


I'm Offering You My Pain: Priming COVID-19 Salience Increases Everyday Sadism

Psychological Reports
2023, Vol. 0(0) 1–18
© The Author(s) 2023
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/00332941231159611
journals.sagepub.com/home/prx


Heng Li 

Sichuan International Studies University, Chongqing, China

Abstract

The COVID-19 pandemic and its link to the emergence of everyday sadism is a matter of public concern worldwide. However, previous studies are nearly silent regarding the causal relationship between the two variables. We address this gap by theorizing that exposure to information about coronavirus can increase sadistic behavior by inducing state boredom. We conducted three complementary controlled experiments, which comprised multiple participants populations ($N = 784$, student and community samples) and measurement techniques of sadism, to test our theoretical perspective. Based on self-report measures, Study 1 found that Chinese university students who were exposed to a reminder of COVID-19 exhibited a higher level of everyday sadism than participants in the control condition. Study 2 replicated this finding in a more generalized population. Additionally, results revealed that state boredom mediated this effect. Moving beyond subjective self-report data in Studies 1 and 2, Study 3 assessed a different behavioral operationalization of sadistic tendencies, namely, shredding worms. As expected, priming COVID-19 salience has an immediate, statistically significant influence on sadistic behavior in impactful real-world contexts. Overall, these findings suggest that the COVID-19 pandemic not only has grave effects on economy and society, but has implications for the malevolent side of human nature.

Keywords

COVID-19, sadism, boredom, aggression, dark personality

Corresponding Author:

Heng Li, Center for Linguistics, Literary & Cultural Studies, Sichuan International Studies University, Zhuangzhi Road, Chongqing 400031, China.

Email: leehem168@163.com

Introduction

The new coronavirus disease (COVID-19) has had a disparate impact on the global economy, financial markets, and political systems (Ibn-Mohammed et al., 2021; Lipsy, 2020; Zhang et al., 2020). In addition to these well-documented societal and health consequences of this public health crisis, an emerging line of research has shown that the pandemic is related to a myriad number of cognitive and psychological outcomes (Arora et al., 2022; Li et al., 2021; Ritchie et al., 2020). For example, several studies have shown that exposure to COVID-19-related information weakens overconfidence bias (Li & Cao, 2021), shifts temporal focus toward the past (Barnes, 2021), and enhances creativity (Tang et al., 2021). One stream of research on psychological consequences of COVID-19 is the work on the emergence of sadistic aggression (Lawson et al., 2020; Thomas et al., 2020). Sadism refers to the derivation of pleasure from acts of inflicting suffering on others (Paulhus, 2014; Paulhus & Dutton, 2016). Anecdotal and empirical evidence converges to suggest that the current pandemic has witnessed an increase in a variety of sadistic behavior, ranging from children maltreatment (Kovler et al., 2021), to internet troll and online vitriol (e.g., anti-Asian hate speech) (Gover et al., 2020), as well as animal abuse (Arkow & Campbell, 2020).

Despite prior work revealing the correlation between sadism and the pandemic, the nonrandomized, observational nature of these studies does not allow researchers to measure the causal impact of the COVID-19 pandemic on sadistic behavior. Thus, there is a substantial gap in the literature regarding the causal role of the COVID-19 pandemic in motivating sadistic tendencies. In the current investigation, we theorized that the risk salience of COVID-19 can increase people's likelihood of engaging in sadistic fantasy by inducing boredom. Following Eastwood et al. (2012), we define boredom as "the aversive experience of wanting, but being unable, to engage in satisfying activity" (p. 482). To address escalating concerns about the spread of the coronavirus, governments around the world practise precautionary measures, such as restrictions on mass gatherings, cancellation of public events, and isolation within the home, to flatten the curve and to reduce the number of Corona infections. These measures entail a relatively lonely life and increase odds of developing anxiety as well as other mental health problems, which manifest through higher levels of chronic boredom and lower well-being (Chao et al., 2020; Kumar & Nayar, 2021; Talevi et al., 2020; Xu et al., 2020).

Indeed, a large body of research has consistently demonstrated that the COVID-19 pandemic is an unparalleled shock creating monotonous conditions and entailing heightened boredom stress for people around the globe (Waterschoot et al., 2021). For example, Droit-Volet et al. (2020) evaluated the impact of COVID-19 lockdowns on perceived stress and emotions in a large sample of French people. The results showed that respondents scored higher on boredom during the lockdown in comparison to before the lockdown. Similar results were also observed in the African context. Boateng et al. (2021) investigated the prevalence and changes in everyday emotional experiences before and during the COVID-19 pandemic in Ghana. They found that there was

a significant increase in boredom after the coronavirus outbreak. Overall, these results suggest that boredom was reported as one of the most important and far-reaching negative experiences during COVID-19 lockdown due to the daily life monotonous situations (Zhai & Du, 2020).

Recent studies have also found that boredom plays a critical role in fostering sadistic tendencies. According to the meaning-regulation process model, many scholars propose that engaging in more challenging, stimulating, and meaningful behaviors is an important feature of boredom (Barbalet, 1999; Todman, 2003; Van Tilburg & Igou, 2012). On this account, some researchers have theorized that sadistic aggression, which is characterized by the tendency to enjoy cruelty and to seek opportunities to inflict physical or psychological suffering on others (Baumeister & Campbell, 1999), is considered as an effective strategic decision to deal with emptiness and meaninglessness arising from boredom. In other words, sadistic behavior can serve as an antidote for the poison of boredom.

In line with this theoretical perspective, Pfattheicher et al. (2021) provided correlational and experimental evidence for the relationship between boredom and sadistic aggression across a wide range of highly relevant societal contexts. For example, participants who completed a task to induce boredom were more likely to engage in sadistic behavior like shredding worms and reducing another person's payment than those in the neutral condition. Additionally, the researchers found that the significant effect of boredom on sadistic tendencies even remained significant among individuals low in dispositional sadism when no behavioral alternatives were available. One possible reason for this observed relationship is that sadism reflects an effective "tool" to overcome meaninglessness in life associated with boredom (Fromm, 1972). Together, these findings highlight the fact that sadistic aggression is one of the unintended and deleterious consequences of boredom.

