overall $\chi^2$, p value*** | | 19.56, p < 0.001 | | 8.39, p = 0.039 |

\* For a description of the samples (sample B & C) see figure 7.2, p. 131

\** Missings are excluded for all proportions, $\chi^2$ s, and p values.

\*** $\chi^2$ s and p values for Own social class additionally exclude women who had not been employed since age 36.

**Table 5.B**  Self-reported poor health at age 54 by social role histories, social class of head of household and mental health at ages 43 and 53 among women in the 1946 birth cohort.

| Social roles | N = 1132* | Unadjusted | | Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 440 | 1.00 | | 1.00 | |
| Lacking one main role | 430 | 1.69 | 1.27-2.25 | 1.49 | 1.08-2.06 |
| Other non-normative mothers | 262 | 1.39 | 1.00-1.94 | 1.32 | 0.92-1.90 |
| p value | | 0.002 | | 0.046 | |
| *Head of household social class* | | | | | |
| I/II | 618 | 1.00 | | 1.00 | |
| IIINM | 143 | 1.28 | 0.86-1.90 | 1.99 | 0.77-1.82 |
| IIIM | 250 | 1.71 | 1.26-2.34 | 1.68 | 1.20-2.36 |
| IV/V | 111 | 2.13 | 1.41-3.23 | 1.88 | 1.18-2.98 |
| *Missing* | *10* | *4.05* | *1.13-14.53* | *3.52* | *0.88-14.13* |
| p value | | <0.001 | | 0.004 | |
| *Mental health at age 43 (PSF)* | 1132 | 1.04 | 1.03-1.05 | 1.01 | 1.00-1.03 |
| p value | | <0.001 | | 0.090 | |
| *Mental health at age 53 (GHQ28)* | 1132 | 1.10 | 1.08-1.11 | 1.09 | 1.07-1.11 |
| p value | | <0.001 | | 0.090 | |

* Sample B (see chapter 7, p. 131) minus exclusions for women with a missing PSF or GHQ28 scores at ages 43 or 53 respectively.

**Table 5.C    Obesity at age 53 by social role histories, educational qualifications, social class of head of household and parity among women in the 1946 birth cohort.**

| | | Unadjusted | | Adjusted | |
|---|---|---|---|---|---|
| *Social roles* | N = 1411* | OR | 95% CI | OR | 95% CI |
| Normative | 540 | 1.00 | | 1.00 | |
| Childless | 158 | 1.16 | 0.77-1.75 | 1.26 | 0.73-2.17 |
| Homemakers | 148 | 2.15 | 1.46-3.16 | 1.72 | 1.14-2.58 |
| Lone mothers | 241 | 1.04 | 0.72-1.49 | 0.92 | 0.63-1.34 |
| Remarried mothers | 179 | 1.05 | 0.70-1.57 | 0.94 | 0.63-1.42 |
| Intermittent employed married mothers | 145 | 1.49 | 0.99-2.24 | 1.55 | 1.02-2.35 |
| p value | | 0.003 | | 0.025 | |
| *Educational qualifications* | | | | | |
| Degree | 68 | 1.00 | | 1.00 | |
| 'A' level or equivalent | 319 | 1.23 | 0.61-2.48 | 1.25 | 0.61-2.54 |
| 'O' level or equivalent | 345 | 1.72 | 0.86-3.43 | 1.76 | 0.87-3.58 |
| Vocational/sub O level | 119 | 1.83 | 0.85-3.92 | 1.77 | 0.80-3.92 |
| No qualification | 497 | 2.42 | 1.23-4.73 | 2.24 | 1.10-4.54 |
| *Missing* | *63* | *1.48* | *0.62-3.56* | *1.43* | *0.57-3.41* |
| p value | | 0.001 | | 0.029 | |
| *Head of household social class* | | | | | |
| I/II | 705 | 1.00 | | 1.00 | |
| IIINM | 165 | 1.06 | 0.71-1.59 | 0.99 | 0.65-1.50 |
| IIIM | 334 | 1.33 | 0.98-1.78 | 1.05 | 0.76-1.45 |
| IV/V | 143 | 2.34 | 1.61-3.42 | 1.75 | 1.16-2.63 |
| *Missing* | *64* | *0.79* | *0.41-1.52* | *0.74* | *0.37-1.46* |
| p value | | <0.001 | | 0.048 | |
| *Mental health at age 53 (GHQ28)* | 1411 | 1.02 | 1.01-1.03 | 1.01 | 1.00-1.03 |
| P value | | 0.004 | | 0.017 | |
| *Number of children* | | | | | |
| 1 | 176 | 1.00 | | 1.00 | |
| 2 | 630 | 0.96 | 0.65-1.42 | 0.90 | 0.60-1.36 |
| 3 | 319 | 1.36 | 0.89-2.07 | 1.19 | 0.77-1.84 |
| 4-6 | 120 | 1.98 | 1.19-3.29 | 1.59 | 0.94-2.69 |
| None | 158 | 1.12 | 0.68-1.84 | -- | -- |
| *Missing* | *8* | -- | -- | -- | -- |
| p value | | 0.010 | | 0.092 | |

* Sample C (see chapter 7, p. 131) minus exclusions for women with a missing GHQ28 score at age 53.

# Appendix 6.    Ryff's measure of positive well-being (chapter 10)

## Autonomy

1.  I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.

2. My decisions are not usually influenced by what everyone else is doing.

3. I tend to worry about what other people think of me.

4. Being happy with myself is more important to me than having others approve of me.

5. I have confidence in my opinions, even if they are contrary to the general consensus.

6. It's difficult for me to voice my opinion on controversial matters.

7. I often change my mind about decisions if my friends or family disagree.

## Environmental Mastery

1. I do not fit very well with the people and the community around me.

2. I am quite good at managing the many responsibilities of my daily life.

3. I often feel overwhelmed by my responsibilities.

4. I generally do a good job of taking care of my personal finances and affairs.

5. I am good at juggling my time so that I can fit everything in that needs to get done.

6. I have difficulty arranging my life in a way that is satisfying to me.

7. I have been able to build a home and a lifestyle for myself that is much to my liking.

## Growth

1. I am not interested in activities that will expand my horizons.

2. I don't want to try new ways of doing things – my life is fine the way it is.

3. I think it is important to have new experiences that challenge how you think about yourself and the world.

4. When I think about it, I haven't really improved much as a person over the years.

5. I have the sense that I have developed a lot as a person over time.

6. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.

7. There is truth to the saying you can't teach an old dog new tricks.

## Self-acceptance

1. In general, I feel confident and positive about myself.

2. I feel that many of the people I know have got more out of life than I have.

3. I made some mistakes in the past, but feel that all in all everything has worked out for the best.

4. In many ways, I feel disappointed about my achievements in life.

5. My attitude about myself is probably not as positive as most people feel about themselves.

6. The past had its ups and downs, but in general I wouldn't want to change it.

7. When I compare myself with friends and acquaintances, it makes me feel good about who I am.


## Purpose in life

1. I tend to focus on the present, because the future nearly always brings me problems.

2. My daily activities often seem trivial and unimportant to me.

3. I don't have a good sense of what it is I'm trying to accomplish in life.

4. I used to set goals for myself, but that now seems like a waste of time.

5. I enjoy making plans for the future and working to make them a reality.

6. I am an active person in carrying out the plans I set for myself.

7. I sometimes feel as if I've done all there is to do in life.


## Peer relations

1. Most people see me as loving and affectionate.

2. I often feel lonely because I have few close friends with whom to share my concerns.

3. I enjoy personal and mutual conversations with family members or friends.

4. I don't have many people who want to listen when I need to talk.

5. It seems to me that most other people have more friends than I do.

6. People would describe me as a giving person, willing to share my time with others.

7. I know that I can trust my friends, and they know they can trust me.

# Appendix 7.     Role quality measures (chapter 10)

*Role-related autonomy needs for all women at age 36*

**Table 7.A     Qualities of main role at age 36 among women in the NSHD 1946 cohort.**

| | |
|---|---|
| Enjoys main role (job/looking after the home) | 92% |
| Does not enjoy main role | 8% |
| Total | 1,646 |
| Main role demands very little physically and emotionally | 16% |
| Main role demands a lot / moderate amount physically **or** emotionally | 31% |
| Main role demands a lot / moderate amount physically **and** emotionally | 53% |
| Total | 1,576 |
| Reports **no** unused skills or talents | 59% |
| Reports skills and talents that are not being used but **does not** mind | 27% |
| Reports skills and talents that are not being used and **does** mind | 15% |
| Total | 1,555 |

The first role-related question at age 36 was simply whether women enjoyed their main role, whether it be paid work or looking after the home. The next set of questions asked women how demanding their main role was in terms of physical and emotional demands. These were combined to create one role demand variable as seen in the table above. The final question asked women whether they had any skills or talents that were not being used in their main role. If they reported that they did, women were then asked whether they minded the fact that these skills and talents were going unused. These questions were combined to create the final variable in the above table.

The categories for each of the three variables shown above were then assigned a score of 0 to 2 and combined to create a six-point autonomy need role quality scale as follows:

- Enjoys main role?        Yes = 0        No = 1
- Main role   demands very little physically or emotionally = 0

    demands a lot or a moderate amount physically **or** emotionally = 1

    demands a lot or a moderate amount physically **and** emotionally = 2
- Reports   **not** having skills or talents that are not being used in main role = 0

    having skills and talents that are not being used in main role but **does not** mind = 1

having skills and talents that are not being used in main role and **does** mind = 2

The final two categories on the six-point scale were combined into one 'very poor' category because there were too few women in the worst quality category. This resulted in the following five-point scale:

**Table 7.B**      **Autonomy need-related role quality of main role at age 36 among women in the NSHD 1946 cohort.**

| Excellent | 9% |
|-----------|-----|
| Good | 23% |
| Fair | 63% |
| Poor | 17% |
| Very poor | 10% |
| Total | 1,541 |

***Role satisfaction***

*Role satisfaction at age 36*

At age 36, women were asked whether, looking back, they wished they had done anything differently in their work or family lives. If the response was affirmative, short open-ended responses were collected and back coded into quantitative variables resulting in 78 categories regarding family life and 48 categories for work life. For the purposes of this thesis, these categories were further combined to create the two variables shown in the following table:

**Table 7.C     Regrets regarding family and work life at age 36 among women in the NSHD 1946 cohort.**

| Family life | |
|---|---|
| No regrets | 64% |
| Regrets related to **not** following the norm | 7% |
| Regrets related to following the norm | 7% |
| Regrets related to poor family relationship | 11% |
| Other regrets | 10% |
| Total | 1,633 |
| **Work life** | |
| No regrets | 68% |
| Regrets related to timing or pattern of work roles | 4% |
| Specific regrets about type of occupation | 14% |
| General regrets about type of occupation | 15% |
| Total | 1,637 |

Details of the types of regrets that are included in each of these categories are provided in chapter 10 (p. 172-173).

