Non-pharmacological interventions for Covid-19: How to improve adherence

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Non-pharmacological interventions for Covid-19: How to improve adherence

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Non pharmacological interventions (NPIs) have been widely recommended in the battle against Covid-19. Numerous NPIs, including personal protection, social distancing, and environment and travel measures, have been implemented globally to reduce Covid-19 incidence and mortality. Adherence to these measures is crucial in determining their effectiveness. This article discusses some important barriers and facilitators to adherence, based on existing knowledge and mainly recent literature in the area. We propose three ways in which adherence may be improved, including: (i) targeting individual-level barriers; (ii) addressing structural and societal factors; and (iii) facilitating healthy social norms/social emotions. Collectively, these highlight the important role of individual behavior (and adherence) in containing, and mitigating the impact of, Covid-19 now and into the future.

THE CORONAVIRUS pandemic is rapidly spreading across the world, posing a new and unprecedented challenge to public health and the global economy. In May 2020, the European Centre for Disease Prevention and Control (ECDC) reported that 210 countries had already been affected, with over 3 million confirmed cases (ECDC 2020; WHO 2020).

Due to the limited availability of antiviral drugs and as yet no vaccine, the World Health Organization (WHO) (2019) has recommended a wide range of non-pharmacological interventions (NPIs) or public health measures relating to:

(i) (i) personal protection (e.g. hand hygiene, respiratory etiquette, face masks);

(ii) (ii) social distancing (e.g. contact tracing, isolation of sick individuals, school/workplace closure, quarantine of exposed individuals); and

(iii) (iii) environment and travel measures (e.g. entry/exit screening, travel restrictions and border closures) (WHO, 2019).

The need to implement such measures has, in effect, created a global 'social experiment' in which health psychologists have a unique opportunity to assess the nature and extent to which populations are complying with the health-related behaviours required for NPIs to be effective and to identify potentially influential factors.

During the 1918 influenza pandemic, it was reported that cities in which multiple NPIs were implemented early, showed lower cumulative excess mortality, had less-steep epidemic curves and peak death rates which were 50 per cent lower than those that did not implement such measures (Hatchett et al., 2007). The researchers concluded that the early implementation of multiple NPIs in a population in which immunity had not yet developed, would slow progression of the epidemic.

Quarantine – undoubtedly the most restrictive of measures – may be defined as the 'separation or restriction of the movement of persons who may be infected' (WHO, 2019). This is one of the oldest methods to control infectious disease outbreaks, dating

back to the 14th century when Europe endeavoured to prevent the spread of plague epidemics (Sundwall, 2019). Quarantine has been found to be very effective in limiting the spread of infection (Rothstein & Talbott, 2007) and especially when implemented early (Nussbaumer-Streit et al., 2020).

Quarantine responses to the current pandemic have varied considerably. For example, Italy and Greece, despite having a similar demographic, emerged from 'lockdown' with dramatically contrasting numbers of infections and deaths. In Greece, mobilisation was immediate, with lockdown and social distancing measures imposed earlier than the rest of Europe, and with heavy penalties for lack of adherence, all of which resulted in rapid disease suppression (Magra, 2020). This speaks to the importance of both the timely implementation of NPIs and of high levels of adherence, especially with quarantine measures. A recent Cochrane review indicated that quarantine, in the context of Covid-19, is important in reducing incidence and mortality (Nussbaumer-Streit et al., 2020). Thus, it is crucial that NPIs are accepted by communities and that the public co-operate insofar as possible to contain the spread of the disease (Aelio et al., 2010). However, this is a much less straightforward goal than it might first appear.

Adherence: Facilitators and barriers
According to a recent review by Webster et al. (2020), the most commonly identified factors affecting adherence to quarantine and other protective health behaviours are: levels of knowledge (in the general population) about the disease outbreak and quarantine protocol; social norms; perceived benefits of quarantine; risk of disease; and the practicalities of being quarantined. Research conducted with people quarantined during the SARS outbreak (2003), indicated very high levels of adherence amongst participants, all of whom complied with quarantine protocols (Cava

et al., 2005). This appeared to be due to ethical, legal and/or social factors, with the first of these reportedly the most common; participants often stated that they adhered with quarantine to be 'good citizens'. Those who perceived themselves to be at greater risk, demonstrated greater vigilance in maintaining the quarantine protocols than those with lower levels of perceived risk (Cava et al., 2005).

