

RESEARCH NOTE

Collectivism fosters preventive behaviors to contain the spread of COVID-19: Implications for social marketing in public health

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Abstract

Apart from personal- and societal-level factors, we propose that collectivism also plays a role in the spread of COVID-19. Results from six studies using both secondary datasets and laboratory experiments conducted in two different countries demonstrate that collectivism is: (a) negatively associated with the spread of COVID-19 and (b) positively associated with the self-importance/expectation to engage in widely publicized behaviors to prevent the spread of the disease, as well as with greater likelihood to vaccinate against COVID-19. Finally, the higher likelihood of people high (vs. low) in collectivism to engage in preventive behaviors is driven by their belief that others consider it important to engage in such behaviors. The effects were robust and emerged by measuring collectivism both at the country level and at the individual level. We conclude by proposing features of public health campaigns likely to elicit compliance behavior to control the spread of COVID-19.

KEYWORDS

collectivism, COVID-19, others' beliefs, preventive behaviors, social marketing, vaccination

The COVID-19 pandemic, caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), is undoubtedly the worst pandemic the world has faced in modern times. Importantly, COVID-19 has not spread uniformly throughout the world. By March 15, 2021, COVID-19 cases and deaths have grown exponentially in countries like the United Kingdom, Italy, and the United States (a combined 30.7% of the population infected), whereas, the outbreak has been more successfully controlled in countries like China, Japan, and Korea (a combined 0.54% of the population infected).

The unevenness in vaccination rates across different regions is seriously threatening the development of "herd immunity" that can suppress the spread of the virus (Elamroussi & Vera, 2021). Furthermore, the emergence of variants of the virus (e.g., the Delta variant, Lewis, 2021), along with the social pressure for accelerated lifting of restrictive social measures, is prompting many experts to raise alarms about the possibility of risking future COVID-19 waves (Contreras & Priesemann, 2021).

In this context, it is increasingly important to understand the factors that can help social marketers develop public health campaigns to successfully curb the spread of the virus. This study aims to uncover a key cultural factor (i.e., collectivism) that promotes pro-social behavior aimed at preventing the spread of COVID-19, and the willingness to seek protection from the disease through vaccination. By examining the effects of collectivism on preventive behaviors using a multi-method approach, this study contributes to the previously mixed literature on the pathogen prevalence–collectivism link (e.g., Fincher et al., 2008; Miller, 2009). Second, our work uncovers the psychological mechanism for the relationship between collectivism and behaviors to control the spread of COVID-19 and extends the prior understanding on the role of collectivism in health-related behaviors. Last, this study contributes to social marketing research and provides timely implications on how to implement effective health campaigns to increase public vaccination and promote other preventive behaviors.

1 | THEORETICAL BACKGROUND

1.1 | Culture, infectious diseases, and the collectivism–individualism distinction

Culture is defined as shared beliefs, values, norms, and behaviors developed by human societies to solve social coordination problems to cope with environmental challenges (Chiu & Hong, 2006). Disease-causing pathogens constitute significant environmental hazards that societies must successfully manage, and cultures have evolved to respond to such challenges. Specifically, collectivism emerges as the cultural syndrome that human societies seem to have developed in ecological regions with higher prevalence of infectious diseases (Fincher et al., 2008). The collectivism–individualism distinction is considered the most important dimension for capturing cultural variation (Heine, 2008), as it is rooted in the fundamental psychological distinction between a view of the self as interdependent with others versus separate from others (Triandis, 1996). The pathogen prevalence–collectivism link presumably emerges due to the instrumentality of certain features of collectivistic societies for preventing the spread of infectious diseases. Specifically, collectivists are more wary of contact with foreigners, which presumably inhibits exposure to novel pathogens; and they place a strong value on traditions, such as food preparation, which can serve as buffers against pathogen transmission (Fincher et al., 2008).

