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Using Cognitive Dissonance to Encourage COVID-preventive Behaviours

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Honours Psychology Thesis
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Abstract

This study investigated whether a hypocrisy-based intervention would increase students' intentions to engage in COVID-preventive behaviours. We hypothesized that participants in the hypocrisy-induction condition (experimental condition) would express higher levels of intention to engage in COVID-preventative behaviours than participants in whom hypocrisy has not been induced (control condition). The sample consisted of 2 male and 64 female undergraduate students at Brescia University College. An independent t-test was conducted on the intention rating scores of practicing COVID-preventative behaviours for the experimental and control conditions. It was found that there was no significant difference in the average intention rating score between the two groups, as both groups exhibited very high intentions to practice COVID-preventive behaviours. Potential causes and limitations of these findings, such as the influence of the government's previous public health guidelines, have been investigated.

Keywords: COVID-19, cognitive dissonance intervention, hypocrisy paradigm, intention, COVID-preventive behaviours

As of December 18, 2020, the coronavirus disease (COVID-19) has over 72 million confirmed cases and has led to 1.6 million deaths worldwide (World Health Organization [WHO], 2020). In response to the pandemic, a series of policies and guidelines have been implemented in order to protect public health. Such policies include but are not limited to mask-wearing, shutting down large gathering places, and restricting or managing the flow of common areas (Center of Disease and Control [CDC], 2020). When it comes to individuals, people have been encouraged to adopt COVID-preventive behaviours (CPB) by practicing social distancing, wearing a mask in public places, engaging in self-isolation if needed, and increasing frequency and duration of hand washing.

In recent studies, the efficacy of the aforementioned COVID control methods has been examined. To evaluate the impact of mandatory mask-wearing in public spaces, Mitze et al. (2020) set the city of Jena, Germany, as a reference and compared the COVID statistics there with those of other cities similar to Jena but without the mandatory mask-wearing policy. The result showed that mandatory mask-wearing reduced the daily growth rate of COVID-19 in Jena by 40%, thereby revealing the effectiveness of masks in preventing COVID-infections. In addition, Eikenberry et al. (2020) assessed the influence of mask-wearing on a community by developing a transmission model using the data related to COVID-19 dynamics in New York and Washington. The results indicated that mask-wearing is considered to be effective with respect to both protecting healthy individuals and preventing asymptomatic transmission.

To evaluate the relationship between non-pharmaceutical interventions (i.e. closing borders, having quarantine and isolation, practicing CPB) and the COVID-19 transmissibility rate, Cowling et al. (2020) statistically analyzed the infection rate from the city of Hong Kong and observed a negative correlation between the non-pharmaceutical interventions and the

COVID-19 transmissibility rate. Tang et al. (2020) constructed a time-dependent dynamic model based on the data from Wuhan, China. The authors suggested that persistent and strict self-isolation has a profound role in reducing the epidemic transmission speed. Moreover, a systematic review and meta-analysis were performed by Chu et al. (2020), which examined the influence of social distancing, mask-wearing and eye protection on preventing person-to-person transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and COVID-19. The results showed that such behaviours could effectively reduce the infection rate of COVID-19.

However, many studies and reports have shown that there are a variety of factors that can affect individuals' willingness or intentions to practice COVID protective behaviours (CPB) (Priolo et al., 2019). A study conducted by Chen et al. (2020) examined the potential factors affecting hand-washing and mask-wearing behaviours among Chinese primary school students, and the results suggested that such behaviours are influenced by gender, grade, travel history, residence, parents' occupations as well as mother's educational background. Findings indicated that participants were more likely to wash their hands and wear a mask if they were female, senior grade-level students, living in Wuhan, and their mother had higher education level. In a review article written by Sim et al. (2014), the authors argued that as mothers usually spend more time with their children, the higher their educational background, the more likely their children are to have higher perceptions of and compliance to the benefit of mask-wearing. More education empowers mothers to strengthen their children's safety education, as well as to improve the awareness of children to engage in epidemic-preventive behaviours.