Similarly, DiGiovanni et al. (2004) reported that, during the 2003 SARS outbreak, the general population was generally found to comply with the quarantine and were motivated primarily by a desire to protect 'the health of the community'. Adherence rates were unaffected by penalties. Other macro-level factors considered key to non-adherence include loss of income and employment (Rothstein & Talbott, 2007). Additional barriers include inconsistencies in the application of quarantine measures between various jurisdictions and patchy monitoring of adherence, as well as challenges due to a lack of communication between governments and the public regarding the rationale for quarantine (DiGiovanni et al., 2004).

Three ways to improve adherence
This paper aims to identify barriers to, and facilitators of, adherence with NPIs based on: (i) a general review of the literature (mainly during the last decade) on the role of human behaviour in determining virus spread and suppression; and (ii) an overview of recent policy guidance on how we should respond to the pandemic. We have identified a number of simple yet effective evidence-based approaches/strategies to enhance adherence, and therefore help mitigate the spread and impact of the disease. These approaches/ strategies should preferably target multiple levels including: (i) individual level barriers; (ii) structural and societal factors; and (iii) social norms/ social emotions. Each of these is discussed below.

1. Individual level barriers: Improve knowledge and understanding of risk through timely and high-quality information

According to the ECDC (2020), it is important to develop a comprehensive risk communication strategy which involves conveying to the public, the rationale and justification behind public health measures. The WHO (2015) defines risk communication as 'the exchange of real-time information, advice and opinions between experts and people facing threats to their health, economic or social well-being to enable people at risk to take informed decisions to protect themselves and their loved ones'. The effective transmission of knowledge is, of course, central to risk communication and adherence can be improved through enhanced knowledge, thereby promoting a greater understanding of the rationale for quarantine measures (Reynolds et al., 2008). For example, adherence levels were higher during the 2003 SARS outbreak in Canada when people correctly identified the rationale for quarantine (Reynolds et al., 2008). This is in line with Webster et al. (2020), who argue that people who perceive quarantine to be beneficial, and disease outbreak to be risky (in terms of disease transmission/severity), are more likely to adhere to quarantine. Conversely, those who believe that the pandemic is not serious, are less likely to be compliant.

On a related point, a recent Lancet review on the psychological impact of the Covid-19 quarantine, indicates that the public should be provided with sufficient information to properly understand the situation and the reasons for quarantine (Brooks et al., 2020). Poor public health information and insufficiently clear guidelines about appropriate actions, can cause fear and confusion about the purpose of quarantine, all of which may negatively impact adherence rates (Brooks et al.,2020). However, information and messages from multiple channels, albeit necessary, can be overwhelming and difficult to process (BPS, 2020). Paradoxically, this may also be the case amongst those who might be considered more likely to comply with NPIs. For instance, Carthey et al. (2011) found that NHS healthcare staff may have difficulty in keeping up-to–date, and complying with, a large number of work-related policies/guidelines. This was compounded by difficulties in distinguishing essential from irrelevant information, thereby further reducing adherence.

Reynolds et al. (2008) also suggested, as in the current pandemic, that due to our rapidly changing knowledge of the virus, simple instructions about quarantine requirements should be developed and supported by, for example: telephone contacts from health staff to the public; publicly available and reliably-sourced web-based information; targeted messages; and more coercive measures such as adherence hotlines and/or the immediate issuance of legal orders. Consistent and targeted communication from both traditional (e.g. public health departments, media) and non-traditional sources (e.g. childcare centres, businesses) and clear delineation of responsibilities/lines of authority, have also been found effective in improving NPI acceptability (Aiello, 2010). The WHO (2020) suggests that authorities must provide the public with clear, up-to-date and consistent guidelines, and with reliable information about quarantine measures. For example, Webster et al. (2020) suggest that public health teams should regularly check in with those under quarantine and provide clear information.

