



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Psychological factors underlying adherence to COVID-19 regulations: A commentary on how to promote compliance through mass media and limit the risk of a second wave



Alessio Bellato

Institute of Mental Health, Division of Psychiatry and Applied Psychology, University of Nottingham, Triumph Road, Nottingham, NG7 2TU, UK

ARTICLE INFO

Keywords:

COVID-19
Social distancing
Compliance
Mass media
Empathy
Social influence

ABSTRACT

Considering the possibility of a second wave of the COVID-19 pandemic, this brief commentary is intended to share some suggestions on how to phrase public health advice about maintaining social distancing, using face masks in public spaces and adhering to personal hygiene measures. The discussion will be focused on three factors: empathy, positive mood and social influence. The commentary concludes with a series of brief suggestions aimed at policy makers and stakeholders involved in promoting adherence to regulations to avoid a second wave of the pandemic through mass media communications.

1. The COVID-19 pandemic: how did people respond to the first wave of infections?

Since December 2019, infections from the SARS-CoV-2 virus and consequent Coronavirus Disease 2019 (COVID-19) have spread to pandemic proportions causing concerns globally. Almost 28 million cases and over 900,000 deaths have been reported worldwide at time of publication (see <https://covid19.who.int/> for updated figures). Since the beginning of the COVID-19 pandemic, the World Health Organization (WHO) has advised that everyone should adopt individual strategies of infection prevention such as frequent and careful hand washing and social distancing. Guidelines have also been published by governments (China *in primis*, followed by Western countries such as Italy and Spain) to inform communities about national regulations established to control the COVID-19 pandemic, such as asking people to staying at home except in very limited circumstances and closing most shops and public spaces including playgrounds and parks.

The strict lockdown regulations introduced on March 25, 2020 by the UK government were partially lifted at the end of June 2020, some weeks after other European countries such as Italy and Spain started to ease restrictions. Despite these changes, as of September 2020 the general public in many countries is still advised to continue following certain rules, such as staying at home as much as possible and limiting social contacts to close relatives and some members from other households; working from home where possible; keeping a distance of one or 2 m from others in public spaces, especially indoors; wearing face masks in

indoor spaces and washing hands regularly. The reasons for why people should adhere to these regulations have been clarified by the authorities and through the media. For example, these measures proved effective during the first wave of the pandemic in preventing the spread of the virus across vulnerable populations, including elderly people, people with underlying health conditions or disabilities, and in reducing pressure on public health services (European Centre for Disease Prevention and Control, 2020).

Although adherence to these regulations has generally been reported to be high, albeit with some differences between countries (Martarelli & Wolff, 2020), clear violations of lockdown measures by individuals or groups have been reported both during the initial phase of the pandemic and more recently after the easing of lockdown regulations. These have led to fines for single individuals and forced closures for businesses, besides augmenting the risk of increasing the spread of COVID-19 infections. For example, big gatherings where social distancing measures were not properly followed were reported in the city of London on Saturday July 4, 2020, the first day that pubs and restaurants were able to reopen since the end of March (<https://metro.co.uk/2020/07/05/brits-party-well-morning-chaotic-first-night-pubs-reopening-12947042>).

Understanding the reasons behind these breaches and identifying the factors which might help promote adherence to regulations and norms, seem crucial to avoid a second wave of infections in countries where the number of infections has decreased compared to a few months ago. This is particularly relevant at the present time, when the introduction of lockdown laws and regulations is less likely to happen at the national

E-mail address: alessio.bellato@hotmail.it.

<https://doi.org/10.1016/j.ssaho.2020.100062>

Received 7 April 2020; Received in revised form 4 August 2020; Accepted 2 September 2020

Available online 6 September 2020

2590-2911/© 2020 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

level, but is instead more likely to affect specific areas or individual cities where the number of COVID-19 cases is higher than the national average.

This is what happened in the city of Leicester (UK), where an atypical increase in the rate of infections was identified at the beginning of July 2020. While lockdown regulations were eased in England on July 4, 2020, allowing restaurants, pubs and hairdressers (amongst many other businesses) to re-open; people living in Leicester city centre and in certain surrounding areas were asked to continue adhering to lockdown regulations (<https://www.bbc.co.uk/news/uk-england-leicestershire-53290314>). They were also asked to avoid travelling outside a specific geographical zone, the borders of which have been defined by the government and local council. As suggested by some authors (see, for example, Martarelli & Wolff, 2020), adhering to these measures is likely to have been perceived as costly by the citizens affected by this local lockdown, especially given the rest of the country could benefit from re-opening of pubs and restaurants, moving towards the re-establishment of a 'normal' routine. The introduction of localised lockdowns might in fact be perceived as a further reduction of freedom and an unfair limitation of social interactions. This might also have potentially negative effects on the mental health and wellbeing of people affected, who might consequently show less predisposition to follow the regulations put in place to prevent further spreading of infections.