*Role satisfaction at age 43*

At age 43, women were asked two sets of separate, but identical questions about, whether, looking back, they were satisfied with their accomplishments in their working and family lives and whether they felt they had more to achieve in their working and family lives. The question about achievement in working life was dropped as feeling one had more to achieve at work did not necessarily fit with the concept of role dissatisfaction. Women were also asked whether they felt their opportunities in their working lives had been limited. Response frequencies for each of these questions are shown in the table below:

**Table 7.D      Indicators of satisfaction with work and home at age 43 among women in the NSHD 1946 cohort.**

| | |
|---|---|
| Hardly limited | 46% |
| Limited | 54% |
| Total | 1,572 |
| Satisfied with accomplishments in working life | 81% |
| Neither satisfied or dissatisfied | 7% |
| Dissatisfied | 12% |
| Total | 1,573 |
| Satisfied with accomplishments in home life | 93% |
| Neither satisfied or dissatisfied | 2% |
| Dissatisfied | 5% |
| Total | 1,614 |
| Nothing more to achieve in home life | 26% |
| Something/much more to achieve | 74% |
| Total | 1,606 |

The questions in the table above relating to working life were assigned scores of zero to two ranging from satisfaction to dissatisfaction, separately for questions relating to work and family:

- Opportunities in working life      hardly limited = 0      limited = 1
- Accomplishments in working life  satisfied = 0

neither satisfied or dissatisfied = 1

dissatisfied = 2

These scores were added up to create a four-point work satisfaction scale:

**Table 7.E      Work role satisfaction score at age 43 among women in the NSHD 1946 cohort.**

| | |
|---|---|
| 0 | 43% |
| 1 | 40% |
| 2 | 7% |
| 3 | 11% |
| Total | 1,568 |

Similarly, the questions on accomplishments and having more to achieve at home were combined to create a four-point home satisfaction scale. This was collapsed into a three-point scale due to small numbers in the least satisfied group.

- Accomplishments in home / family life    satisfied = 0

    neither satisfied or dissatisfied = 1

    dissatisfied = 2

- Achievements in home / family life    nothing more to achieve = 0

    more to achieve = 1

**Table 7.F    Family role satisfaction score at age 43 among women in the 1946 cohort.**

| | |
|---|---|
| 0 | 25% |
| 1 | 69% |
| 2-3 | 6% |
| Total | 1,601 |

These two scales behaved identically with the health outcome measures and the social role history variable, and so were added together to create one five-point role satisfaction scale at age 43. Again, the two most dissatisfied groups were combined due to their small numbers, resulting in the four-point role satisfaction scale:

**Table 7.G    Role satisfaction at age 43 among women in the NSHD 1946 cohort.**

| | |
|---|---|
| Very satisfied | 14% (211) |
| Satisfied | 36% (555) |
| Neither satisfied or dissatisfied | 32% (501) |
| Dissatisfied | 9% (131) |
| Very dissatisfied | 10% (153) |
| Total | 1,551 |

# Appendix 8.    Role quality results (supporting material) (chapter 10)

**Table 8.A**    Self-reported health (age 54) by social role histories and environmental mastery score at age 52 among women in the NSHD 1946 birth cohort.

| Social role histories | N=959* | Unadjusted | | Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 371 | 1.00 | | 1.00 | |
| Lacking one main role | 364 | 1.63 | 1.18-2.24 | 1.55 | 1.11-2.14 |
| Other non-normative mothers | 224 | 1.38 | 0.95-1.99 | 1.38 | 0.95-2.01 |
| P value | | 0.011 | | 0.030 | |
| *Environmental mastery age 52* | 959 | 0.91 | 0.89-0.94 | 0.91 | 0.89-0.94 |
| P value | | <0.001 | | <0.001 | |

*Sample B (figure 7.2, p. 131), minus exclusions for women with a missing environmental mastery score.

These tables exclude women who do not have valid environmental mastery or purpose in life scores respectively. In these reduced samples the increased risk or reporting fair or poor health among *Other non-normative mothers* is no longer significant. Also, the increased risk among women *Lacking one main role* is reduced in the purpose in life table below, but remains significant. Both environmental mastery and purpose in life scores at age 52 significantly predicted reporting fair or poor health at age 54, both before and after they were included with social role histories in the models. The inclusion of environmental mastery reduced the risk of reporting poor health among women *Lacking one main role* slightly (above). The inclusion of purpose in life scores reduced the risk of reporting poor health among both groups of non-normative social role histories slightly (below). However, women *Lacking one main role* remained significantly more likely than Normative women to report poor health at 54 both before and after the inclusion of these measures.

**Table 8.B**    Self-reported health (age 54) by social role histories and purpose in life score at age 52 among women in the NSHD 1946 birth cohort.

| Social role histories | N=940* | Unadjusted | | Adjusted | |
|---|---|---|---|---|---|
| | | OR | 95% CI | OR | 95% CI |
| Normative | 363 | 1.00 | | 1.00 | |
| Lacking one main role | 356 | 1.59 | 1.16-2.20 | 1.53 | 1.10-2.12 |
| Other non-normative mothers | 221 | 1.42 | 0.99-2.06 | 1.38 | 0.95-2.01 |
| P value | | 0.015 | | 0.035 | |
| *Purpose in life age 52* | 940 | 0.93 | 0.91-0.95 | 0.93 | 0.91-0.95 |
| P value | | <0.001 | | <0.001 | |

*Sample B (figure 7.2, p. 131), minus exclusions for women with a missing purpose in life score.

**Table 8.C**  Self-reported health (age 54) by social role histories, role quality at age 36, family and work stress, family regrets at 36 and role satisfaction at 43 among women in the NSHD 1946 birth cohort.

| Social role histories | N=1106[a] | Model 1: Unadjusted OR | 95% CI | Model 2: Adjusted OR | 95% CI |
|---|---|---|---|---|---|
| **Normative** | **429** | **1.00** | | **1.00** | |
| **Lacking one main role** | **420** | **1.64** | **1.22-2.19** | **1.39** | **1.02-1.90** |
| Homemakers | 108 | 1.92 | 1.24-2.99 | 1.68 | 1.04-2.72 |
| Lone mothers | 176 | 1.48 | 1.02-2.16 | 1.08 | 0.72-1.63 |
| Childless | 136 | 1.63 | 1.08-2.45 | 1.64 | 1.06-2.53 |
| **Other non-normative mothers** | **257** | **1.46** | **1.04-2.04** | **1.40** | **0.98-2.01** |
| Remarried mothers | 142 | 1.38 | 0.92-2.09 | 1.29 | 0.83-2.01 |
| Intermittent employed married mothers | 115 | 1.55 | 1.00-2.40 | 1.54 | 0.96-2.48 |
| **P value[b]** | | **0.003** | | **0.074** | |
| P value[c] | | 0.026 | | 0.101 | |
| *Excellent role quality age 36[d]* | 73 | 1.00 | | 1.00 | |
| Good | 193 | 0.98 | 0.53-1.79 | 0.90 | 0.48-1.70 |
| Fair | 433 | 1.42 | 0.82-2.46 | 1.20 | 0.67-2.15 |
| Poor | 170 | 1.20 | 0.65-2.21 | 0.86 | 0.45-1.65 |
| Very poor | 110 | 1.84 | 0.97-3.48 | 1.10 | 0.55-2.18 |
| *Missing* | *127* | *1.01* | *0.53-1.92* | *0.64* | *0.30-1.36* |
| P value for trend** | | 0.084 | | 0.228 | |
| *Family and work stress age 49[d]* | 1106 | 1.32 | 1.23-1.41 | 1.28 | 1.19-1.37 |
| P value for trend | | <0.001 | | <0.001 | |
| *Regrets in family life at age 36[d]* | | | | | |
| No regrets | 643 | 1.00 | | 1.00 | |
| Wishes closer to norm | 83 | 2.07 | 1.30-3.30 | 1.48 | 0.89-2.45 |
| Regrets following norm | 73 | 1.70 | 1.03-2.86 | 1.39 | 0.81-2.39 |
| Poor family relationship | 120 | 1.34 | 0.88-2.02 | 1.06 | 0.68-1.65 |
| Other regret | 107 | 1.54 | 1.00-2.36 | 1.45 | 0.92-2.28 |
| *Missing/DK* | *80* | *1.46* | *0.90-2.38* | *1.80* | *0.94-3.44* |
| P value | | 0.011 | | 0.210 | |
| *Satisfaction with main role age 43[d]* | | | | | |
| Very satisfied | 137 | 1.00 | | 1.00 | |
| Satisfied | 376 | 1.37 | 0.86-2.19 | 1.35 | 0.83-2.20 |
| Neither satisfied or dissatisfied | 339 | 1.69 | 1.06-2.71 | 1.61 | 0.98-2.63 |
| Dissatisfied | 88 | 3.56 | 1.98-6.39 | 2.68 | 1.45-4.96 |
| Very dissatisfied | 104 | 4.35 | 2.48-7.63 | 3.68 | 2.02-6.71 |
| *Missing* | *62* | *1.91* | *0.98-3.72* | *1.63* | *0.81-3.26* |
| P value for trend[e] | | <0.001 | | <0.001 | |

a Sample B excluding women with a missing family and work stress score at age 49.
b Applies to three-category social role history variable.
c Applies to six-category social role history variable.
d In the adjusted model 2, role quality variables are adjusted for the three-category role history variable rather than the six-category social role history variable.
e Excludes women with a missing role satisfaction score at age 43.

