Chapter

Psychological Factors Influencing Protective Behaviours during the COVID-19 Pandemic: Capability, Opportunity and Motivation

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Abstract

This chapter will explore psychological and demographic influences on citizens' ability to enact protective health behaviours during the COVID-19 pandemic. Such behaviours include social distancing and hygienic practices that have been recommended across the globe to reduce the spread of infection from the coronavirus. Such behaviours represent a seismic change in usual social behaviour and have been particularly difficult to adopt under urgent circumstances. However, human behaviour is the essential driver of the rate and spread of infection. Using evidence from a large-scale longitudinal survey conducted throughout the pandemic in the UK, this chapter explores protective behaviours in relation to the Capability, Opportunity, Motivation-Behaviour (COM-B) model of behaviour change, which presents a framework for understanding the influences on behaviour. We will illustrate how the components of the COM-B model can inform behaviour change interventions and the importance of the role of anxiety in shaping behavioural responses to the pandemic.

Keywords: social distancing, hygienic practices, COM-B model, behaviour change intervention

1. Introduction

The COVID-19 pandemic began in China in late 2019 and is perhaps one of the biggest health threats the world has faced this century. This highly infectious disease spread quickly across the globe, mutating into a number of variants that have made containment extremely difficult. It is clear that this global pandemic will leave in its wake extensive social, economic and health impacts for many years to come and we are only just beginning to recognise the extent of its legacy.

During the outbreak, citizens around the world experienced significant restrictions in terms of their social and economic activities in the form of quarantining at

home for prolonged periods of time so that social interaction (and thus, the ability of the virus to transmit between people) is limited. Behavioural guidelines to help prevent infection and slow the spread of disease have mandated the wearing of face coverings in confined spaces and recommended the adoption of a wide range of hygienic practices (for example frequent hand washing, cleansing surfaces more regularly and using hand sanitizer when hand washing was not possible). These measures have signified large-scale changes in behaviour that are psychologically burdensome for individuals to successfully achieve [1]. However, human behaviour plays a decisive role in in shaping the progression and spread of COVID-19 [2] and therefore it is a matter of urgency that behavioural scientists understand the psychological drivers that underpin such behaviour to help swiftly implement interventions to promote behavioural changes on a population level that are necessary to stem the spread of the virus and protect vulnerable groups from contagion [1, 3].

The Capability, Opportunity, Motivation-Behaviour (COM-B) model of behaviour change (**Figure 1**) [4] is widely used in behavioural science research to explore influences on behaviour. This model proposes that a person must have sufficient psychological and physical capability (strength, knowledge, skills, etc.), physical and social opportunity (time, social cues, etc.) as well as reflective and automatic motivation (intentions, planning, emotion regulation, etc.) to enact a given behaviour. Michie, West and Harvey [5] argue that each of these factors could contribute to lower levels of adherence than are needed to enact behaviours that prevent the spread of the COVID-19 virus. The COM-B model is at the centre of the Behaviour Change Wheel (BCW), which is a tool kit for designing tailored behaviour change interventions (BCIs) [6]. Thus, once a behavioural 'diagnosis' has been conducted utilising the components of the COM-B model, suitable targets for intervention can then be identified [1]. These targets will be the components of the COM-B that are most likely to influence a particular behaviour and can be developed into BCIs to improve adherence to protective health behaviours.

In this chapter, we apply the COM-B model to two key sets of COVID-19 transmission-related protective behaviours: 'hygienic practices' (including frequent hand washing and wearing a face covering) and 'social distancing practices' (involving staying at home where possible, keeping a 2-metre distance from others in public and not gathering in large groups). These behaviours are key in reducing transmission of the virus and it is likely that such measures will remain in place for some time in most countries, to some extent [7, 8]. Indeed, despite the inception of widespread vaccination programmes across the globe, maintaining protective behaviours

