

Harnessing behavioural science in public health campaigns to maintain 'social distancing' in response to the COVID-19 pandemic: key principles

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Introduction

COVID-19, like MERS and SARS, is an infection arising from a coronavirus. The COVID-19 pandemic is unprecedented in recent times in terms of the global spread of infection and the resultant morbidity, mortality and burden on health systems.^{1,2} In the absence of a vaccine, reducing transmission of the COVID-19 virus requires rapid and extensive behaviour change to enact protective behaviours³ and ‘social distancing’ across whole populations. Although ‘social distancing’ is the current most used term, it actually refers to maintaining *physical separation* by reducing the number of times people come into close contact with each other across whole populations.⁴ Social distancing applies regardless of infection status and is thus distinctive from quarantine or the isolation of those with suspected or diagnosed infection, which is also an important element of infection control.^{5,6}

Governments across the world are implementing a diverse range of interventions to promote adherence to social distancing measures, which include elements of education, persuasion, incentivisation, coercion, environmental restructuring, restriction and enablement.^{7,8} Interventions have been developed rapidly and could not be informed directly by evidence, given the novelty of the virus and rapid spread of the pandemic.⁹ Despite this lack of direct evidence, a body of behavioural science exists which can usefully inform the current interventions and promote adherence to these restrictive measures. This body of science has been developed through the study of other infections (including other coronaviruses such as MERS and SARS), other areas of health and other areas of behaviour. This body of science suggests a number of principles which, could ensure that interventions are more likely to achieve their intended outcomes and less likely to generate unintended harmful consequences.

As a group of behavioural and social scientists who have shared their advice with government through the UK's Government Office for Science, we have collaborated to develop a series of principles to inform interventions to promote whole population adherence to social distancing measures. These were informed by members' expertise and knowledge of existing theory and evidence, rather than by any formal review of the literature.

Key principles

1. *Clear and specific guidance*: Information will be necessary, but insufficient, for whole population behaviour change, which also requires motivation and the opportunity to implement change.¹⁰ Nonetheless, information is important and must provide clear and specific guidance for exactly what behaviour individuals should adopt to implement social distancing.¹¹
2. *'Protect each other'* messages are promising, particularly when building on messages promoting collective identity and supportive social norms (see point 3). Messages promoting care for others are rooted in the psychology of social identity,¹² social influence¹³ and moral behaviour,¹⁴ with evidence of benefits in the COVID-19 and other health contexts.^{15 16}
'Protect each other' messages should stress how desired behaviours benefit the group and protect its most vulnerable members, including those we love. This will be enhanced by concrete examples, powerful images and the actual voices of those we need to protect (loved ones, the vulnerable, health care systems and workers) linked to clear, specific advice on how to implement social distancing. Images and accounts of widespread population adherence (rather than examples of non-adherence) can persuade 'conditional co-operators' (those whose willingness to help others is conditional on being aware of others

doing so) to over-ride individual self-interest and to act in the collective interest.^{17 18} In communicating such messages, it is important to recognise variation across population groups, for example by age, socio-economic status and ethnic group, in terms of what is given up when adhering to social distancing,¹⁹ which might inform segmented communication and enablement strategies (see principle 8 below). In contrast, *'Protect yourself'* messages will have limited overall impact among the general public because many consider themselves at low risk of severe consequences from COVID-19 infection and are unlikely to be persuaded otherwise.^{20 21} This may be different for those with specific vulnerabilities who are asked to 'shield' themselves for extended periods of time.

3. *'Stand together'* messages emphasise how our sense of self is rooted in our proud membership of groups such as families, neighbourhoods, communities and nation, linked to sense of duty, solidarity and inclusion. Messages should come from voices representative of and trusted by the group rather than those perceived as partisan or self-interested.²² Messages may be tailored to appeal to specific sub-groups based on gender, age or regional, ethnic or cultural affiliations,²³ drawing on family and faith/interfaith voices particularly for some class and ethnic groups.²⁴ In doing so, it is critical to draw on voices that are appropriate to the group in question. For instance, young people are particularly influenced by the voices of peers and others of their age group including celebrities/influencers, which need to be harnessed to improve adherence.^{25 26} It is also critical to avoid stereotypic or divisive messages. Rather, by using inspiring concrete examples (such as community and health care volunteers) it should be stressed that diverse groups, for example, differing in ethnic or socio-economic background, are working together, helping each other and are all integral parts of a common community. Messaging will be undermined where policies are perceived as unequitable or socially divisive.