The ECDC (2020) argue that an effective risk communication strategy encourages action at a personal level as a means of self-protection, whilst also allowing public health officials to monitor and appraise perceptions of, and responses to, the outbreak. This is consistent with recent guidance on optimising policies, which suggests that while it is important to generate a sense of urgency to encourage the uptake of protective behaviours, it is equally important to recognise that heightened anxiety

may cause fear and a 'fight or flight' response which can lead, in turn, to denial and avoidance behaviours (BPS, 2020).

2. Structural and societal factors: Help tackle inequalities through the provision of psychosocial and practical support for socially vulnerable populations

It is crucial to ensure continued structural and societal support – both practical (e.g. food and healthcare access) and psychosocial – to people affected by Covid-19 in order to facilitate adherence and effective implementation of NPIs (ECDC, 2020). However, this also applies to socially vulnerable populations (e.g. in poverty, mental health service users) who disproportionately experience pandemic burden, including differential virus exposure and disease susceptibility, unequal access to treatment and excess morbidity and mortality rates (Quinn & Kumar, 2014).

In April 2020, it was reported that one third of critically ill Covid-19 patients in the UK had black, Asian, and minority ethnic (BAME) backgrounds (ICNARC, 4 April 2020). Research indicates that BAME communities in England are more susceptible to Covid-19 due to systemic racism, lower socio-economic status, and poorer experiences of healthcare, all of which create barriers to quality healthcare provision (Public Health England, 2020) and which can also negatively impact adherence.

Thus, socially vulnerable groups need additional supports and arrangements, including help to comply appropriately with NPIs (ECDC, 2020; WHO, 2020). Sundwall (2019) argues further that public health policies must be inclusive and target disenfranchised subgroups, such as homeless people, migrants/refugees and mental health service users. For example, most refugees and migrants live in inadequate/overcrowded accommodation which undermines their ability to follow public health advice, including quarantine and self-isolation (Kluge et al., 2020). A failure to prepare

for, and respond to, these needs can lead to continued population-specific transmission chains, hampering global transmission control efforts, with potentially disastrous consequences (Quinn & Kumar, 2014). Therefore, it is crucial that governments adopt a more inclusive approach to meet the needs of such socially vulnerable populations (Kluge et al., 2020).

3. Facilitate positive social norms and 'social emotions' – increase a sense of collective responsibility by fostering empathy, altruism and solidarity

During the SARS outbreak, social and ethical pressures to comply with quarantine, were notable factors in influencing adherence (Cava et al., 2008). The importance of reinforcing social norms and moral values around quarantine was also highlighted in Webster et al.'s (2020) recent review, a key recommendation of which, was the need to emphasise the importance of altruistic behaviours, such as the protection of public health (DiGiovani et al., 2004) and the need for citizens to call upon their 'civic duty' to save lives (Cava et al., 2005).

A sense of duty is found to derive mainly from interpersonal empathy (Harper et al., 2020), and altruism, more broadly, may be facilitated and maintained by empathy (Brooks et al., 2020). Pfattheicher et al. (2020) showed that empathy for those most vulnerable to the coronavirus is a basic motivating factor with regard to physical distancing and may be harnessed to promote greater adherence in the general population. The researchers concluded that information alone cannot result in behaviour change and that informational material imbued with emotional content should be used to foster a shared sense of altruism, empathy and solidarity. Such human values are not to be underestimated at a time when our humanity is being tested like rarely before.

Moreover, a recent review (Brooks et al., 2020) suggests that regular reminders by public health officials, on the bene-

fits of quarantine to wider society and self-isolation as an altruistic choice, can be beneficial. For instance, public health messaging focused on duties and responsibilities toward family, friends and fellow citizens, may facilitate the development of positive 'social emotions' and provide a promising approach to help slow the spread of Covid-19 (Everett et al.,2020).

Conclusion

Ultimately, human behaviour has been an important determinant, not only in the spread of the current pandemic (Michie, West & Amlot, 2020), but also in its effective suppression and/or mitigation. If the general public can be encouraged and supported to comply with NPIs - and to maintain their

adherence to them in the longer term – we will be better able to reduce our risk of infection and suppress any possible waves of infection into the future.

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