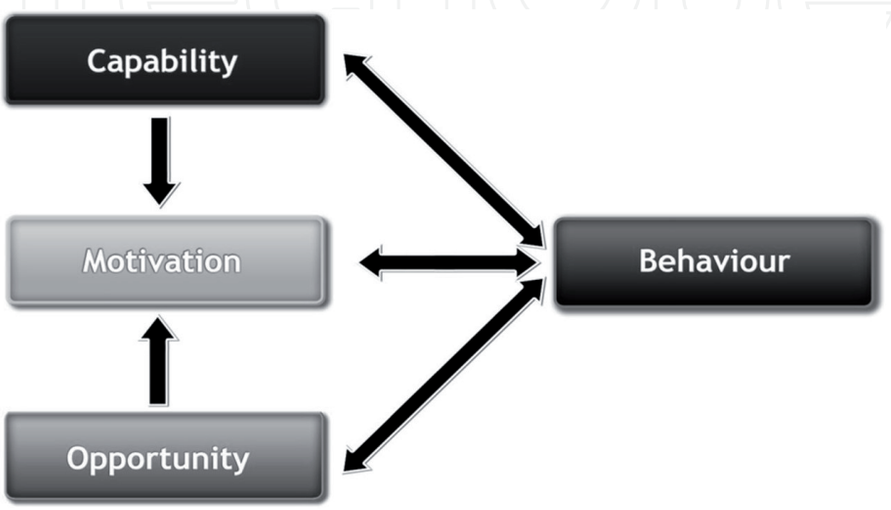

Figure 1.
The COM-B model.

will ensure the continued reduction in the spread of infection to mitigate low vaccination uptake rates, difficulties in vaccine supply and variants immune to the vaccine. It is vital therefore that behavioural scientists understand the psychological factors influencing such behaviours in the context of the COVID-19 pandemic within a theoretical framework to feed into efforts to promote continued adherence to essential protective behaviours.

2. Protective behaviours in the COVID-19 pandemic

To inform BCIs, an understanding of the drivers that underpin protective behaviours are required, along with a deeper exploration that addresses the nuances in how people might understand, accept and adhere to such a set of behaviours. As yet, there is a dearth of evidence relating to how protective behavioural practices could be adopted on a population-wide level [4] and so it is important to assess behavior under the current adverse circumstances. Protective behaviours are largely under the volitional control of individuals, in that one can choose whether or not to follow the suggested practices. Further, whilst wearing a face covering and washing or sanitising hands in specified situations represents a fairly clear set of actions, the actions required to achieve 'social distancing' successfully are arguably more complex and nuanced. Some social distancing behaviours rely on the individual themselves committing to and enacting the behaviour (e.g., staying at home) and others require the reciprocal observance of others (e.g., gathering in groups, close contact greetings). We also know that social isolation could have a negative impact on health and well-being, which impacts upon decisions about adherence to behaviours [9].

Whilst there is a wide and good-quality literature on the enactment of hygiene behaviour, especially handwashing [10], we know little about these behaviours in the current context where the drivers of behaviour and nature of the threat may be entirely different from usual circumstances.

The term 'social distancing' has been coined during the pandemic and is complex and nuanced. Although large-scale population surveys have shown that social distancing practices have been sustained as the pandemic unfolded and citizens generally support these measures (e.g., [11–13]), there is evidence that motivation to comply over time may be threatened by other psychological factors. For example, as psychological resources are cumulatively depleted over time with lengthy and repeated lockdowns [11]; as competing drivers of behaviour begin to take priority (e.g., the inherent drive for social connection) [14]; as confidence in the government reduces [15]; and 'moral' judgements impact upon decision making [16] adherence to social distancing practices may diminish.

Indeed, evidence suggests that the extent to which different groups of individuals have been willing and able to comply with these important protective behaviours is mixed. Population surveys have found that 1 in 4 individuals struggle to follow social distancing guidelines, due to difficulties in meeting up with family or friends outside because of bad weather or feeling worn out by the pandemic [11, 17]. For other groups in society, it is likely that enacting social distancing behaviours is difficult for other, more practical, reasons. For example, individuals who do not have access to a garden, those who share private spaces with other families, or those who are required to work outside the home may not have the opportunity to comply and are inevitably at increased risk of exposure and infection [18]. These 'structural' factors are likely to be more impactful on the ability to comply with social distancing in groups who are already disadvantaged and who are faring worse due to the pandemic – reflecting the 'slow burn of inequality' exposed by epidemics, described by Marmot [19].

3. The COM-B and protective behaviours

Exploring protective behaviours in relation to the COM-B is useful for understanding the conditions that must be in place for these behaviours to be successfully enacted and therefore developing BCIs that promote adherence. We conducted this investigation using data from a large-scale survey of UK citizens.