Coalescing multiple research programs, namely, — research investigating the association between the pandemic influence and increased boredom, and research examining the link between sadism and boredom, — the aim of the current article was to propose a new direction of integrating research. Specifically, these theoretical perspectives and empirical evidence provide rich illustrations of the idea that exposure to information about coronavirus can increase sadistic behavior by inducing state boredom. Therefore, we formally state our hypotheses as follows:

Hypothesis 1. risk salience of COVID-19 increases sadistic tendencies.

Hypothesis 2. The effect of health threat on sadistic aggression is mediated by state boredom

To systematically test our hypotheses, we report three studies comprising a variety of participants populations (students and non-student adults) and measurement techniques of sadism (self-report survey and the bug-killing paradigm). Study 1 adopted an experimental perspective to investigate the causal role of COVID-19 salience in the

emergence of sadistic aggression among Chinese university students. Using a more generalized sample, Study 2 tested the causal relationship between pandemic influence and sadistic aggression and also examined the potential mediating role of state boredom. Extending beyond self-report data, Study 3 replicated the findings of Study 2 using a behavioral measure of sadistic aggression in an impactful, real-world setting, providing a behavioral confirmation of the observed relationship.

Study 1

Method

Participants. We recruited as many as participants within the constraints imposed by provided resources (in terms of research grants, participants availability, and the help of student research assistants) when the study took place. A total 328 of participants (57.6% female; $M_{\text{age}} = 20.1$, $SD = 2.0$) from a comprehensive university in southwest China voluntarily took part in the study for a momentary compensation (10 RMB yuan).

Materials and procedure. Upon arrival at the lab, participants provided written informed consent and were tested individually. They were told that the study topic was “personality and reading task”. In the first phase of the study, they were randomly allocated by the experimenter to one of the two groups (i.e., coronavirus vs. control). Participants were asked to evaluate two press reports and responded to a few questions related to the news articles. In the control condition ($n = 160$), there were two newspaper articles that describe how professional athletes market their names. For example, some of the texts stated: “An athlete’s name, image, hair (style), clothing style, to name but a few, in our star-conscious society have become valuable commodities that can be sold and consumed. They can be commercially marketed and reap tremendous profits if done with expertise and tacit knowledge intelligence. Now we would like to ask you a few questions about how you think about the professional athlete’s right of publicity”.

In the experimental condition ($n = 168$), there were one press release about sports news (the same as the one in the control condition) and one press report about latest coronavirus updates. For example, some of the experimental texts stated: “The new coronavirus disease, COVID-19, is a global pandemic and public health crisis. The COVID-19 pandemic has brought unprecedented challenges both for people and society across counties and countries. Now we would like to ask you a few questions about how the COVID-19 pandemic impacts your daily life.” All press reports are the same in terms of length (approximately 180 words) and were presented to participants in a random order. Previous studies have shown that this is an effective priming paradigm to increase the risk salience of the pandemic (Karwowski et al., 2020; Li & Cao, 2021; Lu et al., 2021).

Then, we asked participants to respond to three unrelated questions about the quality of the press reports to hide the true purpose of the study (i.e. whether it is interesting

enough to be reported as a news; whether the article uses simple, understandable language; whether the article pertains to a range of social issues). Participants indicated the extent of their agreement/disagreement on a five-point scale, ranging from 1 = *I totally disagree* to 5 = *I totally agree*. Following this, we used two single-choice questions regarding the angles and themes of each press report as attention checks to ensure that participants had truly delved into the topics. Finally, to determine the effectiveness of the manipulation, we asked participants to answer a single question “*How severe do you think COVID-19 infection is?*” (1 = *not at all*, 5 = *very severe*).

In the second part of the study, the participants completed a self-report measure, the Assessment of Sadistic Personality developed by O’Meara et al. (2011). The 10-item questionnaire was designed to assess individual differences in everyday form of sadism ($\alpha = 0.88$). Many published studies have shown that this questionnaire demonstrates sufficient psychometric quality in Chinese populations (Li & Cao, 2022; Yang et al., 2018). We reworded all the items of the questionnaire to capture the state of sadism. The dichotomous form requires participants to rate each statement as “*like me*” or “*unlike me*”. Thus, the maximum scores are 10, and a minimum of score is 0. Example items include “*At this moment, I would hurt people because I could*” and “*At this moment, I would humiliate others to keep them in line*”. At the end of the study, we applied a debriefing procedure to probe participants’ awareness about the true purpose of the experiment.

Results and Discussion

All participants correctly answered two attention check questions and thus all data were included in the main analyses. Debriefing responses indicated that no participants correctly guessed the causal link between the priming phase and sadism aggression. For descriptive statistics, see Table 1. The first step in the analyses was to test whether our experimental manipulation increased people’s perceived severity of COVID-19. Participants in the experimental condition ($M = 3.33$, $SD = 1.28$) reported that they were more severely affected by the pandemic than participants in the control condition ($M = 2.78$, $SD = 1.45$). This difference was significant, $t(326) = 6.91$, $p < .001$, Cohen’s $d = 0.41$, 95% CI = [0.2613, 0.8554], and reflects a medium effect, that is, a successful manipulation of COVID-19 salience.

Consistent with Hypothesis 1, participants who were exposed to a reminder of COVID-19 and its influence on their daily lives exhibited a higher level of sadistic tendencies ($M = 1.73$, $SD = 2.62$) than participants in the control condition ($M = 1.02$,

Table 1. Summary of Results—Study 1 ($N = 328$).

	COVID-19 Condition	Control Condition
Manipulation check	3.33 (1.28)	2.78 (1.45)
Sadistic tendencies	1.73 (2.62)	1.02 (2.04)

$SD = 2.04$), $t(326) = 2.72$, $p = .007$, Cohen's $d = 0.30$, 95% $CI = [0.1959, 1.2189]$. Thus, these findings provided preliminary evidence for the idea that priming COVID-19 salience has an immediate, statistically significant impact on the emergence of sadistic tendencies.