Public health mass media campaigns, especially at local level, could then have the potential to augment compliance to regulations and norms, especially in those areas where the risk of a second wave of the COVID-19 pandemic is higher. Although the effectiveness of these campaigns is mixed (Stead et al., 2019), it has been suggested that, in order to be effective, public health messages should be designed by considering who the messages are directed to, they should highlight the potential threats to health and the actions to be performed to reduce such threat, and they should also clearly specify the benefits which could be achieved through these actions (Morrison et al., 2005). Considering this, and the fact that the implementation of a specific behaviour or a behavioural change also depend on individual attitude and internal motivation (as suggested by the Theory of Planned Behaviour, see Ajzen, 1991); public health messages aimed at promoting adherence to COVID-19 measures, norms and regulations might be more effective if designed by focusing on three factors: empathy, positive mood and social influence.

2. Individual and social factors

2.1. Empathy and positive mood

Becoming aware of someone else's state, and reacting appropriately, is the ability we usually refer to as 'empathy'. Being able to experience empathy for other people and adapting our behaviour as a result, might be associated with increased adherence to lockdown regulations. For example, seeing another living being suffering or in pain has been shown to activate specific neural circuits in the brain that are involved in pain perception and which cause an emotional response both at physiological and psychological levels (Bierhoff and Gilbert, 2005; Melloni et al., 2013). This emotional and physiological response is usually followed by an increase in the motivation to act in order to reduce the pain experienced by the other being by changing the situation (Bierhoff and Gilbert, 2005). The tendency to act with a pro-social attitude is likely to emerge from the interplay between genetic predisposition and environmental influence (Bierhoff and Gilbert, 2005). In fact, although empathy-driven pro-social behaviours are already present in the first year of life (see Decety et al., 2016; for a review), suggesting how human beings might be predisposed to experience empathy and act to reduce other people's suffering, the emergence of more complex pro-social behaviours, such as altruism, is likely to be mediated by environmental factors, including interpersonal relationships (Knafo et al., 2008). It has been shown, for example, that the nature of a relationship with a person who is suffering or experiencing pain is likely to affect behaviour and consequent pro-social actions; for example, people are more likely to experience

increased (or more *authentic*) empathy, including stronger psychological and physiological emotional responses and being more motivated to act to reduce another's pain and suffering, if the individual suffering is from the same social circle or is otherwise close to them (Melloni et al., 2013).

Based on these theories, messages requesting that people adhere to lockdown regulations applied only in a specific area could be more efficacious if the goal of preventing proximate people from getting the virus and therefore experiencing suffering is clearly stated. For example, when delivering these messages to the general public, it would be important to mention how '*adhering to these norms is a way to protect your relatives, your friends and colleagues*', since this might elicit a stronger empathy-driven emotional response and consequent increase in motivation to respect the regulations compared to asking people to 'respect the rules to save lives'.

Alongside empathy, positive mood has been associated with an increased predisposition to carry out pro-social behaviours (this is usually referred to as the 'feel-good/do-good effect'; Rosenhan et al., 1981), suggesting that promoting a positive atmosphere might increase adherence to norms and regulations. However, positive changes in mood are also likely to emerge as a consequence of carrying out pro-social behaviours (Snippe et al., 2017). Therefore, besides planning public health messages with the aim of eliciting empathy-driven emotional responses, it might be important to deliver these by using positive language and highlighting which benefits or rewards might be achieved by respecting COVID-19 regulations and norms. For example, authorities could emphasize the benefits that the general public would have from lockdown restrictions being eased (e.g., reopening of parks, pubs and restaurants) as reward for an evident commitment of the population in adhering to lockdown norms; this might be more beneficial than just blaming those that do not respect the regulations.

2.2. Social influence

While those who follow the lockdown regulations without external pressure are likely to show more empathy and positivity, it would be important to focus on additional factors that might help individuals who only partly adhere to government regulations. For example, being exposed to others' opinions and behaviours, including family members, friends and colleagues, is likely to affect how we evaluate a specific situation and potentially induce changes in behaviour (Bandura, 1969; Stallen & Sanfey, 2015). Within a group, specific informal rules exist and are shared by its members, influencing behaviour both at individual and group levels (Feldman, 1984). Group dynamics such as the influence of those individuals who occupy leadership roles within the group are likely to affect how each group member adapts and complies with requests coming from an external source. While the introduction of novel group norms is usually slow and gradual, critical and sudden events can trigger fast changes in group norms (Hackman et al., 1992); highlighting how individuals can become key actors and leaders in promoting adherence to lockdown regulations within their close group circles of relatives, colleagues and friends.