Although the previous discussion suggests that collectivistic cultures might be better equipped to successfully manage the spread of infectious diseases, there are features of collectivism that may be counterproductive for this outcome. Specifically, people in collectivistic societies have closer and more frequent social interactions (Triandis, 1996), which facilitates the spread of infectious diseases (Miller, 2009). Collectivistic societies tend to exclude the disadvantaged (e.g., people from lower socioeconomic status) from the mainstream and are associated with inadequate social programs for marginalized groups (Kawabata, 2013); all factors known to contribute to the spread of infectious diseases (Eisenstein, 2016). In view of these divergent arguments, it is unclear the extent to which collectivism is associated with greater success in coping with an extreme pandemic like COVID-19.

1.2 | Collectivism, others' beliefs, and the spread of COVID-19

Echoing the divergent arguments just stated, the existing literature on the link between collectivism and preventive behaviors during the pandemic shows mixed results. Recent research provides indirect support for a positive link between a collectivistic orientation and preventive behaviors (e.g., Courtney et al., 2021; Germani et al., 2020; Lu et al., 2021). For instance, Germani et al. (2020) revealed a positive link between collectivism and people's perceived risk of infection. However, other line of research suggests a negative link between collectivism and preventive health behaviors (e.g., Na

et al., 2021; Rolón et al., 2021; Webster et al., 2021). For example, Rolón et al. (2021) showed that the sociability sub-dimension of extraversion, or the enjoyment of social activities and the preference for being with others over being alone, which is a defining aspect of collectivism (Triandis et al., 1986), is positively associated with the spread of COVID-19. Also, more collectivistic U.S. states show substantially higher COVID-19 case counts—an effect that emerges due to the higher percentage of disadvantaged groups (i.e., non-Whites) in these states (Webster et al., 2021). These mixed findings highlight the need for a systematic investigation of the relationship between collectivism and prevention in the spread of COVID-19, while accounting for socioeconomic and societal factors.

Because in collectivistic societies people construe the self as primarily interdependent with others and are motivated to adjust to the demands of others (Triandis, 1996), and particularly so in public settings, we argue that these societies would be particularly successful at controlling the spread of COVID-19. Furthermore, this effect should emerge after controlling for potentially countervailing factors, such as the level of poverty and the increased number of social interactions by members of these societies. We argue for this prediction based on two reasons. First, people in collectivistic cultures are particularly likely to adopt normative behaviors and to consider the implications of their behaviors for others. That is, collectivists tend to conform to ingroup norms to maintain harmonious social relations within their groups (Hui & Triandis, 1986). Second, collectivists' reliance on norms for guiding behavior is particularly strong in public contexts. Individuals make assumptions about others' opinions when they anticipate explaining their behaviors to others (Fussell & Krauss, 1992). In this context, collectivists are likely to draw on their beliefs about the opinions of others to guide their behavior (i.e., others' beliefs, Torelli, 2006). That is, they infer a guiding social norm from beliefs about whether important others think that they should perform the behavior (Ajzen & Fishbein, 1980). Indeed, past research demonstrates that collectivists' (i.e., Hispanics) higher likelihood to adhere to health behaviors (e.g., quit smoking) is driven by their beliefs about others' opinion regarding the health behaviors (i.e., family criticism of smoking)—an effect that is absent among individuals lower in collectivism (i.e., non-Hispanic Whites, Marin et al., 1990).

Because COVID-19 is more likely to spread in public settings, it stands to reason that the behavior of collectivists will be highly influenced by their beliefs about others' expectations regarding preventive behaviors. Accordingly, we argue that a collectivistic orientation should be particularly likely to foster preventive behaviors to the extent that expectations about the appropriateness of such behaviors are widely shared in society. That is, we propose that cultures high (vs. low) in collectivism would be more successful in controlling the spread of COVID-19 and more likely to engage in preventive behaviors, as people in these cultures would feel an obligation to engage in preventive behaviors they believe are shared by others. Stated formally:

H1: Collectivism will be negatively associated with the spread of COVID-19.