**Table 8.D** Self-reported health (age 54) by social role histories, role quality at age 36, family and work stress, family regrets at 36, role satisfaction at 43, social class of head of household and mental health among women in the NSHD 1946 birth cohort.

| Social role histories | N=1070[a] | Unadjusted OR | 95% CI | Adjusted OR | 95% CI |
|---|---|---|---|---|---|
| Normative | 417 | 1.00 | | 1.00 | |
| Lacking one main role | | 1.64 | 1.22-2.21 | 1.31 | 0.93-1.85 |
|   Homemakers | 107 | 1.97 | 1.27-3.07 | 1.57 | 0.92-2.66 |
|   Lone mothers | 167 | 1.43 | 0.97-2.10 | 0.94 | 0.59-1.49 |
|   Childless | 134 | 1.68 | 1.11-2.54 | 1.70 | 1.06-2.73 |
| Other non-normative mothers | | 1.42 | 1.01-2.01 | 1.30 | 0.88-1.93 |
|   Remarried mothers | 139 | 1.40 | 0.92-2.12 | 1.13 | 0.70-1.83 |
|   Intermittent employed married mothers | 106 | 1.45 | 0.92-2.30 | 1.53 | 0.91-2.58 |
| P value[b] | | 0.004 | | 0.242 | |
|   P value[c] | | 0.026 | | 0.119 | |
| *Excellent role quality age 36[d]* | 69 | 1.00 | | 1.00 | |
| Good | 191 | 1.06 | 0.57-1.98 | 1.06 | 0.52-2.17 |
| Fair | 423 | 1.53 | 0.86-2.71 | 1.46 | 0.75-2.83 |
| Poor | 164 | 1.24 | 0.66-2.34 | 0.16 | 0.56-2.42 |
| Very poor | 103 | 1.80 | 0.92-3.51 | 1.13 | 0.51-2.48 |
| *Missing* | *120* | *1.08* | *0.55-2.10* | *0.87* | *0.38-2.02* |
| P value | | 0.140 | | 0.435 | |
| *Family and work stress age 49[d]* | 1070 | 1.33 | 1.24-1.43 | 1.22 | 1.12-1.32 |
| P value for trend | | <0.001 | | <0.001 | |
| *Regrets in family life at age 36[d]* | | | | | |
| No regrets | 622 | 1.00 | | 1.00 | |
| Wishes closer to norm | 82 | 2.02 | 1.26-3.22 | 1.35 | 0.77-2.35 |
| Regrets following norm | 70 | 1.62 | 0.97-2.70 | 1.31 | 0.74-2.34 |
| Poor family relationship | 116 | 1.30 | 0.85-1.99 | 0.79 | 0.48-1.31 |
| Other regret | 105 | 1.52 | 0.99-2.35 | 1.30 | 0.80-2.12 |
| *Missing/DK* | *75* | *1.37* | *0.82-2.27* | *1.29* | *0.64-2.63* |
| P value | | 0.025 | | 0.485 | |
| *Satisfaction with main role age 43[d]* | | | | | |
| Very satisfied | 136 | 1.00 | | 1.00 | |
| Satisfied | 373 | 1.35 | 0.84-2.16 | 1.30 | 0.78-2.17 |
| Neither satisfied or dissatisfied | 335 | 1.66 | 1.04-2.66 | 1.44 | 0.86-2.43 |
| Dissatisfied | 86 | 3.69 | 2.05-6.65 | 2.30 | 1.19-4.47 |
| Very dissatisfied | 101 | 4.07 | 2.31-7.18 | 2.88 | 1.51-5.47 |
| *Missing* | *39* | *1.64* | *0.74-3.63* | *1.23* | *0.50-3.01* |
| P value[e] | | <0.001 | | 0.009 | |
| *Social class of head of household[d]* | | | | | |
| I/II | 583 | 1.00 | | 1.00 | |
| IIINM | 138 | 1.34 | 0.92-2.04 | 1.23 | 0.78-1.94 |
| IIIM | 236 | 1.63 | 1.18-2.24 | 1.62 | 1.13-2.34 |
| IV/V | 103 | 2.12 | 1.38-3.27 | 1.97 | 1.19-3.27 |
| *Missing* | *10* | *4.11* | *1.14-14.74* | *3.49* | *0.86-14.16* |
| p value | | 0.001 | | 0.011 | |
| *Mental health at age 43 (PSF)[d]* | 1070 | 1.04 | 1.03-1.05 | 1.00 | 0.99-1.02 |
| P value | | <0.001 | | 0.819 | |
| *Mental health at age 53 (GHQ28)[d]* | 1070 | 1.10 | 1.08-1.11 | 1.08 | 1.06-1.10 |
| P value | | <0.001 | | <0.001 | |

a Sample B excluding women with a missing family and work stress score at age 49, a missing PSF score of a missing GHQ28 score.
b Applies to three-category social role history variable.
c Applies to six-category social role history variable.
d In the adjusted model 2, role quality, social class and mental health variables are adjusted for the three-category role history variable rather than the six-category social role history variable.
e Excludes women with a missing role satisfaction score at age 43.

# References

## Chapter 1

Aneshensel C. (1986) Marital and employment role-strain, social support and depression among adult women. In: S. Hobfoll (ed.), *Stress, Social support and Women.* Washington DC: Hemisphere.

Annandale E & Hunt K (2000) 'Chapter 1 Gender inequalities in health: research at the crossroads.' In: E. Annandale & K. Hunt. *Gender Inequalities in Health.* Buckingham: Open University Press.

Arber S. (1997) Comparing inequalities in women's and men's health: Britain in the 1990s. *Social Science & Medicine* 44(6):773-787.

Arber S. (1991) Class, Paid employment and family roles: making sense of structural disadvantage, gender and health status. *Social Science & Medicine.* 32(4):425-436.

Arendell TJ (1987) Women and the economics of divorce in the contemporary United States. *Signs*, 13:473-497.

Baetjer AM (1946) *Women in Industry: Their Health and Efficiency.* Philadelphia: W.B. Saunders.

Barnett R & Hyde J (2001) Women, men, work and family. An expansionist theory, *American Psychologist*, 56:781-796.

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness.* 14(3)313-343.

Bartley M., Sacker A., Firth D. & Fitzpatrick R. (1999) Social position, social roles and women's health in England: Changing relationships 1984 - 1993. *Social Science & Medicine* 48(1)99-115.

Baruch G.K. & Barnett R. (1986) role quality, multiple role involvement, and psychological well-being in mid life women. *Journal of Personality and Social Psychology*, 51, 578-585.

Brewster KL & Rindfuss RR (2000) Fertility and Women's Employment in Industrialized Nations. *Annual Review of Sociology.* 26:271-96.

Brown G.W. & Harris T. (1978) *The Social Origins of Depression.* London: Tavistock.

Chafetz JS (1995) 'Chapter 3 Chicken or Egg? A theory of the relationship between feminist movements and family change.' Pp.63-81. In *Gender and Family Change in Industrialized Countries.* (eds) Mason KM & Jensen A-M. Oxford: Clarendon Press.

Cleary P.D. & Mechanic D. (1983) Sex differences in psychological distress among married people. *J Hlth Soc Behav.* 24, 111-121.

Coleman D & Salt J (1992) *The British Population: Patterns, Trends, and Processes.* Oxford: Oxford University Press.

Corti L, Laurie H & Dex S (1995) *Highly Qualified Women*, Employment Department Research Series No. 50.

Crompton R & Sanderson K (1986) Credentials and Careers: Some Implications of the Increase in Professional Qualifications amongst Women, *Sociology*, 20.

Crosby F.J. (1987) *Spouse, parent, worker: On gender and multiple roles.* New Haven, CT: Yale University Press.

Dale A & Egerton M (1995) *Highly Educated Women: Evidence from the National Child Development Study*, Report to the Employment Department.

Davies H & Joshi H (1998) Gender and income inequality in the UK 1968-1990: the feminization of earnings or of poverty? *J R Statist Soc* 161(1):33-61.

Deutsch FM (1999) *Halving It All: How Equally Shared Parenting Works*. Cambridge, MA: Harvard University Press.

Devellier PL & Forsyth CJ (1988) The downward mobility of divorced women with dependent children: A research note. *Sociological Spectrum*, 8:295-302.

Dex S (1987) *Women's Occupational Mobility: A Lifetime Perspective*. London: Macmillan.

Dex S (1984) Women's work histories: An analysis of the Women and Employment Survey, *Research paper No. 46*, London: Dept of Employment.

Dex S, Joshi H & Macran S (1996) A widening gulf among Britain's mothers. *Oxford Review of Economic Policy*, 12(1):65-75.

Dex S & Shaw LB (1986) *British and American Women at Work*, London: Macmillan.

Duncan GJ & Hoffman SD (1985) A reconsideration of the economic consequences of marital dissolution. *Demography*, 22:485-497.

Everett CA (Ed.) (1991) *The consequences of divorce: Economic and custodial impact on children and adults*. New York: Haworth Press.

Feld S (1963) Feelings of adjustment. In: Fl. Nye & LW Hoffman (eds) *The Employed Mother in America*. Chicago: Rand McNally

Ferri E & Smith K (2003) Chapter 4 Partnerships and parenthood. In: E. Ferri, J. Bynner & M. Wadsworth (eds.) *Changing Britain, Changing Lives: Three Generations at the Turn of the Century*. London: Institute of Education, University of London.

Flandrin JL (1979) *Families in former times*. Cambridge: Cambridge University Press.

Fokkema T (2002) Combining a job and children: contrasting the health of married and divorced women in the Netherlands? *Social Science & Medicine*, 54:741-752.

Frone MR (1997) Relation of work-family conflict to health outcomes: A four-year longitudinal study of employed parents. *Journal of Occupational and Organizational Psychology*, 70:325-335.

Frone MR, Russell M & Barnes GM (1996) Work-family conflict, gender, and health-related outcomes: A study of employed parents in two community samples. *Journal of Occupational Health Psychology*, 1:57-69.

Garfinkel, I & McLanahan SS (1986) *Single Mothers and Their Children*, Washington DC: Urban Institute Press.

Goode W.J. (1960) A theory of role strain. *American Sociological Review* 25:483-496.

Gove W.R. (1984) Gender differences in mental and physical illness: The effects of fixed roles and nurturant roles. *Social Science & Medicine*. 19, 77-84.