Although Study 1 revealed initial support for the prediction concerning the association between COVID-19 and everyday sadism, the present study has several limitations. First, it relied exclusively on convenience samples of available university students as research participants. This sampling technique may raise concerns about the generalizability of research findings (Li, 2021; Li & Shen, 2022). Second, there are no measures related to the underlying mechanisms for the effect of COVID-19 salience on sadism aggression. To address these issues, Study 2 employed a more diverse sample and examined the mediating role of state boredom in the observed relationship.

Study 2

Method

Participants. We recruited as many as participants within the constraints imposed by provided resources (in terms of research grants, participants availability, and the help of student research assistants) when the study took place. A total of 296 non-student participants (56.4% female; $M_{\text{age}} = 31.7$, $SD = 7.5$) were recruited using advertisements posted to Chinese social media over a given period of time (i.e., 4 weeks). They took part in the study for a momentary compensation (10 RMB yuan). Participants were randomly allocated by the experimenter to one of the two groups (i.e., coronavirus vs. control). There were 146 participants in the experimental condition and 150 participants in the control condition.

Materials and procedure. Upon arrival at the lab, participants provided written informed consent and were tested individually. They were told that the study topic was "personality and reading task". The materials and procedures were the same as Study 1. The cronbach alpha for the Assessment of Sadistic Personality is 0.83. The only exception is that participants responded to a unidimensional Short Boredom Proneness Scale (Struk et al., 2017, $\alpha = .91$) after being primed with risk salience of COVID-19. Following Tsai and Zheng (2021), we made some minor changes to the wording of the instrument to ensure that the state component of boredom can be appropriately assessed by this scale. Cross-cultural validation research has demonstrated that this 8-item scale has excellent internal consistency, test-retest reliability and validity for Chinese populations (Peng et al., 2020). Sample items include "*Much of the time, I just sit around doing nothing*" and "*Many things I have to do are repetitive and monotonous*". High scores represent a greater propensity to experience boredom.

Results and Discussion

All participants correctly answered two attention check questions and thus all data were included in the main analyses. Debriefing responses indicated that no participants correctly guessed the causal link between the priming phase and sadism aggression. For descriptive statistics, see Table 2. The first step in the analyses was to test whether our experimental manipulation increased people's perceived severity of COVID-19. Participants in the experimental condition ($M = 3.65$, $SD = 1.11$) reported that they were more severely affected by the pandemic than participants in the control condition ($M = 2.99$, $SD = 1.33$). This difference was significant, $t(294) = 6.91$, $p < .001$, Cohen's $d = 0.54$, 95% CI = [0.3768, 0.9380], and reflects a medium effect, that is, a successful manipulation of COVID-19 salience.

Consistent with Hypothesis 1, participants who were exposed to a reminder of COVID-19 and its influence on their daily lives exhibited a higher level of everyday sadism ($M = 1.78$, $SD = 2.12$) than participants in the control condition ($M = 1.20$, $SD = 1.56$). Thus, these findings provided further support for the idea that priming COVID-19 salience has an immediate, statistically significant impact on the emergence of sadistic tendencies, $t(294) = 2.69$, $p = .008$, Cohen's $d = 0.31$, 95% CI = [0.1552, 1.0063].

Moreover, participants in the experimental condition ($M = 3.82$, $SD = 1.24$) experienced more boredom than participants in the control condition ($M = 3.40$, $SD = 1.44$), $t(294) = 2.69$, $p = .008$, Cohen's $d = 0.31$, 95% CI = [0.1127, 0.7291]. We then conducted a 5,000-sample bootstrap mediational analyses using PROCESS Model 4 (Hayes, 2013). The results confirmed that state boredom levels mediated the effect of COVID-19 salience treatment on sadistic aggression: $b = .28$, $SE = .11$, 95% bias-corrected confidence interval = [0.0755, 0.5220]. The percentile confidence interval around the indirect effects did not contain zero, which provides support for Hypothesis 2.

Studies 1 and 2 offered good support for the predictions concerning the causal relationship between COVID-19 salience and everyday sadism (Hypothesis 1), and role of boredom to mediate the observed effect (Hypothesis 2). Note, however, that both studies relied exclusively on self-report measures when assessing sadistic tendencies. In other words, participants were asked to reflect on their sadistic behaviors across a broad range of unstructured real-life settings. To overcome limitations associated with self-report bias (i.e., social desirability), Study 3 employed a different behavioral

Table 2. Summary of Results—Study 2 ($N = 296$).

	COVID-19 Condition	Control Condition
Manipulation check	3.65 (1.11)	2.99 (1.33)
Sadistic tendencies	1.78 (2.12)	1.20 (1.56)
Boredom	3.82 (1.24)	3.40 (1.44)

operationalization of everyday sadism, which involves the observation of people's sadistic behaviour in more natural settings.

Study 3

Method

Participants. We recruited as many as participants within the constraints imposed by provided resources (in terms of research funding, participants availability, and the help of student research assistants) when the study took place. A total of 160 non-student participants (55.6% female; $M_{\text{age}} = 35.4$, $SD = 7.5$) were recruited using advertisements (the study topic: work character traits and challenging jobs) posted to Chinese social media over a given period of time (i.e., 2 weeks). They took part in the study for a momentary compensation (10 RMB yuan).