Besides the factors mentioned above, in the United States many media outlets have reported that getting people to engage in CPB in their daily lives is sometimes difficult, even

after health guidelines were released by the CDC. Hensley (2020) claimed that people may refuse to wear a mask for different reasons. Many news reports have suggested that black men are more fearful of wearing masks in the US, as they are worried that face-covering may expose them to harassment or threat from the police (Taylor, 2020; Mcfarling, 2020). An online survey conducted by Whang and Elliott (2020) showed that people who hold conservative political viewpoints tend to be less likely to wear a mask when they leave their home. People may also refuse to wear a mask due to their specific political affiliations, as Democrats show more likelihood to wear masks in public than do Republicans (Whang & Elliott, 2020). Such actions may contribute to the spread of the pandemic, harming the health of individuals and placing a greater burden on the health care system (Wang, 2020). Overall, recent studies support the premise that both self and public CPB are effective for reducing the infection rates and slowing down the spread of the pandemic. However, a variety of factors exist which may influence people's willingness or intentions of practicing CPB in their daily lives.

Psychologists have proposed various theories to understand the logic behind people's willingness or intentions to engage in certain behaviours, especially when these behaviours are counter-productive or harmful. Leon Festinger (1957) introduced the term "Cognitive Dissonance", as he defined cognitions broadly as a range of mental representations, including attitudes, beliefs and knowledge of one's behaviour; then, he defined dissonance as a negative affective state that results from an individual experiencing two conflicting or counter-cognitions. Festinger proposed that people might feel discomfort when they experience cognitive dissonance and, therefore, are motivated to reduce the dissonance in order to escape from the unpleasant feeling. The extent of cognitive dissonance depends on the importance of the cognition involved, as higher levels of dissonance cause more pressure and intention to reduce the dissonance. In a

recent study, a longitudinal analysis was conducted by Fotuhi et al. (2013) to study the patterns of cognitive dissonance-reducing beliefs among smokers in Canada, the US, the UK and Australia through a telephone survey at different time periods. In this study, smokers were followed three times from October 2002 to December 2004, during which they were asked to report their smoking-related beliefs as well as their smoking cessation behaviours. The results revealed that the participants were motivated to adjust and rationalize their beliefs to reduce their cognitive dissonance about smoking, indicated that the universality of cognitive dissonance in different countries.

A number of researchers have built upon Festinger's original theoretical studies to develop various types of cognitive dissonance-based interventions that apply different paradigms in order to influence specific behaviours among participants (i.e., Freijy & Kothe, 2013). Cognitive dissonance-based interventions usually involve an incongruity between one's beliefs and his or her current behaviour, following one of several experimental paradigms (Freijy & Kothe, 2013). In the belief disconfirmation paradigm introduced by Festinger, Riecken and Schachter (1956), it was suggested that when participants are provided information that counters their existing beliefs, they may reject the conflicting information or seek others who have similar beliefs in restoring the consistency if they are unable to accept that belief. In the same year, Brehm (1956) proposed the free choice paradigm in his research by asking participants to choose between several alternatives, in which dissonance may be created by thinking about the positive side of the unchosen alternative or the negative side of the chosen alternative. Based on the results, Brehm found that such dissonance might be reduced when participants are told to think of the positive side of the chosen alternative and the negative side of the unchosen alternative.

In the effort justification paradigm (Aronson & Mills, 1959), an experiment tested whether participants who experienced an unpleasant initiation to become members of an on-campus club would report higher liking for the club (which was portrayed as very dull) compared to a group who experienced a less unpleasant initiation. The results showed that participants who had experienced a more unpleasant initiation reported higher liking of the group, due to the inconsistency of the cognitions that they endured embarrassment for the sake of the club and the fact that the club was not worth the effort. In the induced compliance paradigm, Festinger and Carlsmith (1959) conducted research that asked participants to perform an action contrary to their attitude and provided them with a limited reason for doing so in order to arouse dissonance. Again, it was found that participants in whom dissonance had been aroused would alter their evaluations of a task to be consistent with their behaviour.