4. *'This is who we are'* messages should draw upon the social norms (informal rules that govern behaviour) of groups.²⁷ Messages should be presented as reflecting and affirming group culture (injunctive norms: 'this is who we really are'), and group behaviour (descriptive norms of evolving behaviours: 'this is what we are doing').²⁸ Messages which imply people are doing undesirable things ('don't panic buy'; 'don't cheat on adherence') may have unintended harmful consequences by undermining descriptive norms.
5. *Avoid messages based on fear or disgust in relation to other people:* Disgust-based messages may play a role in campaigns encouraging people to wash their own hands but must not be used in messages about others' hygiene or infection status. These would be counterproductive in the control of COVID-19 because they would undermine collective identity and efficacy, and may lead to the stigmatisation of affected individuals or groups.²⁹
6. *Avoid authoritarian messages:* Messages based on coercion and authority can in some circumstances achieve large changes in the short term but can be hard to sustain in the longer term. Evidence shows that individuals and populations differ markedly in their receptiveness to what may be seen as authoritarian moral messages and that sustained lockdowns can be associated with civil disorder, particularly where populations perceive inequities in how these are managed.^{14 26 30}
7. *'Make a plan and review it regularly'* messages can build on points 1-4, rooted in the psychology of reflective decisions to break emotion- or habit-driven behaviour. Plans may help maintain behaviour change by helping people to anticipate possible barriers and enablers to adherence and address these in advance.^{31 32} Messages should give clear, specific and calm advice, helping households to plan together how to commit to social distancing while still accessing income, food, social networks and communication, and

exercise. Circumstances will evolve, so householders should be encouraged to review plans regularly. Planning materials should be provided in paper copy or via online or smartphone app support.

8. *'Make it possible'* messages: Reward, incentives and enablement tend to be more effective influences on this kind of behaviour than punishment, disincentives or castigation.^{33 34} Since behaviour is influenced by social context,³⁵ messaging will be more persuasive and effective if there is a clearly communicated offer of timely and generous support in terms of income, employment rights and food, online access to social networks, communication, entertainment, education, and parenting and mental health support, and opening up more green space to public access. Such support needs to be long-term to support maintenance of behaviours and embrace progressive universalism – open to all but aiming to maximise benefits for the most disadvantaged.³⁶ Reducing physical barriers to social distancing will increase adherence and reduce the distrust, distress and mental ill health arising from them.²⁶
9. *Style of messaging*: Messages should be communicated via professionally designed and appealing mass and social media campaigns. Campaigns should also engage with media outlets to provide trusted spokespeople and to promote responsible coverage (for example by giving visibility to collective adherence and not to non-adherence or social divisions).
10. *Theory of change*: Each campaign should be considered an intervention with campaign briefs including the following: a defined behavioural aim (e.g. under 'consumer objectives'), message (e.g. under 'focal insight'), message source/voice and medium/method (e.g. under 'deliverables'), target group (e.g. under 'target audience') and expected reach and indicators (e.g. under 'objectives/outcomes'). Each brief should include in its 'design principles' a

theory of change of how campaign activities aim to generate behavioural impacts. Campaigns should include under 'support/evidence' what evidence and principles of behaviour change are being used. Individual interventions should form part of a coherent overall programme with consistency of information. Campaigns should also consider the potential for unintended consequences using existing frameworks to minimise these possibilities.³⁷

11. *Co-design*: Interventions should be co-designed and piloted with relevant audience groups using a range of methods including online engagement and ethnography, and virtual focus groups.^{9 17 38} They should be evaluated using pre-agreed indicators of delivery, reach and impact, and the evaluation should feed back into future communications. Polling and quantitative and qualitative research data should be used to assess the impact of the overall communications programme on trends in, for example, a) sense of collective identity, b) sense of duty of care to others, c) motivation for social distancing, d) behaviour planning and e) behaviour change.