Materials and procedure. Upon arrival at the lab, participants provided written informed consent and were tested individually. The materials and procedures were the same as Study 2. The cronbach alphas for the Assessment of Sadistic Personality is 0.78 and for Short Boredom Proneness Scale is 0.91. The only exception is that we used behavioral measurement technologies to assess participants' sadistic tendencies after priming them with risk salience of COVID-19. Participants were told that the study topic in the next phase of the experiment was "personality traits and challenging jobs". In this bug-killing paradigm developed by [Buckels et al. \(2013\)](#), participants were offered an chance to shred worms using a "bug-crunching machine" that is actually a modified coffee grinder. A big grinding noise from the machine led participants to believe that they crushed the bugs into little pieces. Participants were told that there was one sow bug in each of the three cups placed in front of them. The bugs were assigned Chinese common names (Liming, Lihua, and Liwen) to attribute human qualities, and to increase the apparent cruelty of the intentional acts. However, we actually made a minor modification in the existing design of the machine (i.e. adding a barrier), unbeknownst to participants, to prevent the insects from actually being harmed or killed in compliance with ethical standards for animal research. Past research has shown that worm killing is a behavioral index of everyday sadism ([Li & Cao, 2022](#); [Lobbestael et al., 2020](#); [Martens et al., 2007](#)). The experimenter assessed participants' suspicion by using a "funnel debriefing" procedure. No participants expressed suspicion regarding the veracity of this odious work (e.g., "it was not a real killing machine" or "no bugs were killed").

Results and Discussion

All participants correctly answered two attention check questions and thus all data were included in the main analyses. Debriefing responses indicated that no participants correctly guessed the causal link between the priming phase and bug-crunching

behavior. The first step in the analyses was to test whether our experimental manipulation increased people's perceived severity of COVID-19. Participants in the experimental condition ($M = 3.75$, $SD = 1.08$) reported that they were more severely affected by the pandemic than participants in the control condition ($M = 3.09$, $SD = 1.45$). This difference was significant, $t(158) = 3.27$, $p = .001$, Cohen's $d = 0.52$, 95% $CI = [0.2624, 1.0626]$, and reflects a medium effect, that is, a successful manipulation of COVID-19 salience. Additional analysis indicates that sadistic scores were positively correlated with the number of worm shredding, $r(160) = .67$, $p < .001$, 95% $CI = [0.5746, 0.7475]$, which suggests that everyday sadism can be captured by this laboratory procedure. [Table 3](#)

In the experimental condition, 12 or 15% of 80 participants chose to be an exterminator and killed at least one sow bug (1 sow bug: $n = 6$, 7.5%; 2 sow bug: $n = 3$, 3.75%; all 3 sow bug: $n = 3$, 3.75%), while only 2 or 2.5% of 80 participants did so in the control condition. Critically, This difference was significant, $\chi^2(1, N = 160) = 7.83$, $p = .005$, Cramer's $V = 0.22$, 95% $CI = [0.0672, 0.3648]$. The results suggests that participants who were exposed to a reminder of COVID-19 were more likely to engage in sadistic behavior than participants who were exposed to neutral stimuli, supporting Hypothesis 1.

Moreover, participants in the experimental condition ($M = 3.72$, $SD = 1.30$) experienced more boredom than participants in the control condition ($M = 3.16$, $SD = 1.47$), $t(158) = 2.55$, $p = .01$, Cohen's $d = 0.41$, 95% $CI = [0.1266, 0.9953]$. We then conducted a 5,000-sample bootstrap mediational analyses using PROCESS Model 4 ([Hayes, 2013](#)). The results confirmed that state boredom levels mediated the effect of COVID-19 salience treatment on sadistic aggression: $b = .37$, $SE = .24$, 95% bias-corrected confidence interval = $[0.0509, 0.9767]$. The percentile confidence interval around the indirect effects did not contain zero, which provides support for Hypothesis 2. Thus, this study replicates the findings from Study 2 with a behavioral measure of sadism.

General Discussion

In recent years, an increasing number of empirical studies have documented a broad range of cognitive and psychological outcomes of COVID-19 ([Capuano et al., 2021](#); [Favieri et al., 2021](#); [Le & Nguyen, 2021](#)). However, remarkably little research attention

Table 3. Summary of Results—Study 3 ($N = 160$).

	COVID-19 Condition	Control Condition
Manipulation check	3.75 (1.08)	3.09 (1.45)
Sadistic tendencies	(Yes/No) 12:68	(Yes/No) 2:78
Boredom	3.72 (1.30)	3.16 (1.47)

has been directed toward understanding the causal relationship between pandemic influence and sadistic aggression. Consistent with our theoretical perspective, the effect of COVID-19 salience on sadistic tendencies was robust across three experiments that employed different research samples and several widely accepted measures of sadism. In Study 1, we experimentally examined causality and found that priming COVID-19 salience increased sadistic aggression in Chinese university students. Using a more generalized population, Study 2 found that compared to the control group, individuals who were exposed to a reminder of COVID-19 showed a higher level of sadism on self-report measures. Results also provided empirical support for the role of state boredom levels in explaining this effect. Study 3 provided a behavioral choice confirmation of the treatment effect. Overall, this is the first study to demonstrate that the unprecedented public health crisis, namely, the COVID-19 pandemic, can have important, broad ramifications for sadistic behavior.

In recent years, numerous studies have preliminarily documented the relationship between COVID-19 and dark personalities (Li & Cao, 2021; Nowak et al., 2020). However, previous research has primarily focused on the personality roots of behavioral responses to the COVID-19 pandemic (Konc et al., 2022, Van Mulukom et al., 2022). For example, Hardin et al. (2021) found that dark personalities showed much predictor power in accounting for several preventive measures surrounding the pandemic, such as hand hygiene behaviors. By contrast, the present research is among the first to examine the downstream effect of COVID-19 salience on sadistic aggression, an understudied dimension of dark personality traits during the pandemic. We demonstrated that the salience of COVID-19 led to higher levels of self-reported sadism and a greater preference for bug killing. In doing so, the current work contribute to a more complete picture of the contributors to dark personality development and behavior.

Note that these two streams of research suggest a possible bidirectional relationship between COVID-19 and everyday sadism. Thus, a critical next step in this line of research is to use longitudinal data to examine personality characteristics change during the pandemic. There is some initial evidence for this possibility. For example, Li and Cao (2021) found that participants from Wuhan, the initial epicenter of COVID-19, showed more marked psychopathic traits than participants in less affected areas. These findings suggest that individuals may become more psychologically eroded in unpredictable and adverse environments. However, dark personality is a constellation of several antisocial traits (Paulhus, 2014). Extensive future research will be needed to investigate the change of everyday sadism during the pandemic.