Gove W. R. (1978) Sex differences in mental illness among adult men and women. *Social Science & Medicine*. 12B, 187-198.

Gove W.R. & Geerkin M.R. (1977) The effect of children and employment on the mental health of married men and women. *Social Forces* 56, 66-76.

Grzywacz JG & Marks NF (2000) Reconceptualizing the work-family interface: An ecological perspective on the correlates of positive and negative spillover between work and family. *Journal of Occupational Health Psychology*, 5:111-126.

Hall EM (1992) Double exposure: The combined impact of the home and work environments on psychosomatic strain in Swedish women and men. *International Journal of Health Services*, 22:239-260.

Haskey J (1998) One-parent families and their dependent children in great Britain. In: R. Ford & J. Millar (Eds.) *Private lives & public responses*. London: Policy Studies Institute.

Hernandez DJ (1993) *Americas' children: resources from family, government and the economy.* New York: Russell Sage.

Hibbard JH & Pope CR (1993) The quality of social roles as predictors of morbidity and mortality, *Social Science & Medicine.* 36(3):217-225.

Hibbard J & Pope C (1991) Effects of domestic and occupational roles on morbidity and mortality. *Social Science & Medicine.* 32:805.

Hochschild AR & Machung A (1990) *The Second Shift: Working Parents and the Revolution at Home.* London: Piatkens

Hope S, Power C & Rodgers B (1999) Does financial hardship account for elevated psychological distress in lone mothers? *Social Science & Medicine,* 49:1637-1649.

Janzen BL & Muhajarine N (2003) Social role occupancy, gender, income adequacy, life stage and health: a longitudinal study of employed Canadian men and women. *Social Science & Medicine,* 57:1491-1503.

Jarvis S & Jenkins SP (1998) marital dissolution and income change: Evidence for Britain. In: R. Ford & J. Millar (Eds.) *Private lives & public responses*. London: Policy Studies Institute

Jensen, An-Magritt (1995) 'Chapter 9 Gender Gaps in Relationships with Children: Closing or Widening?'. Pp.223-242. In *Gender and Family Change in Industrialized Countries.* (eds) Mason, Karen Mason & Jensen, An-Magritt. Oxford: Clarendon Press.

Joshi H (1996) 'Combining Employment and Child-rearing: the story of British women's lives'. In Offer A (ed) *In Pursuit of Quality of Life.*

Joshi H (1984) Women's participation in paid work: Further analysis of the Women and Employment Survey, *Research paper No.45*, London: Dept of Employment.

Joshi H & Hinde PRA (1993) Employment after Child-Bearing in Post-War Britain: Cohort Study Evidence on Contrasts within and across Generations. *European Sociological Review* 9:203-227.

Joshi H & Paci P (1998) *Unequal Pay for Women and Men: evidence from the British birth cohort studies.* Cambridge, MA: MIT Press.

Keyfitz, N (1986) The family that does not reproduce itself. *Population and Development Review.* 12: Suppl:139-54.

Kiernan KE (1989) Who Remains Childless? *J biosoc Sci* 21:387-398.

Kiernan, KE (1988) Who Remains Celibate? *J biosoc Sci* 20:253-263.

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Kiernan KE & Diamond I (1983) The Age at Which Childbearing Starts – a Longitudinal Study. *Population Studies*; 37:363-380.

Kiernan KE & Eldridge SM (1987) Age at marriage: inter and intra cohort variation. *The British Journal of Sociology*, 38(1):44-65.

Kotler P.L. (1986) Multiple roles and mortality among men and women in Alameda County, unpublished PhD thesis, UCLA, University Microfilms International.

Lahelma E, Arber S, Kivela K and Roos E (2002) Multiple roles and health among British and Finnish women: the influence of socioeconomic circumstances. *Social Science & Medicine*, 54:727-740.

Lesthaeghe R & Willems P (1999) Is low fertility a temporary phenomenon in the European Union? *Population & Development Review*. 25(2):211-28.

Lundberg U, Mardberg B & Frankenhaeuser M (1994) The total workload of male and female white collar workers as related to age, occupational level, and number of children. *Scandinavian Journal of Psychology*, 35:315-327.

Maclean M (1991) *Surviving divorce: Women's resources after separation*. London: Macmillan.

Macran S., Clarke L., Sloggett A. & Bethune A. (1994) Women's socio-economic status and self-assessed health: identifying some disadvantaged groups. *Sociology of Health & Illness*. 16(2):182-208.

Macran S, Joshi H, Dex S (1996) Employment after Childbearing: A Survival Analysis. *Work, Employment and Society* 10(2):273-296.

Marks S.R. (1977) Multiple roles and role strain: some notes on human energy, time and commitment. *American Sociological Review* 42:921-936.

Martikainen P. (1995) Women's employment, marriage, motherhood and mortality: a test of the multiple role and role accumulation hypotheses. *Social Science & Medicine*, 40:199-212.

Martin J & Roberts C (1984) *Women and Employment: A Lifetime Perspective*, Dept of Employment/OPCS, London: HMSO.

Matthews S, Hertzman C, Ostry A & Power C (1998) Gender, work roles and Psychosocial work characteristics as determinants of health. *Social Science & Medicine*, 46(11):1417-1424.

McDonough P, Walters V & Strohschein L (2002) Chronic stress and the social patterning of women's health in Canada. *Social Science & Medicine*, 54:767-782.

McLanahan S. & Adams J. (1987) Parenthood and psychological wellbeing. *Annual Review of Sociology*, 5, 237-257.

McLanahan, Sara S, Casper, Lynne M & Sorensen, Annemette (1995) 'Chapter 11 Women's roles and Women's Poverty.' Pp.258-278. In *Gender and Family Change in Industrialized Countries*. (eds) Mason, Karen Mason & Jensen, An-Magritt. Oxford: Clarendon Press.

McRae S (1993) Returning to work after childbirth: Opportunities and Inequalities, *European Sociological Review*, 9, 125-138.

McRae S (1991) *Maternity Rights in Britain*, London: Policy Studies Institute.

Mitterauer M & Sieder R (1982) *The European Family*. Oxford: Blackwell.

Moen P (1989) Social integration and longevity: An event history analysis of women's roles and resilience. *American Sociological Review*, 54:635-647.

Moser K.A., Pugh H.S. & Goldblatt P.O. (1990) Inequalities in women's health in England and Wales: mortality among married women according to social circumstances, employment characteristics and life-cycle stage. *Genus* XLVI, 71—84.

Nathanson C. (1980) Social roles and health status among women: the significance of employment. *Social Science & Medicine.* 14A, 463-471.

Nathanson C.A. (1975) Illness and the feminine role, a theoretical review. *Soc Sci Med* 9, 57-62.

Nazroo JY, Edwards AC & Brown GW (1998) Gender differences in the prevalence of depression: artefact, alternative disorders, biology or roles? *Sociology of Health and Illness* 20(3):312-320.

ONS (Office of National Statistics) (2002) *Social Trends no. 32.* London: ONS.

Pearce, D (1978) The feminization of poverty: Women, work and welfare, *Urban and Social Change Review.* 11:28-36.

Pinnelli A (1995) 'Chapter 4 Women's conditions, low fertility and emerging union patterns in Europe.' Pp.82-101. In *Gender and Family Change in Industrialized Countries.* (eds) Mason, KM & Jensen, A-M. Oxford: Clarendon Press.

Population Trends (Summer 2000). Office for National Statistics.

Repetti R L (1998) Multiple Roles (Chapter 27) In: Blechman E.A. & Brownell K.D. *Behavioral Medicine and Women: a comprehensive handbook.* New York: The Guildford Press.

Repetti RL (1993) The effects of workload and the social environment at work on health. In: L. Goldberger & S. Breznitz (eds.) *Handbook of stress* (2nd ed., pp. 368-385). New York: Free Press.

Repetti RL, Matthews K & Waldron I (1989) Employment and women's health. *American Psychologist*, 44, 1394-1401.

Roberts E (1995) *Women and Families: An Oral History, 1940-1970.* Oxford: Blackwell.

Rosenfeld S. (1989) The effects of women's employment, personal control and sex differences in mental health. *Journal of Health and Social Behaviour*, 30, 77-91.

Ryder, NB (1979) The future of American fertility, *Social Problems.* 26:359-70.

Schooler C, Kohn ML, Miller KA & Miller J (1983) Housework as work. In C.A. Schooler & ML Kohn (eds) *Work and personality: An inquiry into the impact of social stratification.* Norwood, NJ: Ablex Publishing Co.

Shouls S, Whitehead M, Burstrom B & Diderichsen F (1999) The health and socioeconomic circumstances of British lone mothers over the last two decades. *Population Trends*, 95:41-46.

Sieber SA (1974) Towards a theory of role accumulation. *Am Sociol Rev* 39:567-578.

Sporton D (1993) Fertility: the lowest level in the world. In *The Changing Population of Europe.* (ed) Noin D & Woods R. Oxford: Blackwell's Publishers.

Sullivan O (2000) The division of domestic labour: Twenty years of change? *Sociology*, 34(3):437-456.

Thoits P. (1987) Negotiating roles. In FJ Crosby (ed.) *Spouse, Parent, Worker, On Gender and Multiple Roles*. London: Yale UP.

Thoits P. (1986) Multiple identities: examining gender and marital status differences in distress. *American Sociological Review* 51:259-272.

Verbrugge L.M. (1987) Role responsibilities, role burdens and physical health. In: F.J. Crosby (ed.) *Spouse, Parent, Worker*. London: Yale University Press.

Verbrugge L. (1983) Multiple roles and physical health of women and men. *Journal of Health and Social Behaviour*. 24, 16-30.

Voydanoff P. & Donnelly B.W. (1989) Work and family roles and psychological distress. *Journal of Marriage and the Family*, 51, 923-32.

Waldron I (1980) Employment and women's health: An analysis of causal relationships. *International Journal of Health Services*, 10(3):435-454.

Waldron I, Weiss CC & Hughes (1998) Interacting effects of multiple roles on women's health. *Journal of health and Social Behavior*, 39:216-236.

Ward C, Dale A & Joshi H (1996) Combining Employment and Childcare: An Escape From Dependence? *Journal of Social Policy*, 25:223-247.

