

48 Promoting health behaviours at the individual level for NCD prevention and control

Paul Aveyard, Wendy Hardeman, Robert Horne

Tobacco use, harmful use of alcohol, unhealthy diet and lack of physical activity are strong, shared, and modifiable behavioural risk factors for NCDs. While many of the chapters in this book (including Chapter 47 on changing behaviour at scale) describe actions at the population level to reduce these risk factors, the focus of this chapter is on behaviour change and improving adherence to treatment at the individual level to reduce NCD risk.

Governments rarely include explicit action and specific resources to support individuals to change their behaviour as a priority in basic health service packages. Underlying this is a common misconception that individuals can change health behaviours with ease (e.g. that information imparted in the clinic through a poster, a factsheet or minimal advice from a health care worker will rapidly result in a change in behaviour). This is in large part because the actual impact of free choice on behaviour is considerably less than most people imagine.

Understanding behaviour change

Sociology, genetics and neuroscience all make a significant contribution to shaping an individual's behaviour and their role needs to be considered and then addressed when aiming at changing a particular individual's behaviour:

- Sociology can help explain how personal decisions are largely governed by broad social structures such as socioeconomic category, gender and ethnicity.
- Genetics explains how behaviour choices (e.g. dietary intake, alcohol consumption and exercise) are in part determined biologically.
- Neuroscience explains how behaviours are often subconsciously influenced by the environment, with internal impulses and need for immediate rewards (e.g. through the dopamine brain system) underlying, for example, why individuals may engage in pleasurable but possibly unhealthy behaviours (e.g. the 'reward centre' of the brain valuing foods high in both fat and carbohydrates).

Understanding that behaviour is the result of both impulses and conscious reflection is important for triggering and supporting behaviour change. The PRIME theory of motivation (Box 48.1), for example recognizes the importance of a number of interlinked conscious and subconscious forces when it comes to smoking, alcohol use, exercising and dietary behaviours.

BOX 48.1 PRIME THEORY OF MOTIVATION¹

PRIME theory proposes that **R**esponses are determined by a set of inter-linked drivers:

- **P**lans – self-conscious intentions to behave in a particular way.
- **I**mpulses and inhibitions – both instinctive and learned.
- **M**otives – wants (imagined future states of the world with associated feelings of anticipated pleasure or satisfaction), and/or needs (imagined future states of the world with associated feelings of anticipated relief from distress or discomfort).
- **E**valuations – beliefs about what is good or bad, right or wrong, harmful or beneficial.

PRIME theory posits that individuals act in any single moment in the way that they most need or want or act. The primary drivers of behaviour, the impulse to act or inhibitions of impulse, are driven by competing wants and needs. Want represents desire, while a need is a negative emotion that is relieved by acting. In this context, the want to smoke competes with the need for relief of anxiety that is generated because higher cognitive functions, including evaluations of what is right or wrong, tell one that smoking is harmful.

Individual behavioural programmes for NCD prevention therefore need to recognize and marshal forces to help people use their conscious reflective motivation and psychosocial resources to counteract those other drivers that they do not perceive to affect them, but which can derail attempts to change behaviour. The principle of behavioural programmes is thus to boost motivation and enhance the individual's capacity to change behaviour. Behaviour change often requires both a trigger and follow up supportive action.

Triggering behaviour change

Population-level interventions can trigger individual behaviour change by, for example, creating a strong sense that smoking is harmful and, in that sense, bad, and the need for relief from anxiety can trigger smoking cessation attempts.

Events such as New Year, or national no-smoking days, act to crystallize the need to act into an impulse to do so, capitalizing on this latent motivation. By concentrating on the value of the momentary impulse, dual process theory prompts public health agencies to provide programmes, often light-touch interventions, that crystallize latent motivation to change behaviour by providing prompts.

Very brief (<2 minutes) opportunistic counselling^{2,3} for smoking, unhealthy diet and obesity and harmful alcohol consumption are effective,^{4,5,6,7} and can be cost-effective in triggering change,^{8,9} while longer (up to 30-minute) counselling is required to increase physical activity.¹⁰

The behaviours of clinicians are similarly determined by competing for conscious and less conscious forces so that context-specific policies and incentives are needed to motivate them to trigger patients to change their behaviours.¹¹ In addition, clinicians may lack the knowledge and skills and resources (time and financial) to deliver the required interventions.

Supporting behaviour change

While brief counselling is useful to trigger behaviour change, broader behaviour support programmes are important to provide sustained support to individuals for maintaining their willpower and motivation and enable long-term behaviour change.

The momentary balance between wants and needs helps explain relapse and possible responses to reduce relapse. Take the example of smoking, at every moment where smoking is possible, the 'need not to smoke' has to be strong enough to overcome the 'want to smoke'. This means that inhibition must overcome the impulse to smoke at all times. This is particularly important given that if smoking occurs, this will immediately interfere with the neuroadaptation to non-smoking with a rapid return to needing to smoke. Secondary cognitive factors, such as catastrophizing in response to a lapse, will also kick in and undermine motivation by lowering a person's perception of their capability to maintain abstinence and, again, it is important to discuss those aspects with the individual concerned to help them find adequate responses.