- H2: Collectivism will be positively associated with the likelihood to engage in widely publicized behaviors to control the spread of COVID-19.
- H3: The positive effect of collectivism on the likelihood to engage in preventive behaviors will be mediated by the extent to which people believe that others find it important to engage in such behaviors (i.e., others' beliefs about the importance of preventive behaviors).

We test these hypotheses in six studies. Study 1 tests H1 with 68 countries and shows a negative relationship between collectivism and spread of COVID-19. Studies 2a–2d test H2 and demonstrate that endorsement of a collectivistic orientation is positively associated with the likelihood to engage in widely publicized COVID-preventive behaviors. Last, Experiment 3 tests H3 and demonstrates that the belief that others consider it important to engage in COVID-19 preventive behaviors underlies the relationship between collectivism and the likelihood to engage in preventive behaviors.

2 | STUDY 1: COLLECTIVISM AND SPREAD OF COVID-19 AT THE COUNTRY-LEVEL

2.1 | Method

We first retrieved the 14-day based COVID-19 cases per 100,000 inhabitants (#cases/100k), during the period from December 31, 2019 to December 14, 2020, in 212 countries throughout the world, as reported by the European Center for Disease Control's website. We then calculated the total #cases/100k by summing all of the cases in the previous year from December 31, 2019 to December 14, 2020. Next, we added to these data information about the level of collectivism in the country using Hofstede's scores (reverse-scored IDV ratings, Hofstede, 1984), resulting in a sample with 68 countries. Finally, we added country-level information about factors shown in past research to impact the spread of epidemics like COVID-19 (e.g., GDP per capita, Hamidi et al., 2020, see Appendix A in Supporting Information for measures, correlations, and statistics).

2.2 | Results and discussion

A linear regression on the log-transformed #cases/100k with country-level collectivism score, and the other country-level factors as predictors yielded a significant coefficient for country-level collectivism ($b = -0.026$, $p = 0.037$, see Appendix B in Supporting Information for details). Thus, as predicted in H1, collectivism was associated with a lower spread of COVID-19. This effect was robust and emerged after controlling for a variety of other country-level factors associated with the spread of communicative diseases. A post hoc power analyzes conducted using G*Power ($f = 0.08$, $\alpha = 0.05$, $N = 68$, number of predictors = 4; Faul et al., 2007) determined that the power of this test was 0.63, an acceptable value given standard conventions (Cohen, 1988).

3 | STUDY 2: COLLECTIVISM AND PREVENTIVE BEHAVIORS

3.1 | Method

Four-hundred and five students (66.7% female, $M_{\text{age}} = 19.96$) enrolled in a large University in Hong Kong (Study 2a), 142 students (57.7% female, $M_{\text{age}} = 20.60$, 38.73% White; Study 2b), and 245 students (65.3% female, $M_{\text{age}} = 20.41$, 45.71% White; Study 2c) enrolled in a large University in the United States participated in three separate online studies in exchange for course credit. Participants indicated their endorsement of a collectivistic orientation by completing Triandis and Gelfand (1998) 16-item cultural orientation scale (8-items for collectivism and 8-items for individualism, 1 = *strongly disagree*, 7 = *strongly agree*).¹ The presentation of this scale was counter-balanced (presented at the start or end of the survey, with no order effects). They were also presented with a survey about "Behavioral Guidelines for COVID-19," in which they rated the self-importance of engaging in six behaviors (1 = *not at all important*, 7 = *very much important*, Study 2a) (e.g., Make use of face mask in open spaces or at work stations), the likelihood to engage in the same six behaviors (1 = *not at all likely*, 7 = *very likely*, Study 2b), or the intentions to get vaccinated against COVID-19 (e.g., "How much are you willing to get COVID-19 vaccination when it is available?", 3-items, Study 2c; see Appendix A in Supporting Information for stimuli and measures used across studies). Finally, participants answered demographic questions (e.g., age and gender).