Weatherall R., Joshi H. & Macran S (1994) Double Burden or Double Blessing? Employment, Motherhood and Mortality in the Longitudinal Study of England and Wales. *Social Science & Medicine* 38(2):285-297.

Westoff CF (1983) Fertility decline in the West: Causes and prospects, *Population and Development Review*. 9:99-104.

Woods L, Makepeace G, Joshi H & Dolton P (2003) Chapter 3 The world of paid work. In: E. Ferri, J. Bynner & M. Wadsworth (eds.) *Changing Britain, Changing Lives: Three Generations at the Turn of the Century*. London: Institute of Education, University of London.

Wortman C, Biernat M & Lang E (1991) Coping with role overload. In M. Frankenhaeuser, U. Lundberg & M Chesney (eds). *Women, work and health: stress and opportunities* (pp. 85-110). New York: Plenum Press.

## Chapter 2

Aron (1973) Maslow's other child. *Journal of Humanistic Psychology*, 13(2):9-24.

Blane D (2001) Personal communication at MPhil-PhD upgrade examination, UCL.

Brunner, E. (1996) The social and biological basis of cardiovascular disease in office workers. In: *Health and Social Organisation*. (Eds) Brunner, E., Blane, D. & Wilkinson, R.G. Routledge, London.

Burchell B (1994) The effects of labour market position, job insecurity and unemployment on psychological health. In: D. Gallie, C. Marsh, C. Vogler (eds) *Social Change and the Experience of Unemployment*. Oxford: Oxford University Press.

Buss AR (1979) Humanistic psychology as liberal ideology: the socio-historical roots of maslow's theory of self-actualization. *Journal of Humanistic Psychology*, 19(3):43-55.

Cameron D & Jones IG (1985) An epidemiological and sociological analysis of the use of alcohol, tobacco and other drugs of solace. *Community Medicine* 7:18-29.

Doyal L & Gough I (1991) *A Theory of Human Need.* London: The Macmillan Press Ltd.

Ferrie JE, Shipley MJ, Marmot MG, Stansfeld SA & Smith GD (1998) An Uncertain Future: The Health Effects of Threats to Employment Security in White-Collar Men and Women, *American Journal of Public Health,* 88(7):1030-1036.

Freud S (1961) *Civilisation and its Discontents. The Standard Edition of the Complete Works of Freud,* vol. 21, trans. J. Strachey. Hogarth.

Frone MR (1997) Relation of work-family conflict to health outcomes: A four-year longitudinal study of employed parents. *Journal of Occupational and Organizational Psychology,* 70:325-335.

Geller L. (1982) The failure of self-actualization theory: a critique of Carl Rogers and Abraham Maslow. *Journal of Humanistic Psychology,* 22(2):56-73.

Giddens A (1984) *The Constitution of Society: Outline of the Theory of Structuration.* Berkeley: University of California Press.

Goffman E (1959) *The Presentation of Self in Everyday Life.* London: Penguin.

Graham H (1993) *When life's a drag: women, smoking and disadvantage.* London: HMSO.

Graham H (1990) Behaving well: women's health behaviour in context. In: H. Roberts (ed.) *Women's Health Counts.* London: Routledge.

Graham H (1987) Women's smoking and family health, *Social Science & Medicine,* 10:379-405.

Hall EM (1992) Double exposure: The combined impact of the home and work environments on psychosomatic strain in Swedish women and men. *International Journal of Health Services,* 22:239-260.

Heller A (1976) *The Theory of Need in Marx.* London: Allison and Busby.

Howard JA (2000) Social Psychology of Identities. *Annual Review of Sociology,* 26:367-93.

Jahoda M (1982) *Current Concepts of Positive Mental Health.* New York: Basic Books.

Lasch C (1976) The narcissistic society. *New York Review of Books,* 30:512.

Lukes S (1985) *Marxism and Morality.* Oxford: Oxford University Press.

Marsh A & McKay S (1994) *Poor Smokers.* Policy Studies Institute. London.

Maslow A (1954, 1970) *Motivation and Personality.* New York: Harper & Row.

Matthews S, Hertzman C, Ostry A & Power C (1998) Gender, work roles and Psychosocial work characteristics as determinants of health. *Social Science & Medicine,* 46(11):1417-1424.

McCall G & Simmons R (1966) *Identities and Interactions.* New York: Free Press.

McDonough P, Walters V & Strohschein L (2002) Chronic stress and the social patterning of women's health in Canada. *Social Science & Medicine,* 54:767-782.

Morris JK, Cook DG & Shaper AG (1994) Loss of employment and mortality, *British Medical Journal,* 308:1135-1139.

Morrison K. (1995) *Marx, Durkheim, Weber: Formations of Modern Social Thought.* London: Sage.

Nord W. (1977) A Marxist Critique of Humanist Psychology. *Journal of Humanistic Psychology*, 17(1):75-83.

Nussbaum M & Sen A (eds 1993) *The Quality of Life*. Clarendon Press: Oxford.

Nussbaum M (1993) Commentary on Onora O'Neill's 'Justice, Gender, and International Boundaries'. In: M. Nussbaum & A. Sen (eds) *The Quality of Life*. Clarendon Press: Oxford.

Parsons T (1951) *The Social System*. London: Tavistock Publications.

Parsons T (1937) *The Structure of Social Action*. New York: McGraw-Hill Book Co.

Putnam RA (1993) Commentary on Michael Walzer's 'Objectivity and Social Meaning' In: M. Nussbaum & A. Sen (eds) *The Quality of Life*. Clarendon Press: Oxford.

Rist G (1980) Basic questions about basic human needs. In: K. Lederer (ed) *Human Needs*. Cambridge, MA: Oelgeschlager, Gunn & Hain.

Schooler C, Kohn ML, Miller KA & Miller J (1983) Housework as work. In C.A. Schooler & ML Kohn (eds) *Work and personality: An inquiry into the impact of social stratification*. Norwood, NJ: Ablex Publishing Co.

Schur E. (1976) *The awareness trap*. New York: McGraw-Hill.

Sen A (1993) Capability and Well-Being. In: M. Nussbaum & A. Sen (eds) *The Quality of Life*. Clarendon Press: Oxford.

Sen A (1985) *Commodities and Capabilities*. North-Holland: Amsterdam.

Smith B. (1973) On self-actualization: A transambivalent examination of a focal theme in Maslow's psychology. *Journal of Humanistic Psychology*, 13(2):17-33.

Smith R (1987) *Unemployment and Health*. Oxford: Oxford University Press.

Stryker S (1980) *Symbolic Interactionism: A Social Structural Version*. Menlo Park, CA: Benjamin-Cummings.

Stryker S & Serpe RT (1982) 'Commitment, Identity Salience, and Role Behavior.' (pp.237-68) in Ickes W & Knowles ES (eds) *Personality, Roles and Social Behavior*, New York: Springer-Verlag.

Thoits PA (1991) On Merging Identity Theory and Stress Research. *Social Psychology Quarterly*, 54(2):101-112.

Thompson G (1987) *Needs*. Routledge.

Warr P (1987) *Work, Unemployment and Mental Health*. Oxford: Clarendon Press.

Wilkinson R.G. (1996) *Unhealthy Societies*. London: Routledge.

Wrong DH (1961) The Oversocialized Conception of Man in Modern Sociology. *The American Sociological Review*, 26(2):183-193.

Yankelovich D (1981) *New rules: Searching for self-fulfillment in a world turned upside down*. New York: Random House.

## Chapter 3

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness*. 14(3)313-343.

Bartley M, Sacker A, Schoon I (2002) Chapter 11: Social and economic trajectories and women's health. In Kuh D & Hardy R (eds) *A Lifecourse Approach to Women's Health*. Oxford: Oxford University Press.

Baumann B (1961) Diversities in conceptions of health and fitness. *Journal of Health and Human Behaviour*, 2:39-46.

Blaxter M (1990) *Health and Lifestyles*. London: Routledge.

Boreham R & Tait C (1999) Chapter 6 Self-reported health and psychosocial well-being. In: B. Erens & P. Primatesta (eds.) *Health Survey for England 1998: Cardiovascular Disease*, London: HMSO.

Braddon FE, Rodgers B, Wadsworth ME, Davies JM (1986) Onset of obesity in a 36 year birth cohort study. *British Medical Journal*, 293: 299-303.

Britten N (1981) Models of intergenerational class mobility: findings from the National Survey of Health and Development. *British Journal of Sociology*, 32:224-238.

Bynner J, Elias P, McKnight A, Pan H & Pierre G (2002) *Young People in Transition: Changing pathways to employment and independence.* York: Joseph Rowntree Foundation.

Bynner J, Joshi H & Tsatsas M (2000) *Obstacles and Opportunities on the Route to Adulthood: Evidence from rural and urban Britain.* London: Smith Institute.

Calderwood L & Park A (2000) Chapter 11 General Health. In Shaw A, McMunn A & Field J (eds) *The Scottish Health Survey 1998.* Edinburgh: Scottish Executive Department of Health.

Calle EE, Thun MJ, Petrelli JM, Rodriquez C, Heath-CW J (1999) Body-mass index and mortality in a prospective cohort of U.S. adults. *New England Journal of Medicine*; 341:1097-105.

Coley RL, Chase-Lasdale PL (1998) Adolescent pregnancy and parenthood: recent evidence and future directions. *Am Psychol*; 53:152-66.

Dohrenwend BP, Levav I, Shrout PE, Schwartz S, Naveh G, Link BG, Skodol AE, Steuve A. (1992) Socioeconomic status and psychiatric disorder: the causation-selection issue. *Science*. 255: 946-52.

Douglas JWB (1964) *The Home and the School.* London: MacGibbon & Kee.

Erens B & Primatesta P (1999) (eds.) *Health Survey for England 1998: Cardiovascular Disease*, London: HMSO.

Erens B, Primatesta P, Prior G (2001) (eds.) *Health Survey for England: The Health of Minority Ethnic Groups 99.* London, The Stationery Office.

Fokkema T (2002) Combining a job and children: contrasting the health of married and divorced women in the Netherlands? *Social Science & Medicine*, 54:741-752.

Gortmaker SL, Must A, Perrin JM, Sobol AM, Dietz WH (1993) Social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine* 329;1008-12.

Halsey AH, Health AF & Ridge JM (1980) *Origins and Destinations: Family, Class and Education in Modern Britain.* Oxford: Clarendon Press.