In line with previous findings (Pfattheicher et al., 2021), we found that sadism can overcome boredom arising from COVID-19. It may be that pleasure and excitement deriving from suffering or humiliation of others are an efficient approach to combat those feelings of meaninglessness associated with boredom (Baumeister & Campbell, 1999; Fromm, 1972; Milyavskaya et al., 2019). However, we do not argue that the pandemic makes everyone sadistic. The findings reported in Study 3 showed that only a very few participants (15%) chose to engage in sadistic behavior because shattering bugs into small pieces is an extremely cruel behavior that is not in line with private and

public norms. In addition, previous research has shown that sadism may not be the only option to cope with boredom in the face of COVID-19. For example, recent research indicates that people were more willing to take risks during the pandemic due to higher boredom levels (Li, 2023; Tsai & Zeng, 2021). Thus, risk taking also reflects a “tool” to buffer the threat of meaninglessness in times of the new coronavirus disease.

Importantly, we are cognizant of the fact that boredom may not be the only mechanism linking COVID-19 to sadistic behavior. The social psychological literature has suggested other mechanisms through which an extreme exogenous shock, such as the current pandemic, may increase sadistic aggression (Themelidis & Davies, 2021). For example, anxiety and depression have been reported to be significantly related with sadistic acts. Much evidence has shown that the COVID-19 pandemic led to a sharp increase in the prevalence of both anxiety and depression symptoms (Bozdağ, 2021; Sebrı et al., 2021). Therefore, when individuals are exposed to a reminder of COVID-19, they may suffer higher levels of anxiety and depression, which can make them more likely to engage in sadistic behavior (Browning, 1992; Lifton, 1986). Such alternative mechanisms warrant further investigation.

We hope that this research will inform policymakers and the broader society about the dark side of COVID-19 at a psychological level. A substantial body research has revealed that everyday sadism is meaningfully associated with a wide range of aggressive and destructive behavior, such as animal cruelty, sexual offending, fascination with weapons, and vandalistic acts (Gonzalez & Greitemeyer, 2018; March, 2019; Miller, 2001). These antisocial behavior may produce significant individual and social harms. According to the mediation analysis, the observed effect is largely driven by state boredom level. Thus, it would be wise to figure out ways that can cope with boredom due to COVID-19 home confinement. Recent studies indicated that virtual social activities to stay connected and home-based sports activities are useful approaches to increase meaningfulness of life and to break through boredom (Lambert et al., 2013; Rohrer et al., 2018). In addition, psychologist, psychiatrist, and mental health professionals can provide psychological aids to help affected individuals combat boredom and resulting sadistic aggression (Su et al., 2021).

Our research also has some limitations. First, we implemented our studies when the coronavirus disease was ravaging the global environment. Thus, even participants who were exposed to neutral stimuli were likely to engage in COVID-related concerns as they took part in the experiments. To quell this concern, this paper presents findings with a set of studies conducted in China that has managed to control the pandemic rapidly and effectively due to its strict zero-Covid policy. However, the effect of priming COVID-19 salience on everyday sadism in a different cultural or geographical context may not be as strong as observed in Chinese populations. Future scholars can test the generalizability of the original study in other cultural groups.

Second, due to “convenient” sources of data, our sample profiles did not match exactly that of the overall population in terms of demographic and socioeconomic variables, such as age, gender, monthly income, education background, and ethnicity. The key disadvantage of this non-probability sampling technique is that the research

results may lack clear generalizability within the wider research industry. Future studies including a truly nationally representative, random, stratified probability sample of respondents would be valuable to increase both internal validity and the likelihood that findings may apply to a larger population.

Third, because randomly assigning participants to physically contract COVID-19 would be impractical and ethically controversial, our experiments used news reports and interview to simulate the psychological experience of the pandemic. There is no denying that priming the participants to think about the disease and its impacts on their daily lives is not the same as exposing them to the actual virus. This constitutes a limitation of the present studies and awaits future investigation.

Fourth, due to time and financial constraints, the current work only recorded a limited number of sociodemographic characteristics of the participants enrolled in the experiments. Yet, this is not to say that those undocumented variables exert no influence on the observed effects in the present research. A use of wider array of predictors to create more flexible and sophisticated statistical models, such as multiple regression, is an important issue worthy of future research. These models can be credited with improving the amount of variance explained in performance

Finally, while the present research has focused on the mediating mechanisms for the consequences of COVID-19, future studies could explore potential moderators, such as dispositional sadism and boredom proneness. Dispositional sadism, defined as the tendency for displaying recurrent aggression and cruel behavior, may moderate the effect of COVID-19 on sadism. For example, [Pfattheicher et al. \(2021\)](#) found that boredom exerted little or no influence on individuals who were not predisposed to be sadistic. Thus, it is likely that individuals high in trait sadism may be more susceptible to the salience of COVID-19. In addition, boredom proneness could be another moderator, such that people showed a greater tendency to experience boredom during the pandemic may be more likely to engage in sadistic behavior.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID iD