This 'quit attempt' model applies to alcohol, but less so to losing weight. Unlike smoking and alcohol, weight loss does not easily lead to neuroadaptation to the lower body weight state because obesity is less of a learnt addiction. Biological forces that regulate appetite (e.g. the adipocyte-gut-brain neuro-hormonal loops) and energy balance (e.g. resting metabolic rate, which decreases in response to body weight loss) tend to lead to long-term weight regain (i.e. a 'reset' to status quo ante) when the attempt ceases. This explains why most people who lose weight in the short term regain it (often within months). Therefore the aim is to strengthen motivation in maintaining the new behaviour and sticking to behavioural rules that can help with robust habit formation and thereby protect against relapse.

Behavioural support programmes aim to identify and equip individuals with resources to combat the forces of compulsions, urge or craving, which are often cue-provoked or habitual, and can be highly distressing (e.g. smoking). Behavioural support programmes also help patients identify and address the challenges associated with broader social and physical environments. Such barriers are also important in understanding why those from lower educational and socioeconomic groups find it more difficult to change their behaviour.

A successful behavioural support programme includes:

- *Setting a goal*, both the end goal and intermediary behavioural goals.
- *Creating an action plan*. This is sometimes referred to as ‘implementation intentions’, which helps people make specific plans for how, when and where key behaviours should be enacted, and plan for what to do if those initial plans are interrupted or deviated.¹²
- *Monitoring and feedback*. While this can increase effectiveness (e.g. measuring body weight every day), it can also undermine motivation because it reinforces notions of guilt and shame when the expected change does not occur. Programmes should therefore frame behaviour change as a learning opportunity that will include successes and failures, with self-experimentation at its heart.¹³

Behavioural support programmes are often provided by specialists, either face-to-face or remotely via telephone or digital devices. Behavioural support programmes have been shown to be effective in reducing intake of alcohol, quitting smoking and treating obesity, but there is less evidence that such programmes improve long-term physical activity.^{14,15,16} Clinicians are increasingly looking to prescribe behavioural interventions¹⁷ (e.g. face-to-face or digital tobacco quit support services, gym subscriptions, pedometer-based programmes or a written prescription for regular walking every week).¹⁸

A number of medications can improve the success of behaviour change attempts. Medications for smoking cessation reduce the intensity of the urge to smoke and are of modest cost, with nicotine replacement treatment being included in the WHO essential medications list. Medications to support alcohol abstinence (e.g. disulfiram) are usually prescribed in specialist settings, such as addiction services, as these drugs can cause unpleasant effects if alcohol is consumed in any amount. Medications for obesity are effective (particularly GLP-1 agonists that act on appetite regulation and can reduce body weight by up to 15% (Chapter 10 on obesity), but are costly, which currently limits their use.

Individual interventions to improve medication adherence

Behavioural interventions to improve medication adherence require action from/by: (i) health policy and practice (e.g. whether training in delivering behavioural interventions is available) (ii) patient-health care provider interactions and social support (e.g. where a trusted long-term patient-doctor

relationship is available); and (iii) the patient themselves (e.g. science literacy and education).

Adherence rates vary, not just between individuals, but also within individuals, over time and for different treatments. For this reason, interventions to improve a patient's adherence should focus on understanding the interactions between the individual, the individual's life context and the particular disease/treatment. Non-adherence often results from patient's beliefs (possibly echoing those that are socially or culturally prevalent in a particular setting), e.g. how individuals judge their personal need for the treatment (necessity beliefs, e.g. 'Do I really need this treatment?') relative to their concerns about potential negative consequences (e.g. side effects, stigma, interference in daily life, financial cost). From a patient's perspective, non-adherence is often 'logical', given their understanding of the condition(s), experiences and expectations of symptoms (e.g. absence of symptoms associated with hypertension and dyslipidaemia) and background beliefs (e.g. suspicions of medicines in general and/or the pharmaceutical industry more broadly, or concerns about dependence), even if these are not substantiated by evidence.

One approach shown to be cost-effective in increasing adherence to treatment is the Perceptions and Practicalities Approach^{19,20,21} (Box 48.2), which can also be delivered digitally.²²

BOX 48.2 THE PERCEPTIONS AND PRACTICALITIES APPROACH (PAPA)

- A patient-centred, 'no-blame' approach that encourages patients to reveal and discuss treatment doubts and concerns and that patients' beliefs and preferences influence the way treatment is prescribed.
- Three essential components:
 - Providing a 'common-sense' rationale for treatment necessity that takes account of patients' perceptions of the illness (including current and long-term consequences), their experiences, expectations, and answers to the two fundamental questions that constitute a necessary belief: 'Why do I need to do this to achieve a goal that is important to me?' and 'Can I get away without doing it?'.
 - Eliciting and addressing concerns.
 - Making it as easy and convenient as possible to adhere by attending to practicalities influencing the ability to adhere.
- A range of behaviour change techniques can be applied to elicit and address perceptions and practicalities (e.g. misconceptions and concerns) and practical barriers (e.g. limitations in capability and resources).
- Interventions can be integrated into more comprehensive approaches that also address environmental and societal causes of non-adherence.