In Study 2d, we retrieved country-level data about people's willingness to vaccinate against COVID-19 from the Gallup World Poll (Ray, 2021) by recording the percentage of respondents answering "Yes" to the question: "If a vaccine to prevent coronavirus was available right now at no cost, would you agree to be vaccinated?" We added to these data the same predictors used in Study 1, which resulted in 64 countries with complete information.

3.2 | Results and discussion

3.2.1 | Self-reported importance of preventive behaviors (Study 2a)

A regression analysis on the average self-rated importance of engaging in COVID-19 preventive behaviors ($\alpha = 0.85$), with participants' average endorsement of collectivistic ($\alpha = 0.75$) and individualistic ($\alpha = 0.70$) orientations as predictors, yielded a significant coefficient for collectivism ($b = 0.17$, $p = 0.003$). The effect of individualism was nonsignificant ($b = 0.06$, $p = 0.31$).

¹Although Hofstede (1984) considered individualism as the opposite of collectivism, it is well established that these are separate constructs that coexist within societies and individuals (Oyserman et al., 2002). Thus, in this and subsequent studies we focused on the hypothesized effects of collectivism while controlling for individualism.

3.2.2 | Behavioral expectation (Study 2b)

A similar regression analysis on the average behavioral expectation for preventing the spread of COVID-19 as the dependent variable ($\alpha = 0.77$), with participants' average endorsement of collectivistic ($\alpha = 0.72$) and individualistic orientations ($\alpha = 0.68$) as predictors, yielded a significant coefficient for collectivism ($b = 0.33$, $p = 0.004$). The effect of individualism was nonsignificant ($b = -0.13$, $p = 0.26$).

3.2.3 | Individual-level vaccination intention (Study 2c)

A similar regression analysis on vaccination intention ($\alpha = 0.68$), with participants' average endorsement of collectivistic ($\alpha = 0.79$) and individualistic ($\alpha = 0.71$) orientations as predictors, yielded a significant coefficient for collectivism ($b = 0.13$, $p = 0.05$). The effect of individualism was not significant ($b = -0.12$, $p = 0.08$).

3.2.4 | Country-level vaccination intention (Study 2d)

A regression analysis on the percentage of "Yes" responses with country-level collectivism score and the other country-level factors as predictors (acceptable power = 0.74, Cohen, 1988) yielded a significant coefficient for country-level collectivism ($b = 0.06$, $p = 0.011$, see results for all predictors in Appendix B [Supporting Information]). This result persisted after controlling for a variety of factors associated with people's attitudes toward vaccines.

Results of Studies 2a–2d support our prediction in H2 that collectivism is positively associated with the likelihood to engage in behaviors to prevent the spread of COVID-19. In this study, participants' endorsement of a collectivistic orientation was positively associated with their self-importance of engaging in preventive behaviors (Study 2a), the expectation that they would engage in behaviors to prevent the spread of COVID-19 (Study 2b). These relationships emerged in two different countries (Hong Kong and the United States), which speaks about the robustness of the effects. Furthermore, we demonstrate the effect again with intention to vaccinate against the disease at both individual level (Study 2c) and country level (Study 2d). This is a consequential outcome given the sizable portion of individuals who are reluctant to get vaccinated against COVID-19 (Min & Yeoh, 2021).

4 | STUDY 3: THE MEDIATING ROLE OF OTHERS' BELIEFS

4.1 | Method

One-hundred and fifty-six students (42.9% female, $M_{\text{age}} = 20.01$, 44.87% White) enrolled in a large University in the United States participated in an online study in exchange for course credit.

Participants followed the same procedure in Study 2b, except for the following change. After the behavioral ratings, they indicated their beliefs about the extent to which others considered the same behaviors as being important (i.e., others' beliefs, 2-items, 1 = *not at all important*, 7 = *very important*, $r = 0.59$). Participants also completed a series of ancillary measures to explore alternative accounts for the effects (e.g., felt responsibility, regulatory focus, or size of social network, see Appendices A and B in Supporting Information for details).