Heng Li  <https://orcid.org/0000-0002-6074-3397>

References

- Arkow, P., & Campbell, A. (2020). Unintended consequences of COVID-19 include increases in child and animal abuse and domestic violence. *WellBeing News*, 2(8), 2.
- Arora, T., Grey, I., Östlundh, L., Lam, K. B. H., Omar, O. M., & Arnone, D. (2022). The prevalence of psychological consequences of COVID-19: A systematic review and meta-analysis of observational studies. *Journal of Health Psychology*, 27(4), 805–824, <https://doi.org/10.1177/1359105320966639>
- Barbalet, J. M. (1999). Boredom and social meaning. *The British Journal of Sociology*, 50(4), 631–646. <https://doi.org/10.1111/j.1468-4446.1999.00631.x>
- Barnes, S. J. (2021). Stuck in the past or living in the present? Temporal focus and the spread of COVID-19. *Social Science & Medicine*, 280, 114057. <https://doi.org/10.1016/j.socscimed.2021.114057>
- Baumeister, R. F., & Campbell, W. K. (1999). The intrinsic appeal of evil: Sadism, sensational thrills, and threatened egotism. *Personality and Social Psychology Review*, 3(3), 210–221. https://doi.org/10.1207/s15327957pspr0303_4
- Boateng, G. O., Doku, D. T., Enyan, N. I. E., Owusu, S. A., Aboh, I. K., Kodom, R. V., Ekumah, B., Quansah, R., Boamah, S. A., Obiri-Yeboah, D., Nsabimana, E., Jansen, S., Armah, F. A., & Armah, F. A. (2021). Prevalence and changes in boredom, anxiety and well-being among Ghanaians during the COVID-19 pandemic: A population-based study. *BMC Public Health*, 21(1), 985–1013. <https://doi.org/10.1186/s12889-021-10998-0>
- Bozdağ, F. (2021). The psychological effects of staying home due to the COVID-19 pandemic. *The Journal of General Psychology*, 148(3), 226–248. <https://doi.org/10.1080/00221309.2020.1867494>
- Browning, C. (1992). *Ordinary men: Reserve police battalion 101 and the final solution in Poland*. HarperCollins.
- Buckels, E. E., Jones, D. N., & Paulhus, D. L. (2013). Behavioral confirmation of everyday sadism. *Psychological Science*, 24(11), 2201–2209. <https://doi.org/10.1177/0956797613490749>
- Capuano, R., Altieri, M., Bisecco, A., d’Ambrosio, A., Docimo, R., Buonanno, D., Matrone, F., Giuliano, F., Tedeschi, G., Santangelo, G., & Gallo, A. (2021). Psychological consequences

- of COVID-19 pandemic in Italian MS patients: Signs of resilience? *Journal of Neurology*, 268(3), 743–750. <https://doi.org/10.1007/s00415-020-10099-9>
- Chao, M., Chen, X., Liu, T., Yang, H., & Hall, B. J. (2020). Psychological distress and state boredom during the COVID-19 outbreak in China: The role of meaning in life and media use. *European Journal of Psychotraumatology*, 11(1), 1769379. <https://doi.org/10.1080/20008198.2020.1769379>
- Droit-Volet, S., Gil, S., Martinelli, N., Andant, N., Clinchamps, M., Parreira, L., Rouffiac, K., Dambun, M., Huguët, P., Dubuis, B., Pereira, B., Bouillon, J. B., & Dutheil, F. (2020). Time and Covid-19 stress in the lockdown situation: Time free, «Dying» of boredom and sadness. *PLoS One*, 15(8), e0236465. <https://doi.org/10.1371/journal.pone.0236465>
- Eastwood, J. D., Frischen, A., Fenske, M. J., & Smilek, D. (2012). The unengaged mind: Defining boredom in terms of attention. *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 7(5), 482–495. <https://doi.org/10.1177/1745691612456044>
- Favieri, F., Forte, G., Agostini, F., Giovannoli, J., Di Pace, E., Langher, V., Tambelli, R., Pazzaglia, M., Giannini, A. M., & Casagrande, M. (2021). The cognitive consequences of the COVID-19 pandemic on members of the general population in Italy: A preliminary study on executive inhibition. *Journal of Clinical Medicine*, 11(1), 170. <https://doi.org/10.3390/jcm11010170>
- Fromm, E. (1972). *Fromm's theory of aggression*. The New York Times Magazine. <https://nyti.ms/2Gcd2Ve>
- Gonzalez, J. M., & Greitemeyer, T. (2018). The relationship between everyday sadism, violent video game play, and fascination with weapons. *Personality and Individual Differences*, 124, 51–53. <https://doi.org/10.1016/j.paid.2017.11.045>
- Gover, A. R., Harper, S. B., & Langton, L. (2020). Anti-Asian hate crime during the COVID-19 pandemic: Exploring the reproduction of inequality. *American Journal of Criminal Justice: AJCJ*, 45(4), 647–667. <https://doi.org/10.1007/s12103-020-09545-1>
- Hardin, B. S., Smith, C. V., & Jordan, L. N. (2021). Is the COVID-19 pandemic even darker for some? Examining dark personality and affective, cognitive, and behavioral responses to the COVID-19 pandemic. *Personality and Individual Differences*, 171, 110504. <https://doi.org/10.1016/j.paid.2020.110504>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Ibn-Mohammed, T., Mustapha, K. B., Godsell, J., Adamu, Z., Babatunde, K. A., Akintade, D. D., Acquaye, A., Fujii, H., Ndiaye, M. M., Yamoah, F. A., Koh, S. C. L., & Koh, S. C. L. (2021). A critical analysis of the impacts of COVID-19 on the global economy and ecosystems and opportunities for circular economy strategies. *Resources, Conservation and Recycling*, 164, 105169. <https://doi.org/10.1016/j.resconrec.2020.105169>
- Karwowski, M., Groyecka-Bernard, A., Kowal, M., & Sorokowski, P. (2020). Does thinking about coronavirus impact insight and analytical reasoning? *Thinking Skills and Creativity*, 38, 100715. <https://doi.org/10.1016/j.tsc.2020.100715>