The importance of policy frameworks to support individual behaviour change programmes

Policies are required to create and implement behavioural interventions in routine health care services (e.g. protocols, training, and structures that support brief interventions), which imply that these interventions are explicitly and adequately costed and funded and routinely provided within health care services.²³ More broadly, behaviour change programmes at health care level are more likely to be successful where population-level policies and programmes are in place to encourage the individual to embark on healthy behaviour (e.g. cities that encourage cycling, walking and public transport; bans on indoor smoking; and taxes on tobacco, alcohol and sugar-sweetened beverages).

Similarly, policy needs to support monitoring of service delivery to assess the provision of behaviour change interventions, and related training for health care providers about these interventions.²⁴ Such monitoring can drive up quality standards of service delivery. The provision of behavioural interventions, particularly among individuals with NCD risk factors, should be assessed in population-based surveys (e.g. STEPS) and surveys of health services (e.g. SARA, including the protocols used).

Notes

- 1 West R, Michie S. UBC briefing 9: a brief description of the PRIME theory of human motivation, London: Unlocking Behaviour Change, 2019.
- 2 Krist AH et al. Interventions for tobacco smoking cessation in adults, including pregnant persons: US Preventive Services Task Force Recommendation Statement. *JAMA* 2021;325:265–79.
- 3 Alcohol-use disorders: prevention. Public health guideline [PH24]. NICE, 2010.
- 4 Kaner EFS et al. Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database Syst Rev* 2018;2:CD004148.
- 5 Stead LF et al. Physician advice for smoking cessation. *Cochrane Database Syst Rev* 2008;2:Cd000165.
- 6 Aveyard P et al. Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial. *Lancet* 2016;388:2492–500.
- 7 Hardeman W et al. Evaluation of a very brief pedometer-based physical activity intervention delivered in NHS health checks in England: The VBI randomised controlled trial. *PLOS Med* 2020;17:e1003046.
- 8 Retat L et al. Screening and brief intervention for obesity in primary care: cost-effectiveness analysis in the BWeL trial. *Int J Obes* 2019;43:2066–75.
- 9 Solberg LI et al. Repeated tobacco-use screening and intervention in clinical practice: health impact and cost effectiveness. *Am J Prev Med* 2006;31:62–71.
- 10 Lamming L et al. What do we know about brief interventions for physical activity that could be delivered in primary care consultations? A systematic review of reviews. *Prev Med* 2017;99:152–63.
- 11 Williams SJ, Calnan M. Perspectives on prevention: the views of general practitioners. *Sociology Health & Illness* 1994;16:372–93.
- 12 Sheeran P. Intention—behavior relations: a conceptual and empirical review. *Eur Rev Soc Psychol* 2002;12:1–36.
- 13 Kangovi S, Asch DA. Behavioral phenotyping in health promotion: embracing or avoiding failure. *JAMA* 2018;319:2075–76.

- 14 Curry SJ et al. Behavioral weight loss interventions to prevent obesity-related morbidity and mortality in adults: US Preventive Services Task Force Recommendation Statement. *JAMA* 2018;320:1163–71.
- 15 Curry SJ et al. Screening and behavioral counseling interventions to reduce unhealthy alcohol use in adolescents and adults: US Preventive Services Task Force Recommendation Statement. *JAMA* 2018;320:1899–909.
- 16 Mangione CM et al. Behavioral counseling to promote a healthful diet and physical activity for cardiovascular disease prevention in adults without cardiovascular risk factors: US Preventive Services Task Force Recommendation Statement. *JAMA* 2017;318:167–74.
- 17 Thornton JS et al. Physical activity prescription: a critical opportunity to address a modifiable risk factor for the prevention and management of chronic disease: a position statement by the Canadian Academy of Sport and Exercise Medicine. *Clin J Sport Med* 2016;26:259–65.
- 18 GcVS et al. Cost-effectiveness and value of information analysis of brief interventions to promote physical activity in primary care. *Value Health* 2018;21:18–26.
- 19 Horne R et al. Supporting adherence to medicines for long-term conditions: a perceptions and practicalities approach based on an extended common-sense model. *Eur Psychol* 2019;24:82–96.
- 20 Clifford S et al. Patient-centred advice is effective in improving adherence to medicines. *Pharm World Sci* 2006;28:165–70.
- 21 Elliott RA et al. The cost effectiveness of a telephone-based pharmacy advisory service to improve adherence to newly prescribed medicines. *Pharm World Sci* 2008;30:17–23.
- 22 Chapman S et al. Personalised adherence support for maintenance treatment of inflammatory bowel disease: a tailored digital intervention to change adherence-related beliefs and barriers. *J Crohns Colitis* 2020;14:1394–404.
- 23 van den Brand FA et al. Healthcare financing systems for increasing the use of tobacco dependence treatment. *Cochrane Database Syst Rev* 2017;9:CD004305.
- 24 Brose LS et al. Changes in success rates of smoking cessation treatment associated with take up of a national evidencebased training programme. *Prev Med* 2014;69:1–4.