4.2 | Results and discussion

4.2.1 | Behavioral expectation

A regression analysis on the average behavioral expectation for preventing the spread of COVID-19 ($\alpha = 0.76$), with participants' average endorsement of collectivistic ($\alpha = 0.78$) and individualistic ($\alpha = 0.68$) orientations as predictors, yielded a significant coefficient for collectivism ($b = 0.34$, $p = 0.003$). In addition, individualism had a negative and significant effect ($b = -0.23$, $p = 0.042$, see detailed results in Appendix B [Supporting Information]).

4.2.2 | Mediation analysis

We conducted mediation analyses using the PROCESS Macro (Model 4, Hayes, 2017) to explore the role of others' beliefs (mediator), as well as alternative mechanisms, on the effect of collectivism (independent variable) on the behavioral expectation index (dependent variable). We included individualism as a covariate in the analyses. Results yielded a significant indirect effect (based on 5000 bootstraps) for others' beliefs (*indirect effect* = 0.13, SE = 0.06, 95% CI [0.01, 0.26]), but nonsignificant effects for felt responsibility (CI [-0.02, 0.05]), size of social circle (CI [-0.07, 0.02]), and regulatory orientation (prevention orientation: [prevention - promotion]/[prevention + promotion], CI [-0.03, 0.03]). These findings suggest that beliefs that others consider important to engage in the preventive behaviors (i.e., others' beliefs) partially mediated the effect of collectivism on participants' expectation of engaging in these behaviors, as there remained a significant direct effect of collectivism ($b = 0.24$, $p = 0.02$). Even when we used size of social network as a covariate, the mediation results for others' beliefs persisted (*indirect effect* = 0.14, SE = 0.06, 95% CI [0.02, 0.27], see Appendix B in Supporting Information).

Results of Study 3 support our prediction in H3 that perceived others' belief mediates collectivists' higher likelihood to engage in behaviors to prevent the spread of COVID-19. Consistent with the previous studies, participants' collectivistic orientation was positively associated with their tendency to engage in preventive behaviors related to COVID-19. Moreover, this effect was partially mediated by others' beliefs about the importance of these behaviors. The remaining direct effect of collectivism on likelihood to engage in

preventive behaviors, after accounting for the indirect effect through others' beliefs, suggests that other psychological factors (e.g., social or moral responsibility associated with collectivism, Miller & Bersoff, 1998) may also contribute to the cultural differences in the likelihood to engage in preventive behaviors. In this study, we tested a few other possible mediators, including perceived responsibility, social network size, and prevention orientation. But all of them failed to provide meaningful explanations, which suggests that additional mediators might also play a role.

5 | GENERAL DISCUSSION

Results from six studies using both secondary datasets and laboratory experiments conducted in two different countries demonstrate that collectivism is: (a) negatively associated with the spread of COVID-19 (Study 1), (b) positively associated with the self-importance/expectation to engage in widely publicized behaviors to prevent the spread of the disease (Studies 2a and 2b), and (c) positively associated with the likelihood to get vaccinated against COVID-19 (Studies 2c and 2d). Furthermore, the higher likelihood of people high (vs. low) in collectivism to engage in preventive behaviors is driven by their belief that others consider it important to engage in such behaviors (Study 3).

The results were very robust and emerged both when operationalizing collectivism at the country-level (using Hofstede's scores), as well as when measuring endorsement of a collectivistic orientation at the individual-level. Although these different operationalizations of culture (i.e., nation vs. individual) are statistically independent from each other and should not be presumed to be similarly correlated (e.g., Brewer & Venaik, 2014), the fact that our studies revealed similar patterns of relations between collectivism and the likelihood to engage in behaviors to prevent the spread of COVID-19 at the two different levels not only speaks against method-factors, but also provides confidence in the uncovered effects (see Shavitt & Barnes, 2020, for review). Altogether, our findings suggest that collectivism is conducive to halt the spread of COVID-19.