Throughout the research, it has been found that cognitive dissonance may be reduced by shifting attitudes or by changing future behaviours. In the hypocrisy paradigm, participants are asked to advocate a pro-social behaviour and then remind them about their past failures regarding that behaviour. A study by Aronson, Fried, and Stone (1991) which initiated the hypocrisy paradigm, revealed that contrasting participants' present attitudes with their past failures about a particular pro-social behaviour aroused dissonance, and participants were more likely to change their behavioural intentions in order to reduce such dissonance, compared to participants for whom past failures were not mentioned.

Generally, the hypocrisy paradigm asks participants to publicly make pro-social statements about a particular behaviour and then reminds them of their own past failures to attain that behaviour (Freijy & Kothe, 2013). It has been suggested to be one of the most influential cognitive dissonance-based interventions in enhancing health behaviours among participants

(Priolo et al., 2019). There are a number of research studies supporting the efficacy of using hypocrisy to initiate or to enhance participants' pro-social behaviours. Stone et al. (1994) conducted a research study that induced the hypocrisy paradigm to encourage young adults to use condoms. The authors manipulated whether or not participants made a public commitment to support the use of condoms and the degree to which they were made to be aware of their past failures of using condoms. The results showed that subjects purchased more condoms after they received the hypocrisy induction-based intervention reminding them of past failures to use condoms than in the non-hypocrisy condition. In another study, Leanne et al. (2002) conducted a factorial design to investigate whether the hypocrisy induction procedure can reduce prejudicial behaviours in aversive racists, who are defined as people who have low levels of explicit prejudice but high levels of implicit prejudice, towards Asians. The results revealed the success of the hypocrisy paradigm in the reduction of aversive racists' prejudicial behaviour, as the aversive racists participants responded to their hypocrisy induction-based intervention with a reduction in prejudicial behaviour (Leanne et al., 2002).

Morrongiello and Mark (2008) applied the hypocrisy paradigm intervention to reduce children's intentions of engaging in risky behaviours. In their study, the authors first asked all participants to support safe-play behaviours. Then, they made the participants from the experimental group mindful about past failures to play safely on playgrounds, whereas the participants from the control group were not reminded. The results showed that the participants in the experimental condition (who were reminded of past failures) exhibited greater intentions of playing safely in the future compared to those in the control condition. In conclusion, a considerable amount of research has demonstrated the efficacy of the cognitive dissonance theory-based hypocrisy paradigm on facilitating change across a range of health behaviours.

In the current pandemic, there are no known studies that have investigated the efficacy of the hypocrisy paradigm to facilitate CPB that have profound roles in reducing the infection rates and slowing down the spread of the pandemic. Such research can be beneficial to strengthen the awareness of self-protection among the public, as well as to lessen the burden on healthcare systems. This research intended to study whether the hypocrisy-based intervention increases intentions to engage in CPB. It was hypothesized that participants in the hypocrisy-induction condition (experimental condition) who were reminded of past failures to engage in CPB would express higher levels of intention to engage in CPB than participants in whom hypocrisy had not been induced (control condition).

Method

Participants

Students who have registered in Psych1010, Psych1015 and Psych 2855 courses at Brescia University College were eligible to be recruited as participants for the experiment. Participants were compensated one credit for their course for participating in the study. The participants were asked to log onto their UWO account and access the Qualtrics link through Sona. Seventy-one participants completed the survey after being recruited through the Sona system, but only 68 of them completed the survey. There were two participants who gave unvarying, extreme responses when asked about different intention directions, so their data was dropped from the analyses due to them being outliers. Therefore, the final sample for analyses includes 66 participants (2 males, 64 females) ranging in age 18-27 ($M = 19.8$, $SD = 2.11$).