The COVID-19 Psychological Research Consortium (C19PRC) Study (www.sheffield.ac.uk/psychology-consortium-covid19) is a longitudinal study mapping changes in behaviour and mental health over time from the very early days of the COVID-19 outbreak. The C19PRC study has collected data from 2025 participants in five waves over 12 months (March 2020–March 2021) from the four UK Nations, with comparable data sets from Ireland, Italy, Spain, and Saudi Arabia. A multitude of detailed demographic, health, behavioural and psychosocial measures have been collected, including socio-demographic characteristics, health status, depression, anxiety, traumatic stress, somatic symptoms, loneliness, resilience as well as health behaviours and lifestyle habits (see McBride et al. for full methodology [20, 21]). We modelled the complex relationships between the social, physical and mental health of our sample and conducted extended behavioural analyses on protective behaviours and the COM-B model [17, 22–26].

Participants self-reported motivation, capability and opportunity to enact protective behaviours in the C19PRC survey. Items were adapted from a preliminary version of the COM-B self-evaluation questionnaire and other guidelines (COM-B-Qv1) [4, 6] and respondents indicated the extent to which seventeen statements were true for them during the COVID-19 pandemic on a 5–point scale (labelled: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). Three items measured psychological capability: e.g., "I knew about why it was important and had a clear idea about how the virus was transmitted". Two items measured physical opportunity: e.g., "It was easy for me to do it" and four items measured social opportunity: e.g., "I had support from others". Five items measured reflective motivation: e.g., "I intended to do it" and three items measured automatic motivation: e.g., "I would feel bad if I didn't do it".

Analysis of the C19PRC data revealed three main themes in relation to protective behaviours. First, we identified specific components of the COM-B model that drive different types of protective behaviours. Second, we identified specific demographic groups that have particular difficulties with such behaviours. And third, there are significant emotional drivers that influence adherence to protective behaviours.

The first set of behaviours explored in Wave 1 during the first lockdown in the UK (March 2020) were five self-reported hygienic practices: Touching eyes or mouth, washing hands with soap and water more often, using hand sanitising gel if soap and water were not available, using disinfectants to wash surfaces in the home more frequently and covering nose and mouth with a tissue or sleeve when coughing or sneezing. Response scales were 'No', 'Occasionally' and 'Whenever possible'.

After controlling for demographic variables (age, gender, ethnicity, income, etc.), psychological capability, social opportunity and reflective motivation predicted hygienic practices most and reflective motivation had the largest influence [20]. This means that adults who knew why hygienic practices were effective in reducing the transmission of the virus, who had social support, and had made plans to carry out hygienic practices were more likely to successfully carry out these protective health behaviours. Notably, we observed that older age and higher levels of household income were associated with more engagement with hygienic practices. Hygienic practices were practiced less by males (compared to females) and those living in suburban areas (compared to those living in more rural areas).

For social distancing behaviours, participants in Wave 2 (April 2020) self-reported which behaviours in the past week they had engaged in, out of seven social distancing practices; e.g., "Stayed at least 2 metres (6ft) away from other people when in", "Met up with friends or extended family (outside of your home)"; "Engaged in close contact greetings with people outside of your family (e.g., shaking hands, hugging)"; "Gathered in a group of more than two people in a park and other public space". These behaviours represented clear violations of or adherence to social distancing guidelines in the first UK lockdown (responses were: Not at all, 1–2 days a week, 3–4 days a week, Most days, Every day).

Here, a different picture emerged. Of the COM-B components, only Psychological Capability exhibited a direct and positive association with adherence to social distancing [21]. Older adults and city dwellers were more likely to report higher levels of psychological capability and women were more likely to report increased motivation for social distancing. As with hygienic practices, those with higher levels of education and income were more likely to practice social distancing.