Hardy, Wadsworth & Kuh (2000) The influence of childhood weight and socioeconomic status on change in adult body mass index in a British national birth cohort. *International Journal of Obesity,* 24:725-34.

Harris HE, Ellison GT & Holliday M (1997) Is there an independent association between parity and maternal weight gain? *Annals of Human Biology,* 24:507-19.

Herzlich C (1973) *Health and Illness: A social psychological analysis.* Trans. D. Graham. London: Academic Press.

Hirani V, Brookes M, McMunn A, Primatesta P & Falaschetti E (2000) Chapter 13 Anthropometry. In Shaw A, McMunn A & Field J (eds) *The Scottish Health Survey 1998.* Edinburgh: Scottish Executive Department of Health.

Joshi H & Hinde PRA (1993) Employment after Child-Bearing in Post-War Britain: Cohort Study Evidence on Contrasts within and across Generations. *European Sociological Review* 9:203-227.

Joshi H & Paci P (1998) *Unequal Pay for Women and Men: evidence from the British birth cohort studies.* Cambridge, MA: MIT Press.

Joshi H & Paci P (1997) Life in the labour market, In: J. Bynner, E. Ferri & P. Shepherd (eds.) *Twenty-Something in the 1990s: Getting on, getting by; getting nowhere.* Aldershot: Ashgate.

Kuh D & Wadsworth M (1991) Childhood influences on adult male earnings in a longitudinal study, *British Journal of Sociology,* 42:537-555.

Kuh D, Head J, Hardy R & Wadsworth M (1997) The influence of education and family background on women's earnings in midlife: evidence from a British national cohort study, *British Journal of Social Education,* 18:385-405.

Lauder H & Hughes D (1990) *Social origins, destinations and educational inequality,* Political Issues in New Zealand Education. 2nd edition. Palmerston North, NZ: Dunmore Press Ltd, 43-60.

Macran S., Clarke L., Sloggett A. & Bethune A. (1994) Women's socio-economic status and self-assessed health: identifying some disadvantaged groups, *Sociology of Health & Illness.* 16(2):182-208.

Makepeace GH, Paci P, Joshi H & Dolton PJ (1999) How unequally has equal pay progressed since the 1970s?: A study of two British cohorts. *Journal of Human Resources,* 34:534-56.

Marks N & Ashleman K (2002) Chapter 12 Life course influences on women's social relationships at midlife. In: *D. Kuh & R. Hardy (eds.) A Life Course Approach to Women's Health. Oxford: Oxford University Press.*

McLaren L & Wardle J (2002) Chapter 9 Body image: a life course perspective. In: D. Kuh & R. Hardy (eds.) *A Life Course Approach to Women's Health.* Oxford: Oxford University Press.

Moser K.A., Pugh H.S. & Goldblatt P.O. (1990) Inequalities in women's health in England and Wales: mortality among married women according to social circumstances, employment characteristics and life-cycle stage. *Genus* XLVI, 71—84.

Mossey JM & Shapiro E (1982) Self-rated health: A predictor of mortality among the elderly. *American Journal of Public Health,* 72:800-808.

Must A, Jacques PF, Dallal GE, Bajema CJ, Dietz WH (1992) Long-term morbidity and mortality of overweight adolescents. A follow-up of the Harvard Growth Study of 1922 to 1935. *New England Journal of Medicine*; 327:1350-5.

Parsons T.J., Power C., Logan S. & Summerbell C.D. (1999) Childhood predictors of adult obesity: a systematic review. *International Journal of Obesity*. 23, Supple8, S1-S107.

Power C, Due P, Graham H, Hallqvist J, Joung I, Kuh D & Lynch J. The contribution of childhood and adult socio-economic position to adult obesity and smoking behaviour: an international comparison. *British Medical Journal,* forthcoming.

Power C & Hertzman M (1997) Social and biological pathways linking early life and adult disease. In: MG. Marmot & M.E.J. Wadsworth (eds.) *Fetal and Early Childhood Environment: Long-term health implications.* London: Royal Society of Medicine Press Ltd.

Power C, Lake JK, Cole TJ (1997a) Measurement and long-term health risks of child and adolescent fatness. *International Journal of Obesity*; 21: 507-26.

Power C, Lake JK, Cole TJ. (1997b) body mass index and height from childhood to adulthood in the 1958 British born cohort. *American Journal of Clinical Nutrition*; 66:1094-101.

Power C & Matthews S (1997) Origins of health inequalities in a national population sample. *Lancet*; 350:1584-9.

Power C & Parsons T (2002) Chapter 14 Overweight and obesity from a life course perspective. In: *D. Kuh & R. Hardy (eds.) A Life Course Approach to Women's Health. Oxford: Oxford University Press.*

Prescott-Clarke P & Primatesta P (1998) (eds) *Health Survey for England 1996.* London: HMSO.

Prior G (1998) Chapter 5 Self-reported health. In: P. Prescott-Clarke & P. Primatesta (eds.) *Health Survey for England 1996.* London: HMSO.

Rossner S (1997) Weight gain in pregnancy. *Human Reproduction*, 12(Supple 1):110-5.

Sargent J.D. & Blanchflower D.G. (1994) Obesity and stature in adolescence and earnings in young adulthood. Analysis of a British birth cohort. *Archives of Pediatric and Adolescent Medicine* 148, 681-687.

Serdula MK, Ivery D, Coates RJ, Freedman DS, Williamson DF, Byers T. (1993) Do obese children become obese adults? A review of the literature. *Preventive Medicine*; 22:167-77.

Sobal J. & Stunkard A.J. (1989) Socioeconomic Status and Obesity: A Review of the Literature. *Psychological Bulletin* 105(2)260-275.

Turnbull JD, Heaslip S, McLeod HA. (2000) Pre-school children's attitudes to fat and the normal male and female stimulus figures. *International Journal of Obesity*; 24:1705-6.

Wadsworth MEJ (1997) Changing social factors and their long-term implications for health. In: M.G. Marmot & M.E..J Wadsworth (eds) Fetal and Early Childhood Environment: Long-term health implications. London: Royal Society of Medicine Press.

Wadsworth MEJ (1991) *The Imprint of Time: Childhood, history and adult life*. Oxford: Oxford University Press.

Weatherall R., Joshi H. & Macran S (1994) Double Burden or Double Blessing? Employment, Motherhood and Mortality in the Longitudinal Study of England and Wales. *Social Science & Medicine* 38(2):285-297.

Weich S & Lewis G (1998) Material standard of living, social class, and the prevalence of the common mental disorders in great Britain. *Journal of Epidemiology & Community Health*; 52:8-14.

Welin L, Tibblin G, Tibblin B, Svardsudd K, Ander-Peciva S, Larrson B & Wilhelmsen L (1985) Prospective study of social influences on mortality. *Lancet*, ii:915-918.

Wilkinson RG (1996) *Unhealthy Societies: The Afflictions of Inequality*, London: Routledge.

World Health Organisation (1998) *Obesity: preventing and managing the global epidemic.* Report of a WHO consultation, Geneva, 3-5 June 1997. Geneva, WHO.


## Chapter 4

Erens B & Primatesta P (1999a) (eds.) *Health Survey for England 1998: Cardiovascular Disease*, London: HMSO.

Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee (1948) *Maternity in Great Britain,* Oxford: Oxford University Press.

Joshi H (1996) 'Combining Employment and Child-rearing: the story of British women's lives'. In Offer A (ed) *In Pursuit of Quality of Life.*

Kiernan KE (1980) Teenage Motherhood – Associated Factors and Consequences – the Experiences of a British Birth Cohort. *J. biosoc Sci*; 12:393-405.

Kiernan KE & Diamond I (1983) The Age at Which Childbearing Starts – a Longitudinal Study. *Population Studies*; 37:363-380.

Wadsworth MEJ (1991) *The Imprint of Time: Childhood, history and adult life*. Oxford: Oxford University Press.

Wadsworth MEJ, Butterworth SL, Hardy RJ, Kuh DJ, Richards M, Langenberg C, Hilder WS, Connor M (2003) The life course prospective design: an example of benefits and problems associated with study longevity. *Social Science & Medicine*, 57:2193-2205.

Wadsworth MEJ, Mann SL, Rodgers B, Kuh DJL, Hilder WS and Yusuf EJ. (1992) Loss and representativenss in a 43 year follow-up of a national birth cohort. *J. Epidemiol. Community Health.* 46: 300-304.


## Chapter 5

Arber S. (1997) Comparing inequalities in women's and men's health: Britain in the 1990s, *Social Science & Medicine* 44(6):773-787.

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness.* 14(3)313-343.

Bartley M., Sacker A., Firth D. & Fitzpatrick R. (1999) Social position, social roles and women's health in England: Changing relationships 1984 - 1993. *Social Science & Medicine* 48(1)99-115.

Braddon FE, Rodgers B, Wadsworth ME, Davies JM (1986) Onset of obesity in a 36 year birth cohort study. *British Medical Journal*, 293: 299-303.

Fokkema T (2002) Combining a job and children: contrasting the health of married and divorced women in the Netherlands? *Social Science & Medicine*, 54:741-752.

Gortmaker SL, Must A, Perrin JM, Sobol AM, Dietz WH (1993) Social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine* 329;1008-12.

Harris HE, Ellison GT & Holliday M (1997) Is there an independent association between parity and maternal weight gain? *Annals of Human Biology*, 24:507-19.

Hope S, Power C & Rodgers B (1999) Does financial hardship account for elevated psychological distress in lone mothers? *Social Science & Medicine,* 49:1637-1649.

Lahelma E, Arber S, Kivela K and Roos E (2002) Multiple roles and health among British and Finnish women: the influence of socioeconomic circumstances. *Social Science & Medicine,* 54:727-740.

Macran S., Clarke L., Sloggett A. & Bethune A. (1994) Women's socio-economic status and self-assessed health: identifying some disadvantaged groups, *Sociology of Health & Illness.* 16(2):182-208.

McDonough P, Walters V & Strohschein L (2002) Chronic stress and the social patterning of women's health in Canada. *Social Science & Medicine*, 54:767-782.

Nathanson C. (1980) Social roles and health status among women: the significance of employment. *Social Science & Medicine.* 14A, 463-471.