Conclusion

We have drawn on our knowledge of behavioural and social science to outline key principles which can be used to inform the development of behavioural and social interventions for the response to the COVID-19 pandemic, to maximise their potential and minimise the risk of unintended harms.

These principles do not remove the need for empirical formative research with relevant communities to inform interventions or for interventions to be pre-tested prior to implementation and evaluated once implemented. However, we hope that they provide a helpful means of ensuring that such efforts focus on the best candidate interventions.

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Contributions and guarantor

CB drafted the paper based on an oral and email discussion involving CB, SM, SR, RW, LB, LY, VC, RA and JR. SM, SR, RW, LB, LY, VC, RA, JR edited the paper. CB finalised the draft and is the guarantor for the paper.

References

1. Verity R, Okell LC, Dorigatti I, et al. Estimates of the severity of coronavirus disease 2019: a model-based analysis. *Lancet Infectious Disease* March 30 [https://doi.org/10.1016/S1473-3099\(20\)30243-7](https://doi.org/10.1016/S1473-3099(20)30243-7) 2020
2. Legido-Quigley H, Asgari N, Ying Teo Y, et al. Are high-performing health systems resilient against the COVID-19 epidemic? *The Lancet* 2020;395(10227):P848-50.
3. Michie S, West R, Amlôt R, et al. Slowing down the covid-19 outbreak: changing behaviour by understanding it. *BMJ Opinion*, March 11th <https://blogsbmj.com/bmi/2020/03/11/slowing-down-the-covid-19-outbreak-changing-behaviour-by-understanding-it/> 2020

4. Prem K, Liu Y, Russell TW, et al. The effect of control strategies to reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China: a modelling study. *Lancet Public Health* March 25 [https://doi.org/10.1016/S2468-2667\(20\)30073-6](https://doi.org/10.1016/S2468-2667(20)30073-6) 2020
5. Brooks SK, Webster RK, Smith LE, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet* 2020;395(10227):912-20.
6. Webster RK, Brooks SK, Smith LE, et al. How to improve adherence with quarantine: Rapid review of the evidence. *Public Health*, <https://doi.org/10.1016/j.puhe.2020.03.007>
7. WHO Regional Office for Europe, European Commission, European Observatory on Health Systems and Policies. COVID-19 Health Systems Response Monitor <https://www.covid19healthsystem.org/mainpage.aspx> Geneva: World Health Organisation; 2020 [
8. Viner RM, Russell SJ, Croker H, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *Lancet Child & Adolescent Health* 2020; online first [https://doi.org/10.1016/S2352-4642\(20\)30095-X](https://doi.org/10.1016/S2352-4642(20)30095-X) 2020
9. Lunn P, Belton C, Lavin C, et al. Using behavioural science to help fight the Corona virus <https://www.esri.ie/publications/using-behavioural-science-to-help-fight-the-coronavirus>: Economic and Social Research Institute 2020.
10. Michie S, Van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science* 2011;6(1):42.
11. Michie S, West R, Amlôt R. Behavioural strategies for reducing covid-19 transmission in the general population. *BMJ Opinion* March 3 2020
12. Moran MB, Sussman S. Translating the link between social identity and health behavior into effective health communication strategies: An experimental application using antismoking advertisements. *Health communication* 2014;29:1057-66.
13. Haslam SA, Reicher SD, Platow M. *The New Psychology of Leadership*. London: Routledge 2020.
14. Haidt J. *The righteous mind: Why good people are divided by politics and religion*. New York: Pantheon 2012.
15. Everett J, Colombatto C, Chituc C, et al. The Effectiveness of Moral Messages on Public Health Behavioral Intentions During the COVID-19 Pandemic. *PsyArXiv* 2020
16. Shen L. Targeting smokers with empathy appeal antismoking public service announcements: a field experiment. *Journal of Health Communication* <https://doi.org/10.1080/1081073020151012236> 2015;20:573-80.
17. Drury J, Carter H, Cocking C, et al. Facilitating collective resilience in the public in emergencies: twelve recommendations based on the social identity approach. *Frontiers in Public Health* 2019;7(14):141.
18. Chaudhuri A. Sustaining cooperation in laboratory public goods experiments: a selective survey of the literature. *Experimental Economics* <https://doi.org/10.1007/s10683-010-9257-1> 2011;14:47-83.
19. Stojkoski V, Utkovski Z, Jolakoski P, et al. The socio-economic determinants of the coronavirus disease (COVID-19) pandemic 2020.
20. IPSOS. Public Opinion on the Covid-19 pandemic <https://www.ipsos.com/en/public-opinion-covid-19-outbreak>: IPSOS; 2020 [accessed 3 April 2020].
21. Van der Pligt J. Risk perception and self-protective behavior. *European Psychologist* 1996;1:34-43.
22. Hogg MA. Influence and leadership. In: Fiske ST, Gilbert DT, Lindzey G, eds. *Handbook of social psychology*: John Wiley & Sons Inc 2010:1166–207.
23. Kreuter MW, McClure SM. The Role of Culture in Health Communication *Annual Review of Public Health Health Report* <https://doi.org/10.1146/annurevpublhealth25101802123000> 2004;25(1):439-55.