We explored adherence to social distancing further using a list experiment, embedded in Wave 4 of the C-19PRC survey (December 2020). This method allows researchers to measure responses to sensitive items that may normally invoke untrue or inaccurate answers due to social desirability concerns. The C19PRC survey list experiment used four control states and included a fifth sensitive item, as follows:

"We would now like to ask you how willing you are to break rules or conventions. Please look at the following list of common rules and indicate how many of these you have done in the last 6 months:

1. I have driven a car at more than 100 miles an hour.

2. I have travelled illegally to North Korea.

3. I have sometimes not paid my bills on time.

4. I have borrowed something from a friend and forgotten to return it.

5. I have socialised in another household during lockdown (*sensitive item*).

One-quarter of our sample revealed that they had violated government guidelines by socialising in another household during lockdown. An examination of whether any particular social or psychological factors were associated with agreement to the sensitive item, we found that the only statistically significant predictor was anxiety related to COVID-19. This anxiety was in response to the question 'How anxious are you about the coronavirus COVID-19 pandemic?'; participants were provided with a 'slider' (electronic visual analogue scale) to indicate their degree of anxiety with '0' and '100' at the left- and right-hand extremes, respectively, and 10-point increments. This produced continuous scores ranging from 0 to 100 with higher scores reflecting higher levels of COVID-19-related anxiety. This factor was negatively correlated with agreement to the sensitive item - indicating that experience of COVID-related anxiety was strongly associated with a tendency to follow the lockdown rules.

Previous research has found that emotions are an important influencing factor in the behavioural responses to pandemics; in particular, worry has been found to motivate action to control danger [27]. Liao et al. [28] conducted a multi-wave longitudinal survey study in Hong Kong during the influenza A(H7N9) pandemic and reported that worry about infection from the virus was positively associated with the enactment of protective behaviours (e.g., avoiding crowds, rescheduling travel plans). The authors reported that, as worry about the virus changed over time,

so did protective behaviours, implying a causal link between worry and engaging in protective behaviours. Other evidence from the Swine Flu pandemic also illustrates how emotional status mediates behavioural responses; Jones and Salathe [29] reported that self-reported anxiety over the epidemic mediated the likelihood that US citizens engaged in protective behaviours such as social distancing. Exploring emotional factors that might mediate protective behavioural responses during the current pandemic, may help enormously with the design of BCIs to promote the enactment of essential protective behaviours such as social distancing.

4. Behaviour change interventions to promote protective behaviours

The findings of the C19PRC Study in relation to the COM-B have clear implications for the design of BCIs to promote protective behaviours at a population level. For hygienic practices, interventions should focus on increasing and maintaining motivation to act and should contain behaviour change techniques (BCTs) that focus on self-regulatory processes involving planning and goal setting. We have suggested utilising implementation intentions, a specific planning technique found to help successfully bridge the 'intention-behaviour' gap [30, 31]. Further, to make it feasible that individuals are able to enact such techniques independently (e.g., during the lockdown), we suggest utilising the compendium of self-enactment BCTs [32] in intervention design (self-regulatory techniques #5 - #18 are especially relevant for hygienic practices). Our data show that groups in particular need of targeting for interventions to increase hygienic practices are males and those living in cities and suburbs.

For social distancing, interventions should focus on increasing psychological capability and include BCTs that bolster knowledge around social distancing and why it is important, to enable citizens to develop psychological skills in enacting and maintaining these behaviours. For increasing psychological capability, it is important that it is clear why social distancing is important and how social contact transmits the virus; as well as specifying the situations in which social distancing should be enacted and exactly how to do that. BCIs would help people to overcome physical or psychological barriers to action (or inaction) and should be specifically tailored to those sociodemographic groups who display particular difficulties in enacting social distancing, namely, younger people and those living in cities. For those with lower incomes and lower levels of education, who may struggle with social distancing for more practical reasons, wider functions of intervention from the BCW would need to be employed, whereby economic and social policy would assist in overcoming practical or structural barriers to enable these groups to follow guidelines (e.g., if working from home is not possible, ensuring COVID-safe workspaces where social distancing is achievable and implementing paid time off for isolation). It is important that individuals who feel anxious about COVID-19 are supported in managing their anxiety levels.

5. Conclusion

This chapter has explored psychological and demographic influences on citizens' ability to enact protective behaviours during the COVID-19 pandemic. We have discussed how enacting social distancing and hygienic practices are influenced by different components of the COM-B model and made recommendations for intervention. Behavioural scientists face the challenge of urgently developing interventions that help citizens to maintain adherence to protective behaviours to control the spread of the COVID-19 virus.

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