Rossner S (1997) Weight gain in pregnancy. *Human Reproduction*, 12(Supple 1):110-5.

World Health Organisation (1988*) Measuring Obesity: Classification and description of anthropometric data.* Report on a WHO consultation on the epidemiology of obesity. Copenhagen, Denmark: WHO Regional Office for Europe, Nutrition Unit.

## Chapter 6

Arber S. (1997) Comparing inequalities in women's and men's health: Britain in the 1990s. *Social Science & Medicine* 44(6):773-787.

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness.* 14(3)313-343.

Bartley M., Sacker A., Firth D. & Fitzpatrick R. (1999) Social position, social roles and women's health in England: Changing relationships 1984 - 1993. *Social Science & Medicine* 48(1)99-115.

Blaxter M (1990) *Health and Lifestyles.* London: Routledge.

Braddon FE, Rodgers B, Wadsworth ME, Davies JM (1986) Onset of obesity in a 36 year birth cohort study. *British Medical Journal*, 293: 299-303.

Brannen J & Wilson G (1987) (eds) *Give and take in families: studies in resource distribution.* London: Allen & Unwin.

Erens B & Primatesta P (1999b) (eds.) *Health Survey for England 1998: Cardiovascular Disease, Volume 2: Methodology & Documentation.* London: HMSO.

Goldberg D and Williams PA (1988). *Users guide to the General Health Questionnaire.* NFER-Nelson.

Gortmaker S.L., Must A., Perrin J.M., Sobol A.M. & Dietz W.H. (1993) social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine.* 329, 1008-1012.

Graham H. (1984) *Women, Health and the Family*. Brighton: Wheatsheaf Books.

Harris HE, Ellison GT & Holliday M (1997) Is there an independent association between parity and maternal weight gain? *Annals of Human Biology*, 24:507-19.

Hope S, Power C & Rodgers B (1999) Does financial hardship account for elevated psychological distress in lone mothers? *Social Science & Medicine,* 49:1637-1649.

Joshi H (1996) 'Combining Employment and Child-rearing: the story of British women's lives'. In Offer A (ed) *In Pursuit of Quality of Life.*

Joshi H & Hinde PRA (1993) Employment after Child-Bearing in Post-War Britain: Cohort Study Evidence on Contrasts within and across Generations. *European Sociological Review* 9:203-227.

Joshi H & Newell M-L (1987) 'Job Downgrading after Childbearing', In: M. Uncles (ed) *London Papers in Regional Science xviii. Longitudinal Data Analysis: Methods and Applications.* London: Pion: 89-102.

Kuh D, Ben-Shlomo Y, Lynch J, Hallqvist J & Power C (2003) Glossary: Life course epidemiology. *Journal of Epidemiology and Community Health*, 57:778-783.

Macran S., Clarke L., Sloggett A. & Bethune A. (1994) Women's socio-economic status and self-assessed health: identifying some disadvantaged groups. *Sociology of Health & Illness*. 16(2):182-208.

Rossner S (1997) Weight gain in pregnancy. *Human Reproduction*, 12(Supple 1):110-5.

Wilkinson RG (1996) *Unhealthy Societies: The Afflictions of Inequality*, London: Routledge.

## Chapter 7

Hope S, Rodgers B & Power C (1999) Marital status transitions and psychological distress: longitudinal evidence from a national population sample, *Psychological Medicine*, 29:381-389.

Joshi H (1996) 'Combining Employment and Child-rearing: the story of British women's lives'. In Offer A (ed) *In Pursuit of Quality of Life.*

Martikainen P. (1995) Women's employment, marriage, motherhood and mortality: a test of the multiple role and role accumulation hypotheses. *Social Science & Medicine,* 40:199-212.

Stroud JG (1981) Women's Careers: Work, Family, and Personality (Chapter 14). In DH Eichorn *et al.* (eds) *Present and Past in Middle Life.* San Francisco: Academic Press.

Weatherall R., Joshi H. & Macran S (1994) Double Burden or Double Blessing? Employment, Motherhood and Mortality in the Longitudinal Study of England and Wales. *Social Science & Medicine* 38(2):285-297.

World Health Organisation (1988*) Measuring Obesity: Classification and description of anthropometric data.* Report on a WHO consultation on the epidemiology of obesity. Copenhagen, Denmark: WHO Regional Office for Europe, Nutrition Unit.

## Chapter 8

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness*. 14(3)313-343.

Eysenck HJ (1958) A short questionnaire for the treatment of two dimensions of personality. *Journal of Applied Psychology,* 43:14-17.

Fokkema T (2002) Combining a job and children: contrasting the health of married and divorced women in the Netherlands? *Social Science & Medicine,* 54:741-752.

Gortmaker S.L., Must A., Perrin J.M., Sobol A.M. & Dietz W.H. (1993) social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine.* 329, 1008-1012.

Hardy, Wadsworth & Kuh (2000) The influence of childhood weight and socioeconomic status on change in adult body mass index in a British national birth cohort. *International Journal of Obesity,* 24:725-34.

Hibbard JH & Pope CR (1991) Effect of domestic and occupational roles on morbidity and mortality, *Social Science & Medicine.* 32:805.

Hope S, Power C & Rodgers B (1999) Does financial hardship account for elevated psychological distress in lone mothers? *Social Science & Medicine,* 49:1637-1649.

Hope S, Rodgers B & Power C (1999) Marital status transitions and psychological distress: longitudinal evidence from a national population sample, *Psychological Medicine,* 29:381-389.

Janzen BL & Muhajarine N (2003) Social role occupancy, gender, income adequacy, life stage and health: a longitudinal study of employed Canadian men and women. *Social Science & Medicine,* 57:1491-1503.

Liang K-Y & Zeger SL (1986) Longitudinal data analysis using generalized linear models. *Biometrika* 73:13-22.

Macran S (1993) *Role enhancement or role overload? A review of research on the health consequnces of women's domestic and paid work.* London: Centre for Population Studies, London School of Hygiene and Tropical Medicine. Research Paper 93-1, series editor: W. Brass.

Macran S., Clarke L., Sloggett A. & Bethune A. (1994) Women's socio-economic status and self-assessed health: identifying some disadvantaged groups. *Sociology of Health & Illness.* 16(2):182-208.

Power C, Lake JK, Cole TJ. (1997) Body mass index and height from childhood to adulthood in the 1958 British born cohort. *American Journal of Clinical Nutrition,* 66:1094-101.

Serdula MK, Ivery D, Coates RJ, Freedman DS, Williamson DF, Byers T. (1993) Do obese children become obese adults? A review of the literature. *Preventive Medcine,* 22:167-77.

## Chapter 9

Arber S. (1997) Comparing inequalities in women's and men's health: Britain in the 1990s. *Social Science & Medicine* 44(6):773-787.

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness.* 14(3)313-343.

Bartley M., Sacker A., Firth D. & Fitzpatrick R. (1999) Social position, social roles and women's health in England: Changing relationships 1984 - 1993. *Social Science & Medicine* 48(1)99-115.

Braddon FE, Rodgers B, Wadsworth ME, Davies JM (1986) Onset of obesity in a 36 year birth cohort study. *British Medical Journal*, 293: 299-303.

Brewster Karin L & Rindfuss Ronald R (2000) Fertility and Women's Employment in Industrialized Nations. *Annual Review of Sociology*. 26:271-96.

Department of Education and Science (1972) *Burnham Further Education Committee Grading Courses 1972*. London: HMSO.

Goldberg DP & Hillier VF (1979) A scaled version of the General Health Questionnaire. *Psychological Medicine*, 9:139-145.

Gortmaker SL, Must A, Perrin JM, Sobol AM, Dietz WH (1993) Social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine* 329;1008-12.

Gove W.R. (1984) Gender differences in mental and physical illness: The effects of fixed roles and nurturant roles. *Social Science & Medicine*. 19, 77-91

Gove W. R. (1978) Sex differences in mental illness among adult men and women. *Social Science & Medicine*. 12B, 187-198.

Gove W.R. & Geerkin M.R. (1977) The effect of children and employment on the mental health of married men and women. *Social Forces* 56, 66-76.

Hardy R, Wadsworth M & Kuh D (2000) The influence of childhood weight and socioeconomic status on change in adult body mass index in a British national birth cohort. *International Journal of Obesity*, 24:1-10.

Harris HE, Ellison GT & Holliday M (1997) Is there an independent association between parity and maternal weight gain? *Annals of Human Biology*, 24:507-19.

Hope S, Power C & Rodgers B (1999) Does financial hardship account for elevated psychological distress in lone mothers? *Social Science & Medicine*, 49:1637-1649.

Joshi H (1996) 'Combining Employment and Child-rearing: the story of British women's lives'. In Offer A (ed) *In Pursuit of Quality of Life*.

Joshi H & Hinde PRA (1993) Employment after Child-Bearing in Post-War Britain: Cohort Study Evidence on Contrasts within and across Generations. *European Sociological Review* 9:203-227.

Langenberg C, Hardy R, Kuh D, Brunner E & Wadsworth M (2003) Central and total obesity in middle aged men and women in relation to lifetime socioeconomic status: evidence from a national birth cohort. *Journal of Epidemiology and Community Health*, 57:816-822.

Macran S., Clarke L., Sloggett A. & Bethune A. (1994) Women's socio-economic status and self-assessed health: identifying some disadvantaged groups. *Sociology of Health & Illness*. 16(2):182-208.

McLanahan S. & Adams J. (1987) Parenthood and psychological wellbeing. *Annual Review of Sociology*, 5, 237-257.

Nathanson C. (1980) Social roles and health status among women: the significance of employment. *Social Science & Medicine*. 14A, 463-471.

Nathanson C.A. (1975) Illness and the feminine role, a theoretical review. *Soc Sci Med* 9, 57-62.

Parsons T.J., Power C., Logan S. & Summerbell C.D. (1999) Childhood predictors of adult obesity: a systematic review. *International Journal of Obesity*. 23, Supple8, S1-S107.

Rodgers B (1994) Pathways between parental divorce and adult depression. *Journal of Child Psychology and Psychiatry,* 35: 1289-1308.

Rodgers B & Mann SA (1986) Reliability and validity of PSE assessments by lay interviewers: a national population survey. *Psychological Medicine,* 16:689-700.