Our findings have several important theoretical implications. First, we contribute to cultural research on collectivism (e.g., Mai et al., 2020) and on the spread of COVID-19 (e.g., Ulqinaku et al., 2020). Specifically, we shed further light on conflicting theoretical arguments and empirical findings about the collectivism–prevention of COVID-19 link. Our systematic investigation of the relationship between collectivism and prevention in the spread of COVID-19, while accounting for a variety of socioeconomic (e.g., median income, Studies 1 and 2d) and societal factors (e.g., size of social network, Study 3) associated with the spread of infectious diseases, demonstrates that collectivism is indeed positively related with controlling the spread of the disease. Past research showing the opposite direction of relationship might have failed to account for confounding factors included in our studies. Second, we contribute to further understanding the role of collectivism in promoting

health-related behaviors by providing for the first time empirical evidence for the psychological mechanism underlying the relationship between collectivism and behaviors aimed to prevent the spread of COVID-19 (i.e., others' beliefs).

Findings here also contribute to social marketing research (Kotler & Lee, 2008). A key challenge for social marketers working in preventive health is understanding customer value in the consumption of social products (Zainuddin et al., 2011). Value in preventive health social marketing services tends to be more self-oriented and motivated by emotions and functionality (e.g., individual's peace of mind, Zainuddin et al., 2011). Our findings point to a less common, other-oriented source of value among collectivists for engaging in preventive behaviors to curb the spread of COVID-19. Consistent with this argument, ads in Hong Kong (a collectivistic culture, Triandis et al., 1986) emphasize the importance of vaccination for the well-being of the community (Rowse, 2021). Future research should investigate the features of health communications that are more persuasive among collectivistic consumers.

From a practical standpoint, our research also suggests some public health strategies to control the spread of COVID-19, as well as to encourage people to get vaccinated against the disease. Although, as shown in this study, people can endorse more (or less) a collectivistic orientation, such orientation can also be made readily available via priming procedures (Oyserman et al., 2002). Thus, activating a collectivistic orientation should positively contribute to the adoption of behaviors to prevent the spread of COVID-19, and particularly so when emphasizing the value associated with following others' opinions. Public health campaigns to persuade individuals to engage in preventive behaviors or to vaccinate should then focus on both communicating the widespread belief about the importance of such behaviors, as well as on activating a collectivistic orientation (e.g., by reminding about group membership, Oyserman & Lee, 2007).

Although our research focused on how collectivism impacts the spread of COVID-19, future research should investigate the role of other cultural factors. For instance, it seems fruitful to study the impact of indulgence versus restraint (Hofstede et al., 2010) and cultural differences in emotion (Matsumoto, 1990) on the adoption of COVID-19 preventive behaviors. We explored the role of few other cultural factors in Study 1 (i.e., country-level power distance and tightness). Although we did not find an effect of power distance, we did find a negative effect of tightness on the spread of COVID-19 (which did not alter the significant effect of collectivism, see Appendix B in Supporting Information). This aligns with recent findings showing that tight cultures have been more successful in coping with the pandemic (Gelfand et al., 2021). Future research should investigate the direct effects of other cultural factors, as well as the potential interactions between these factors and collectivism to determine the likelihood that people will engage in preventive behaviors.

Finally, our research focused on how others' beliefs as the driver of the effect of collectivism on prosocial behaviors to curb the spread of COVID-19. This seems like a central mediator given the public nature of preventive behaviors. However, there can be other

mediating mechanisms for the uncovered effects (as suggested by the remaining direct effect in Study 3). For instance, it is possible that impression management concerns (Leary et al., 1994) or self-verification processes (Swann, 2011) can be additional mediators of the observed effects. Future research should explore additional drivers of the effect of collectivism on the likelihood to engage in preventive behaviors.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Open Science Framework.

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SUPPORTING INFORMATION

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