Instrument

Data were collected anonymously by conducting a questionnaire survey using Qualtrics, an online survey platform for creating and distributing web-based surveys. The surveys and assessments used in this study were developed by the researchers specifically for the current research.

Procedure

The investigator recruited participants who had registered in Psych1010, Psych1015 and Psych2855 courses at Brescia University College by posting survey entry on Sona, which linked the participants to Qualtrics. Before the survey, the participants were asked to sign an informed consent form. After granting their agreement, participants were asked to complete a demographic questionnaire, which included basic background questions about their age, gender, nationality, and whether they or someone close to them have contracted Covid-19. The participants then received an awareness survey that asked them to provide a list of behaviours that they think will help prevent the spread of Covid-19 (Appendix A). In this part of the survey, participants were encouraged to list as many behaviours as they could think of.

Once the list was completed, the participants were randomly assigned into one of two equally-sized groups: an experimental group and a control group. The participants in the experimental group were asked to complete a hypocrisy-inducing survey, in which they were asked if they have occasionally failed to engage in several Covid-19 preventative behaviours (e.g. “I have failed to wear a mask while indoors with strangers”). The questions were designed to be yes/no (Appendix B). If the participants answered “Yes”, they were asked to provide a brief explanation for their failure (for example, “I forgot my mask”) in the space provided beside the

“Yes” box. This hypocrisy-producing procedure was not included in the control group but there were no other differences between the two groups.

Next, all participants were asked to complete a questionnaire about their intentions to practice Covid-preventive behaviours in the future. This part of the survey was completed as a 0-10 rating on a Likert scale for each question. Statements about various Covid-preventative behaviours (for example; “I will always wear a mask”) were made, and participants reported their level of agreement with the statement, ranging from most to least agreement, (Appendix C) by clicking the appropriate number on each scale.

At the end of the survey, the participants were informed about the purpose of the study by reading a debriefing form. The participants received one credit in their course after they completed the survey on Qualtrics.

Result

A preliminary Pearson correlational analysis was performed to evaluate whether any of the demographic variables (age, gender, nationality, whether the participants know someone in their social circle who contracted COVID-19) was significantly associated with the average intention rating (AIR) score ($M = 1.38$, $SD = 1.40$). The variables of gender and nationality have been omitted, however, because of the large proportion of females ($N = 64$) and the fact that some participants recorded their ethnicity instead of their nationality in the questionnaire. No significant relationship was observed (see Table 1). These results suggested that the participants' AIR scores were not affected by the tested demographic variables.

An independent t-test was conducted to compare the AIR scores of the experimental and control groups. Please note that low scores indicate high intention to engage in COVID-preventative behaviours in the future. The results indicated no difference at all between the AIR

scores obtained from the experimental group ($M = 1.38$, $SD = 1.51$) and the ones from the control group ($M = 1.38$, $SD = 1.29$), $t(64) = 0.004$, $p = .997$, $d = 0.001$, with a small effect size (see Figure 1). Thus, there was no difference between the AIR score of participants in the experimental condition and the average score of the participants in the control condition, although the responses from the experimental group had a somewhat higher level of variance. In conclusion, these results did not support the hypothesis that participants in the hypocrisy-induction condition would express higher levels of intention to engage in COVID-preventative behaviours than participants in whom hypocrisy has not been induced. Both groups exhibited very high levels of intention to engage in COVID-preventative behaviour.