Bicchieri and colleagues (Bicchieri et al., 2020), for example, have shown how social proximity is likely to affect compliance with group and societal norms, suggesting that people might be more prone to change their behaviours when the request to comply comes from a member of the same social group, compared to an external source. Moreover, collectivist societies (e.g., some Asian and Latin American countries) are more likely to comply more to norms which benefit the entire society, compared to individualistic cultures (e.g., in Western and European countries) (Oh, 2013). Therefore, in individualistic cultures it would be especially important to promote the empowerment of people who already occupy leadership roles in formal and in informal groups, involving them in promoting compliance and adherence to governmental measures across their social circles. Although it would be difficult to increase 'true' conformity (i.e., people acting based on an internal motivation instead of adhering to an external request), promoting social influencing within

small or large groups of friends and colleagues might be an effective way to promote adherence to government regulations during the COVID-19 pandemic, especially in regard to future localised lockdowns.

Considering that the economy in some countries has been dramatically affected by lockdown measures put in place in the initial phases of the pandemic and it is therefore less likely that governments will implement the same drastic measures (for example, long-term closures of businesses) if a second wave of infections will happen; it would be important to make sure that adhering to lockdown measures is perceived as an individual responsibility, rather than the responsibility being diffused. A recent survey conducted in the UK, for example, has demonstrated how most people think that everyone is personally responsible for the control and spreading of the COVID-19 virus (<https://blogs.lse.ac.uk/politicsandpolicy/personal-responsibility-covid-19/>). Allocating personal responsibility in controlling the spread of the virus by following regulations and norms, as it has been done in some north European countries (Nygren & Olofsson, 2020), might be crucial in this and the next phases of the COVID-19 pandemic.

Another key aspect to consider when planning COVID-19-related messages to the public, is the exposure to examples of pro-social behaviours and compliance to norms. It has been demonstrated, for example, that indirect social influence (i.e., seeing that other people respect norms and follow specific rules with a pro-social attitude) facilitates the emergence of pro-social attitudes and behaviours themselves (Keizer & Schultz, 2018), which however are differently achieved at group and societal levels. It is therefore important that positive examples of behaviours are shared across groups and that positive social comparison is emphasised, for example using sentences such as “*Most people in your neighbourhood do their best to adhere to infection control measures*”, providing examples and reaching those who are less prone to comply to the norms. In parallel, journalistic and social media should commit to disseminate news by using a positive language, providing concrete examples of pro-social behaviours to the public. This is especially valid for local media as this effect might be stronger if the pro-social behaviour shown in the media has been carried out by individuals in the same local community of the readers/viewers (Yao & Yu, 2016).

3. Conclusions

‘*We are all in this together*’. This sentence has been used by both governments and private agencies since the outbreak of the COVID-19 pandemic to highlight how everyone (worldwide) has been and will be affected in the short- and long-term by the measures adopted to combat the spread of the disease.

Recent studies (see, for example Jarvis et al., 2020) have demonstrated that lockdown measures introduced by national governments have resulted effective in reducing the basic reproduction number (R_0), i.e., the average number of secondary cases generated by a single case of infection. In the next phases of the COVID-19 pandemic, it will be therefore important to focus on promoting compliance to these basic regulations and norms aimed at controlling the further spread of the virus, such as maintaining social distancing, wearing face masks and adopting careful hygiene measures. Based on the information presented in this commentary, I am presenting a set of suggestions for planning and delivering mass media communications to the public.

- 1 Requests that people adhere to government regulations, especially during localised lockdowns, should specifically target individuals’ internal motivation to act, avoiding a diffusion of responsibility. These messages should be simple, clear and trustworthy; and designed to elicit empathy-driven reactions in the public, for example making people aware that adhering to these rules is crucial to avoid spreading the virus across their close friends, relatives and colleagues. These messages should be accompanied by clarity about the measures which have been put in place to protect people’s economic situation and by potential ‘rewards’ that are likely to follow. Moreover,

requests that people adhere to lockdown regulations should be accompanied by a positive language. For example, media and employers could highlight the opportunities that a new status-quo based on working-from-home and social distancing might bring (e.g., re-evaluation of work/life balance and enriched familial relationships).

- 2 Considering that individuals have the potential to become key actors in promoting compliance to regulations and norms across their relatives, colleagues and friends, it is important that people with leadership roles in formal groups are empowered and encouraged to share messages with their colleagues, prepared following the suggestions above. Similarly, individuals should be encouraged to share these messages across their informal social circles and be involved in motivating other group members to follow public health regulations and norms.

Whatever happens, we (really) are all in this together.