24. Dench G, Gavron K, Young M. *The new East End: Kinship, race and conflict*. London: Profile Books 2006.
25. Blakemore SJ. Avoiding social risk in adolescence. *Current Directions in Psychological Science* 2018;27(2):116–22.
26. Atchison CJ, Bowman L, Vrinten C, et al. Perceptions and behavioural responses of the general public during the COVID-19 pandemic: A cross-sectional survey of UK Adults. www.medrxiv.org/content/101101/2020040120050039v1 doi: <https://doi.org/101101/2020040120050039> 2020
27. Cialdini RB, Demaine LJ, Sagarin BJ, et al. Managing social norms for persuasive impact. *Social influence* 2006;1(1):3-15.
28. Schultz PW, Nolan JM, Cialdini RB, et al. The constructive, destructive, and reconstructive power of social norms. *Psychological science* 2007;18:429-34.
29. Curtis V. *Don't look, don't touch, the science behind revulsion*. Oxford: Oxford University Press 2013.
30. Lockwood S. Coronavirus: Italy becoming impatient with lockdown - and social unrest is brewing. *Sky News 29 March* <https://newssky.com/story/coronavirus-italy-becoming-impatient-with-lockdown-and-social-unrest-is-brewing-11965122> 2020.
31. West R. The PRIME Theory of motivation as a possible foundation for addiction treatment. In: Henningfield J, Santora P, eds. *Drug Addiction Treatment in the 21st Century: Science and Policy Issues*. Baltimore: John's Hopkins University Press 2007.
32. Osman M. An evaluation of dual-process theories of reasoning. *Psychonomic Bulletin & Review* 2004;11(6):988-1010.
33. Balliet D, Mulder LB, Van Lange PAM. Reward, punishment, and cooperation: A meta-analysis. *Psychological Bulletin* 2011;137(4):594–615.
34. George JM. Asymmetrical effects of rewards and punishments: The case of social loafing. *Journal of organisational and occupational psychology* 1995;68(4):327-38.
35. Glanz K, Bishop D. The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health* 2010;31:399-418.
36. Marmot MG. *Fair Society, Healthy Lives. The Marmot Review. Strategic Review of Health Inequalities in England post-2010*. London: The Marmot Review 2010.
37. Bonell C, Jamal F, Melendez-Torres GJ, et al. "Dark logic" – theorising the harmful consequences of public health interventions. *Journal of Epidemiology and Community Health* 2015;69(1):95-8.
38. Parker M, Hanson TM, Vandi A, et al. Ebola and public authority: Saving loved ones in Sierra Leone. *Medical anthropology* 2019;38(5):440-54.