Table 1*Correlations between the AIR Score and the Demographic Variables*

Correlation Matrix

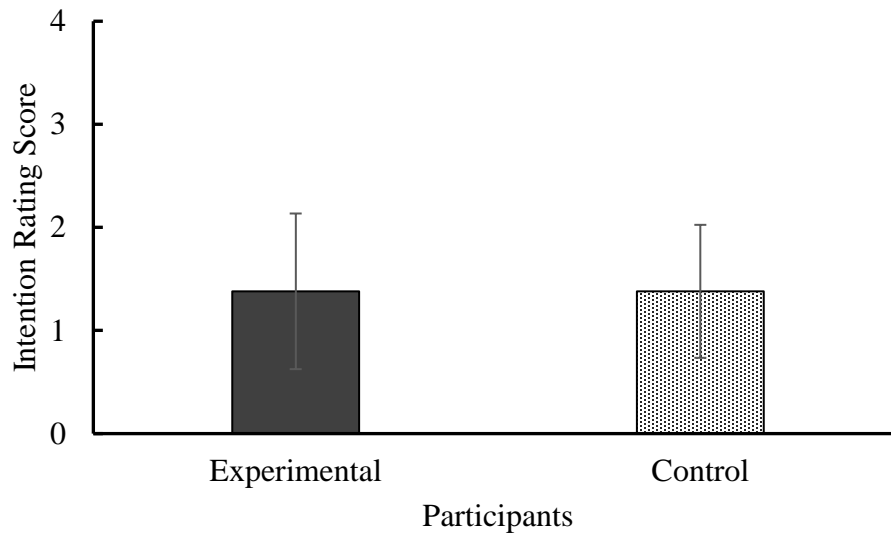
		AIR Score	Contracted COVID	Age
AIR Score	Pearson's r	—		
	p-value	—		
	N	—		
Contracted COVID	Pearson's r	-0.135	—	
	p-value	0.278	—	
	N	66	—	
Age	Pearson's r	-0.012	0.235	—
	p-value	0.925	0.058	—
	N	66	66	—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Note: Pearson's r values are correlations with the AIR Score.

Figure 1

Difference between Two Conditions Among the Intention Rating Scale



Note: Standard error bars are included in the plot in order to determine if the two conditions were statistically different from each other. If the standard error bars do not overlap, it indicates that the experimental condition and the control condition are significantly different from each other.

Discussion

In the literature, the hypocrisy paradigm has often been shown to be a technique that can effectively improve participants' pro-social behaviours (Priolo et al., 2019). However, contrary to our hypothesis, the results of the current study suggested that the intention to engage in CPB did not increase after hypocrisy was induced in the experimental condition. Both the control and experimental groups expressed high intention in practicing CPB, with no differences between the groups. The data suggest that the hypocrisy did not significantly influence the intention scores, but participants responded to the questions in an odd fashion; 73% of participants chose extremes (0 or 10) more than two times in the questions with options spanning from 0 to 10 as if they were answering a yes/no question rather than a tendency question.

One potential reason for such skewed responses is that the government had issued guidelines or mandates for CPB to the public prior to this study and the public, including Brescia students, had already formed a firm "yes" or "no" opinion on CPB in advance (Parsons et al., 2020). Thus, there was a tendency for the participants from both the experimental and control groups to give extreme intention rating scores on CPB. Overall results indicated that all participants tended to have very high intentions to practice CPB. Similar phenomena were observed in a study conducted by Charron & Rothstein (2016), in which the authors concluded that people who have higher levels of education in a sufficiently impartial and non-corrupt society tend to trust the government. Our results are consistent with this finding, given that the participants were composed of students who are enrolled in the undergraduate program at Brescia University College.

In the current study, the experiment tried to induce hypocrisy through giving online questionnaires, a "remote" method without reliant on direct interaction with the participants. In

fact, over the past decades, the literature is scarce when it comes to using remote rather than face-to-face contact for inducing hypocrisy (Priolo et al., 2019). Based on the result of this study, the effectiveness of the hypocrisy paradigm might be influenced when the data are collected in a self-reported/unsupervised manner. However, more research in this field is needed to determine whether the online format is effective, and thus draw a more general conclusion on the influence of interaction types on the effectiveness of hypocrisy paradigm. Additionally, very few of the hypocrisy condition participants reported that they had failed to engage in COVID protective behaviours in the past, meaning that hypocrisy was likely not induced in most of the participants in this condition.