CRedit authorship contribution statement

Alessio Bellato: Conceptualization, Writing - original draft, Writing - review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

I would like to thank Dr Jack Tomlin for providing precious help in refining the manuscript. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2). [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- Bandura, A. (1969). Social learning of moral judgments. *Journal of Personality and Social Psychology*, 11, 275–279.
- Bicchieri, C., Dimant, E., Gächter, S., & Nosenzo, D. (2020). *Observability, social proximity, and the erosion of norm compliance*. SSRN. <https://ssrn.com/abstract=3355028>. (Accessed 4 April 2020).
- Bierhoff, H. W. (2005). The psychology of compassion and prosocial behaviour. In P. Gilbert (Ed.), *Compassion: Conceptualisations, research and use in psychotherapy Routledge* (pp. 148–167).
- Decety, J., Bartal, I., Uzefovsky, F., & Knafo-Noam, A. (2016). Empathy as a driver of prosocial behaviour: Highly conserved neurobehavioural mechanisms across species. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 371. <https://doi.org/10.1098/rstb.2015.0077>.
- European Centre for Disease Prevention and Control. (2020). *Considerations relating to social distancing measures in response to COVID-19 – second update*. Stockholm: ECDC accessed <https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-social-distancing-measuresg-guide-second-update.pdf/>. (Accessed 4 April 2020).
- Feldman, D. C. (1984). The development and enforcement of group norms. *Academy of Management Review*, 9, 47–53. <https://doi.org/10.2307/258231>.
- Hackman, J. R. (1992). Group influences on individuals in organizations. In M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 199–267). Consulting Psychologists Press.
- Jarvis, C. I., Van Zandvoort, K., Gimma, A., Kiesha, P., CMMID Covid-19 working group, Klepac, P., Rubin, G. J., & Edmunds, W. J. (2020). Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK. *BMC Medicine*, 18. <https://doi.org/10.1186/s12916-020-01597-8>, 124.
- Keizer, K., & Schultz, P. (2018). Social norms and pro-environmental behaviour. *Environmental Psychology*, 179–188. <https://doi.org/10.1002/9781119241072.ch18>.
- Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a disposition toward empathy: Genetic and environmental contributions. *Emotion*, 8, 737–752. <https://doi.org/10.1037/a0014179>.
- Martarelli, C. S., & Wolff, W. (2020). Too bored to bother? Boredom as a potential threat to the efficacy of pandemic containment measures. *Humanities and Social Sciences Communications*, 7(7), 28. <https://doi.org/10.1057/s41599-020-0512-6>.
- Melloni, M., Lopez, V., & Ibanez, A. (2013). Empathy and contextual social cognition. *Cognitive, Affective, & Behavioral Neuroscience*, 14, 407–425. <https://doi.org/10.3758/s13415-013-0205-3>.

- Morrison, F. P., Kukafka, R., & Johnson, S. B. (2005). Analyzing the structure and content of public health messages. *AMIA Annu Symp Proc*, 540–544.
- Nygren, K. G., & Olofsson, A. (2020). Managing the covid-19 pandemic through individual responsibility: The consequences of a world risk society and enhanced ethopolitics. *Journal of Risk Research*. <https://doi.org/10.1080/13669877.2020.1756382>.
- Oh, S. H. (2013). Do collectivists conform more than individualists? Cross-cultural differences in compliance and internalization, social behaviour and personality. *International Journal*, 41, 981–994. <https://doi.org/10.2224/sbp.2013.41.6.981>.
- Rosenhan, D. L., Salovey, P., & Hargis, K. (1981). The joys of helping: Focus of attention mediates the impact of positive affect on altruism. *Journal of Personality and Social Psychology*, 40, 899–905. <https://doi.org/10.1037/0022-3514.40.5.899>.
- Snippe, E., Jeronimus, B., aan het Rot, M., Bos, E., de Jonge, P., & Wichers, M. (2017). The reciprocity of prosocial behaviour and positive affect in daily life. *Journal of Personality*, 86, 139–146. <https://doi.org/10.1111/jopy.12299>.
- Stallen, M., & Sanfey, A. (2015). The neuroscience of social conformity: Implications for fundamental and applied research. *Frontiers in Neuroscience*, 9. <https://doi.org/10.3389/fnins.2015.00337>.
- Stead, M., Angus, K., Langley, T., Katikireddi, S. V., Hinds, K., Hilton, S., et al. (2019). *Mass media to communicate public health messages in six health topic areas: A systematic review and other reviews of the evidence*. Public Health Research. <https://doi.org/10.3310/phr07080>.
- Yao, Z., & Yu, R. (2016). The spreading of social energy: How exposure to positive and negative social news affects behaviour. *PloS One*, 11. <https://doi.org/10.1371/journal.pone.0156062>.