- Konc, I., Petrović, K., & Dinić, B. M. (2022). Dark Tetrad and COVID-19 protective measures: Mediating effects of risk-taking tendencies. *Personality and Individual Differences, 186*, 111341. <https://doi.org/10.1016/j.paid.2021.111341>
- Kovler, M. L., Ziegfeld, S., Ryan, L. M., Goldstein, M. A., Gardner, R., Garcia, A. V., & Nasr, I. W. (2021). Increased proportion of physical child abuse injuries at a level I pediatric trauma center during the Covid-19 pandemic. *Child Abuse & Neglect, 116*(Pt 2), 104756. <https://doi.org/10.1016/j.chiabu.2020.104756>
- Kumar, A., & Nayar, K. R. (2021). COVID 19 and its mental health consequences. *Journal of Mental Health, 30*(1), 1–2. <https://doi.org/10.1080/09638237.2020.1757052>
- Lambert, N. M., Stillman, T. F., Hicks, J. A., Kamble, S., Baumeister, R. F., & Fincham, F. D. (2013). To belong is to matter: Sense of belonging enhances meaning in life. *Personality & Social Psychology Bulletin, 39*(11), 1418–1427. <https://doi.org/10.1177/0146167213499186>
- Lawson, M., Piel, M. H., & Simon, M. (2020). Child maltreatment during the COVID-19 pandemic: Consequences of parental job loss on psychological and physical abuse towards children. *Child Abuse & Neglect, 110*(Pt 2), 104709. <https://doi.org/10.1016/j.chiabu.2020.104709>
- Le, K., & Nguyen, M. (2021). The psychological consequences of COVID-19 lockdowns. *International Review of Applied Economics, 35*(2), 147–163. <https://doi.org/10.1080/02692171.2020.1853077>
- Li, H. (2021). Time heals all wounds: Analysis of changes in temporal focus and implicit space–time mappings among survivors of the 2019 China earthquake over time. *Language and Cognition, 13*(4), 595–612. <https://doi.org/10.1017/langcog.2021.14>
- Li, H. (2023). Life is either a daring adventure, or it is boring: The impact of COVID-19 on immoral and nonmoral risk taking behaviors. *Journal of Behavioral Decision Making. https://doi.org/10.1002/bdm.2319*
- Li, H., & Cao, Y. (2021). The bright side of the COVID-19 pandemic: Public coughing weakens the overconfidence bias in non-health domains. *Personality and Individual Differences, 178*, 110861. <https://doi.org/10.1016/j.paid.2021.110861>.
- Li, H., & Cao, Y. (2022). Your pain, my gain: The relationship between self-report and behavioral measures of everyday sadism and COVID-19 vaccination intention. *Current Psychology, 1–8*. <https://doi.org/10.1007/s12144-022-02791-y>
- Li, H., & Shen, S. (2022). A clearer sense of self: Relationship between bilingualism and overconfidence bias. *Journal of Multilingual and Multicultural Development, 43*(7), 600–613. <https://doi.org/10.1080/01434632.2020.1749644>
- Li, J., Long, X., Zhang, Q., Fang, X., Fang, F., Lv, X., Zhang, D., Sun, Y., Li, N., Hu, S., Lin, Z., & Xiong, N. (2021). Emerging evidence for neuropsychological consequences of COVID-19. *Current Neuropsychology, 19*(1), 92–96. <https://doi.org/10.2174/1570159X18666200507085335>
- Lifton, R. (1986). *The Nazi doctors: Medical killing and the psychology of genocide*. Basic Books
- Lipsky, P. Y. (2020). COVID-19 and the politics of crisis. *International Organization, 74*(S1), E98–E127. <https://doi.org/10.1017/s0020818320000375>

- Lobbestael, J., van Teffelen, M., & Baumeister, R. F. (2020). Psychopathy subfactors distinctively predispose to dispositional and state-level of sadistic pleasure. *Journal of Behavior Therapy and Experimental Psychiatry*, *67*, 101458. <https://doi.org/10.1016/j.jbtep.2019.02.003>
- Lu, Y., Kaushal, N., Huang, X., & Gaddis, S. M. (2021). Priming COVID-19 salience increases prejudice and discriminatory intent against Asians and Hispanics. *Proceedings of the National Academy of Sciences of the United States of America*, *118*(36), e2105125118. <https://doi.org/10.1073/pnas.2105125118>
- March, E. (2019). Psychopathy, sadism, empathy, and the motivation to cause harm: New evidence confirms malevolent nature of the Internet Troll. *Personality and Individual Differences*, *141*, 133–137. <https://doi.org/10.1016/j.paid.2019.01.001>
- Martens, A., Kosloff, S., Greenberg, J., Landau, M. J., & Schmader, T. (2007). Killing begets killing: Evidence from a bug-killing paradigm that initial killing fuels subsequent killing. *Personality & Social Psychology Bulletin*, *33*(9), 1251–1264. <https://doi.org/10.1177/0146167207303020>
- Miller, C. (2001). Childhood animal cruelty and interpersonal violence. *Clinical Psychology Review*, *21*(5), 735–749. [https://doi.org/10.1016/s0272-7358\(00\)00066-0](https://doi.org/10.1016/s0272-7358(00)00066-0)
- Milyavskaya, M., Inzlicht, M., Johnson, T., & Larson, M. J. (2019). Reward sensitivity following boredom and cognitive effort: A highpowered neurophysiological investigation. *Neuropsychologia*, *123*, 159–168. <https://doi.org/10.1016/j.neuropsychologia.2018.03.033>
- Nowak, B., Brzóska, P., Piotrowski, J., Sedikides, C., Žemojtel-Piotrowska, M., & Jonason, P. K. (2020). Adaptive and maladaptive behavior during the COVID-19 pandemic: The roles of Dark Triad traits, collective narcissism, and health beliefs. *Personality and Individual Differences*, *167*, 110232. <https://doi.org/10.1016/j.paid.2020.110232>
- O'Meara, A., Davies, J., & Hammond, S. (2011). The psychometric properties and utility of the short sadistic Impulse scale (SSIS). *Psychological Assessment*, *23*(2), 523–531. <https://doi.org/10.1037/a0022400>
- Paulhus, D. L. (2014). Toward a taxonomy of dark personalities. *Current Directions in Psychological Science*, *23*(6), 421–426. <https://doi.org/10.1177/0963721414547737>
- Paulhus, D. L., & Dutton, D. G. (2016). Everyday sadism. In V. Zeigler-Hill & D. K. Marcus (Eds.), *The dark side of personality: Science and practice in social, personality, and clinical psychology* (pp. 109–120). American Psychological Association
- Peng, J., Guo, W., Zhao, L., Han, X., & Wu, S. (2020). Short boredom proneness scale: Adaptation and validation of a Chinese version with college students. *Social Behavior and Personality: An International Journal*, *48*(2), 1–8. <https://doi.org/10.2224/sbp.8968>
- Pfätheicher, S., Lazarević, L. B., Westgate, E. C., & Schindler, S. (2021). On the relation of boredom and sadistic aggression. *Journal of Personality and Social Psychology*, *121*(3), 573–600. <https://doi.org/10.1037/pspi0000335>
- Ritchie, K., Chan, D., & Watermeyer, T. (2020). The cognitive consequences of the COVID-19 epidemic: Collateral damage? *Brain Communications*, *2*(2), fcaa069. <https://doi.org/10.1093/braincomms/fcaa069>