Other potential methodological limitations that may have led to the null findings have been investigated. One limitation is the sample size. It was expected that at least 130 students would participate but 68 participants participated overall, and only 66 had valid responses. A relatively small number of valid responses may limit the effectiveness of the hypocrisy paradigm. (Schwartz, 2009). Larger sample sizes should be adopted in future studies to elicit more useful findings.

Another limitation concerns gender. Previous research has shown that there were gender differences with respect to perceiving the threat of COVID-19, whereby females are more likely to believe they will be seriously affected by the pandemic than males (Charron & Rothstein, 2016) and thus are more willing to practice CPB in their daily lives (Capraro & Barcelo, 2020). However, due to the very limited male sample in the current study (male: 2, female: 64), it was not possible to examine gender differences in intention scores. Given that females tend to be more willing to practice CPB compared to males, the very small number of male participants also likely contributed to the “ceiling effect”—the vast majority of participants reported

extremely high intentions of engaging in COVID-protective behaviour in the future. To address this issue, later studies should recruit participants with a balanced gender ratio to determine the potential impact of gender on people's intention to practice CPB.

A final limitation concerns the private on-line nature of the study. Participants lacked any type of supervision by an experimenter. Since the study was conducted online, it was lacking experimenters' supervision and thus hard to confirm whether participants were paying close attention to the survey items. For example, when asked about their nationality, some participants responded with their race instead of their nationality, indicated that they may not have been paying close attention to their survey questions while answering their questionnaire. Therefore, future studies can be conducted in a more controlled experimental setting with an experimenter supervising the participants, thus increasing the credibility of subsequent data collection.

In conclusion, the current study attempted to use cognitive dissonance theory to increase future intentions of engaging in COVID preventative behaviours by inducing hypocrisy in our experimental group. By inducing hypocrisy about past, careless COVID behaviour, it was expected that the control and hypocrisy groups would differ in intention scores, with those in the hypocrisy-induced condition expressing higher intentions of practicing CPB in the future compared to the control group. Instead, both groups reported very high intentions of practicing CPB. Also, as mentioned previously, those participants in the hypocrisy condition rarely reported past careless behaviour, so it was unlikely that hypocrisy was induced in them.

Future studies in this area should address potential gender differences in pandemic related behaviours, something that the current study was unable to address. Additionally, future research could explore whether the hypocrisy paradigm can be adequately explored in online research. Perhaps experimenter supervision is a necessary element. Finally, researchers may want to

explore participants' demographic information, including nationality. Different countries provide different messaging regarding the pandemic and it would be interesting to see if participants' attitudes vary by nationality. Despite the limitations, the results of the study were quite positive in one way. They illustrated a deep awareness in Brescia students about COVID preventative behaviours and a desire to engage in these behaviours in the future.

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Appendix A

As you are aware, most of the world is in the midst of a pandemic right now. This research study attempts to determine the awareness of strategies that people can engage in to prevent the spread of Covid-19. It is important for researchers to understand the level of social awareness of safe behaviours, particularly among young people. Please list some behaviours in the space below that you are aware of that will prevent the spread of Covid-19 and would like to encourage others to do. Please list out as many behaviours as you can think of.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Appendix B

It is helpful for researchers to know reasons why people sometimes fail to engage in safe behaviours. Please indicate whether or not you have occasionally failed to engage in the following Covid-19 preventative behaviours by marking yes or no, and if you have, please provide a brief explanation (for example, "I forgot my mask") in the space provided.

1. I have failed to wear a mask while indoors and not socially distancing.

Yes_____ No_____

If answer is yes, please explain briefly _____

2. I have not washed my hands after being out in public and touching doors or other objects.

Yes_____ No_____

If answer is yes, please explain briefly _____

3. I have spent time with other people who are not within my social bubble without using a mask or socially distancing.

Yes_____ No_____

If answer is yes, please explain briefly _____

4. I have gone to work or school with symptoms that may have been Covid-related.

Yes_____ No_____

If the answer is yes, please explain briefly _____