Rossner S (1997) Weight gain in pregnancy. *Human Reproduction,* 12(Supple 1):110-5.

Sobal J, Rauschenback BS & Frongillo-EA J (1992) Marital status, fatness and obesity, *Social Science & Medicine,* 35:915-23.

Sobal J. & Stunkard A.J. (1989) Socioeconomic Status and Obesity: A Review of the Literature. *Psychological Bulletin* 105(2)260-275.

Voydanoff P. & Donnelly B.W. (1989) Work and family roles and psychological distress. *Journal of Marriage and the Family,* 51, 923-32.

## Chapter 10

Arber S. (1997) Comparing inequalities in women's and men's health: Britain in the 1990s. *Social Science & Medicine* 44(6):773-787.

Bartley M., Popay J. & Plewis I. (1992) Domestic conditions, paid employment and women's experience of ill health. *Sociology of Health & Illness.* 14(3)313-343.

Bartley M., Sacker A., Firth D. & Fitzpatrick R. (1999) Social position, social roles and women's health in England: Changing relationships 1984 - 1993. *Social Science & Medicine* 48(1)99-115.

Desai S & Waite LJ (1991) Women's employment during pregnancy and after the first birth: occupational characteristics and work commitment. *American Sociological Review.* 56(4):551-66.

Doyal L & Gough I (1991) *A Theory of Human Need.* London: The Macmillan Press Ltd.

Friedan B (1963) *The Feminine Mystique.* London: Gollancz.

Gavron H (1966) *The Captive Wife.* Harmondsworth: Penquin.

Hibbard JH & Pope CR (1993) The quality of social roles as predictors of morbidity and mortality, *Social Science & Medicine.* 36(3):217-225.

Hope S, Power C & Rodgers B (1999) Does financial hardship account for elevated psychological distress in lone mothers? *Social Science & Medicine,* 49:1637-1649.

Lahelma E, Arber S, Kivela K and Roos E (2002) Multiple roles and health among British and Finnish women: the influence of socioeconomic circumstances. *Social Science & Medicine,* 54:727-740.

Macran S, Joshi H, Dex S (1996) Employment after Childbearing: A Survival Analysis. *Work, Employment and Society* 10(2):273-296.

McDonough P, Walters V & Strohschein L (2002) Chronic stress and the social patterning of women's health in Canada. *Social Science & Medicine,* 54:767-782.

Oakley A (1974a) *Housewife.* London: Allen Lane.

Oakley A (1974b) *The Sociology of Housework.* London: Martin Robertson.

Ryff CD (1989a) Happiness Is Everything, or Is It? Explorations on the Meaning of Psychological Well-Being. *Journal of Personality and Social Psychology,* 57:1069-1081.

Ryff CD (1989b) Beyond Ponce de Leon and life satisfaction: New direction in quest of successful aging. *International Journal of Behavioural Development,* 12:35-55.

Schooler C, Kohn ML, Miller KA & Miller J (1983) Housework as work. In C.A. Schooler & ML Kohn (eds) *Work and personality: An inquiry into the impact of social stratification.* Norwood, NJ: Ablex Publishing Co.

## Chapter 11

Arber S. (1991) Class, Paid employment and family roles: making sense of structural disadvantage, gender and health status. *Social Science & Medicine.* 32(4):425-436.

Beck U (1992) *Risk Society: Towards a new Modernity.* Transl. M Ritter. London: Sage.

Becker HS (1963) *Outsiders: Studies in the Sociology of Deviance.* Glencoe: Free Press.

Blaxter M (1990) *Health and Lifestyles.* London: Routledge.

Braddon FEM, Wadsworth MEJ, Devies JMC, Gripps HA (1988) Social and regional differences in food and alcohol consumption and their measurement in a national birth cohort. *Journal of Epidemiology and Community Health;* 43:341-349.

Brown GW & Harris T (1978) *Social Origins of Depression: A study of psychiatric disorder in women,* London: Tavistock Publications Ltd.

Brown JD & McGill KL (1989) The Cost of Good Fortune: When Positive Live Events Produce Negative health Consequences. *Journal of Personality and Social Psychology,* 57:1103-10.

Buchmann M (1989*) The Script of Life in Modern Society: Entry into Adulthood in a Changing World.* Chicago: Univ. Chicago Press.

Bumpass LL & Sweet JA (1989) National estimates of cohabitation. *Demography,* 26:615-25.

Bumpass LL, Sweet JA & Cherlin A (1991) The role of cohabitation in declining rates of marriage. *Journal of Marriage & Family.* 53:913-27.

Butler RN & Lewis MI (1977) *Aging and Mental Health.* St Louis: C V Mosby Co.

Coleman D & Salt J (1992) *The British Population: Patterns, Trends, and Processes.* Oxford: Oxford University Press.

Deutsch FM (1999) *Halving It All: How Equally Shared Parenting Works.* Cambridge, MA: Harvard University Press.

Doyal L & Gough I (1991) *A Theory of Human Need.* London: The Macmillan Press Ltd.

Ferri E & Smith K (2003) Chapter 4 Partnerships and parenthood. In: E. Ferri, J. Bynner & M. Wadsworth (eds.) *Changing Britain, Changing Lives: Three Generations at the Turn of the Century.* London: Institute of Education, University of London.

Friedan B (1963) *The Feminine Mystique.* London: Gollancz.

Gavron H (1966) *The Captive Wife.* Harmondsworth: Penquin.

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Giddens A (1991) *Modernity and Self-Identity: Self and Society in the Late Modern Age,* Stanford, CA: Stanford University Press.

Giddens A (1984) *The Constitution of Society: Outline of the Theory of Structuration.* Berkeley: University of California Press.

Goldberg D & Williams PA (1988). *Users guide to the General Health Questionnaire.* NFER-Nelson.

Graff HJ (1995) *Conflicting Paths: Growing Up in America.* Cambridge, MA: Harvard Univ Press.

Helson R, Stewart AJ & Ostrove J (1995) Identity in 3 cohorts of midlife women. *Journal of Personality & Social Psychology* 69:544-57.

Hoelter JW (1983) The Effects of Role Evaluation and Commitment on Identity Salience. *Social Psychology Quarterly,* 46:140-47.

Hogan DP (1981) *Transitions and Social Change: The Early Lives of American Men.* New York: Academic.

Howard JA (2000) Social Psychology of Identities, *Annual Review of Sociology,* 26:367-93.

Hunt K (2002) 'Commentary on Chapter 11 Social and economic trajectories and women's health' In: D. Kuh & R. Hardy (eds) *A Life Course Approach to Women's Health,* Oxford: Oxford University Press.

Janzen BL & Muhajarine N (2003) Social role occupancy, gender, income adequacy, life stage and health: a longitudinal study of employed Canadian men and women. *Social Science & Medicine,* 57:1491-1503.

Joshi H (1996) 'Combining Employment and Child-rearing: the story of British women's lives'. In Offer A (ed) *In Pursuit of Quality of Life.*

Kahneman D 'Happiness measures'. Presentation to the International Centre for Health and Society, University College London, 9 September 2002

Kiernan KE (1989) Who Remains Childless? *J biosoc Sci* 21:387-398.

Kiernan, KE (1988) Who Remains Celibate? *J biosoc Sci* 20:253-263.

Kiernan KE & Diamond I (1983) The Age at Which Childbearing Starts – a Longitudinal Study. *Population Studies;* 37:363-380.

Kiernan KE & Eldridge SM (1987) Age at marriage: inter and intra cohort variation. *The British Journal of Sociology,* 38(1):44-65.

Kuh DJL, Cooper C (1992) Physical activity at 36 years: patterns and childhood predictors in a longitudinal study. *Journal of Epidemiology and Community Health;* 46:114-119.

McCall G & Simmons R (1966) *Identities and Interactions.* New York: Free Press.

McMunn A, Karlsen S & Nazroo J 'Gender and ethnic differences in social roles and health: the need for a theory of role quality', submitted to *Journal of Health and Social Behavior,* April 2004.

Neugarten BL (1968) *Middle Age and Aging: A Reader in Social Psychology.* Chicago: The University of Chicago Press.

Oakley A (1974a) *Housewife.* London: Allen Lane.

Oakley A (1974b) *The Sociology of Housework*. London: Martin Robertson.

Oatley K & Bolton W (1985) A Social-Cognitive Theory of Depression in Reaction to Life Events. *Psychological Review*, 92:372-88.

Roos E, Lahelma E, Virtanen M, Preattala R & Pietinen P (1998) Gender, socioeconomic status and family as determinents of food behaviour. *Social Science & Medicine*, 46:1519-29.

Rosenberg M (1979) *Conceiving the Self*. New York: Basic Books.

Rossi AS (1980) Life-Span Theories and Women's Lives. *Signs: Journal of Women in Culture and Society*, 6:4-32.

Sternfeld B, Ainsworth BE, Quesenberry CP (1999) Physical activity patterns in a diverse population of women. *Preventative Medicine*, 28:313-23.

Stevens DA (1990) New evidence on the timing of early life course transitions: the United States, 1900 to 1980. *Journal of Family History*. 15:163-78.

Stryker S (1980) *Symbolic Interactionism: A Social Structural Version*. Menlo Park, CA: Benjamin-Cummings.

Stryker S & Serpe RT (1982) 'Commitment, Identity Salience, and Role Behavior.' (pp.237-68) in Ickes W & Knowles ES (eds) *Personality, Roles and Social Behavior*, New York: Springer-Verlag.

Thoits PA (1991) On Merging Identity Theory and Stress Research. *Social Psychology Quarterly*, 54(2):101-112.

Thoits P. (1987) Negotiating roles. In FJ Crosby (ed.) *Spouse, Parent, Worker, On Gender and Multiple Roles*. London: Yale UP.

Weigart AJ, Smith Teitge J & Teitge DW (1986) *Society and Identity: Toward a Sociological Psychology*. Cambridge: Cambridge University Press.

Wilcox S, Castro C, King AC, Housemann R & Brownson RC (2000) Determinants of leisure time physical activity in rural compared with urban older and ethnically diverse women in the United States. *Journal of Epidemiology and Community Health*, 54:667-72.

Wilkinson RG (1996) *Unhealthy Societies: The Afflictions of Inequality*, London: Routledge.