- Rohrer, J. M., Richter, D., Brümmer, M., Wagner, G. G., & Schmukle, S. C. (2018). Successfully striving for happiness: Socially engaged pursuits predict increases in life satisfaction. *Psychological Science, 29*(8), 1291–1298. <https://doi.org/10.1177/0956797618761660>
- Sebri, V., Cincidda, C., Savioni, L., Ongaro, G., & Pravettoni, G. (2021). Worry during the initial height of the COVID-19 crisis in an Italian sample. *The Journal of General Psychology, 148*(3), 327–359. <https://doi.org/10.1080/00221309.2021.1878485>
- Struk, A. A., Carriere, J. S. A., Cheyne, J. A., & Danckert, J. (2017). A short boredom proneness scale: Development and psychometric properties. *Assessment, 24*(3), 346–359. <https://doi.org/10.1177/1073191115609996>
- Su, Q., Ma, X., Liu, S., Liu, S., Goodman, B. A., Yu, M., & Guo, W. (2021). Adverse psychological reactions and psychological aids for medical staff during the COVID-19 outbreak in China. *Frontiers in Psychiatry, 12*, 580067. <https://doi.org/10.3389/fpsyg.2021.580067>
- Talevi, D., Socci, V., Carai, M., Carnaghi, G., Faleri, S., Trebbi, E., di Bernardo, A., Capelli, F., & Pacitti, F. (2020). Mental health outcomes of the CoViD-19 pandemic. *Rivista di Psichiatria, 55*(3), 137–144. <https://doi.org/10.1708/3382.33569>
- Tang, M., Hofreiter, S., Reiter-Palmon, R., Bai, X., & Murugavel, V. (2021). Creativity as a means to well-being in times of COVID-19 pandemic: Results of a cross-cultural study. *Frontiers in Psychology, 12*, 601389. <https://doi.org/10.3389/fpsyg.2021.601389>
- Themelidis, L., & Davies, J. (2021). Creating evil: Can sadism be induced? *Personality and Individual Differences, 168*, 110358. <https://doi.org/10.1016/j.paid.2020.110358>
- Thomas, E. Y., Anurudran, A., Robb, K., & Burke, T. F. (2020). Spotlight on child abuse and neglect response in the time of COVID-19. *The Lancet. Public Health, 5*(7), e371. [https://doi.org/10.1016/S2468-2667\(20\)30143-2](https://doi.org/10.1016/S2468-2667(20)30143-2)
- Todman, M. (2003). Boredom and psychotic disorders: Cognitive and motivational issues. *Psychiatry, 66*(2), 146–167. <https://doi.org/10.1521/psyc.66.2.146.20623>
- Tsai, C. I., & Zeng, Y. (2021). Risky but alluring: Severe COVID-19 pandemic influence increases risk taking. *Journal of Experimental Psychology. Applied, 27*(4), 679–694. <https://doi.org/10.1037/xap0000380>
- Van Tilburg, W. A. P., & Igou, E. R. (2012). On boredom: Lack of challenge and meaning as distinct boredom experiences. *Motivation and Emotion, 36*(2), 181–194. <https://doi.org/10.1007/s11031-011-9234-9>
- Van Mulukom, V., Pummerer, L. J., Alper, S., Bai, H., Čavoјová, V., Farias, J., & Žeželj, I. (2022). Antecedents and consequences of COVID-19 conspiracy beliefs: A systematic review. *Social Science & Medicine, 301*, 114912. <https://doi.org/10.1016/j.socscimed.2022.114912>
- Waterschoot, J., Van der Kaap-Deeder, J., Morbée, S., Soenens, B., & Vansteenkiste, M. (2021). How to unlock myself from boredom?" The role of mindfulness and a dual awareness-and action-oriented pathway during the COVID-19 lockdown. *Personality and Individual Differences, 175*, 110729. <https://doi.org/10.1016/j.paid.2021.110729>
- Xu, J., Ou, J., Luo, S., Wang, Z., Chang, E., Novak, C., Shen, J., Zheng, S., & Wang, Y. (2020). Perceived social support protects lonely people against COVID-19 anxiety: A three-wave longitudinal study in China. *Frontiers in Psychology, 11*, 566965. <https://doi.org/10.3389/fpsyg.2020.566965>

- Yang, Z., Yin, J., Cheng, Y., Liu, L., & Zhang, F. (2018). The factor structure of sadistic personality and its relation with impulsive personality. *Applied Psychology, 24*(3), 203–212.
- Zhai, Y., & Du, X. (2020). Mental health care for international Chinese students affected by the COVID-19 outbreak. *The Lancet. Psychiatry, 7*(4), e22. [https://doi.org/10.1016/S2215-0366\(20\)30089-4](https://doi.org/10.1016/S2215-0366(20)30089-4)
- Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. *Finance Research Letters, 36*(4), 101528. <https://doi.org/10.1016/j.frl.2020.101528>

Author Biography

Heng Li is a professor at Sichuan International Studies University. His work seeks to explore cultural and individual differences in cognitive processing. His multidisciplinary interests bring him to address this question from various interrelated perspectives: cognitive linguistics, lab experiments, signed languages, spontaneous gestures, and field research.