PNAS RESEARCH ARTICLE | PSYCHOLOGICAL AND COGNITIVE SCIENCES

Masks as a moral symbol: Masks reduce wearers' deviant behavior in China during COVID-19

Jackson G. Lu[a,1,2], Lesley Luyang Song[b,1], Yuhuang Zheng[b,2], and Laura Changlan Wang[a]

Edited by Timothy Wilson, University of Virginia, Charlottesville, VA; received June 28, 2022; accepted August 7, 2022

Since the outbreak of COVID-19, mask wearing has become a global phenomenon. How do masks influence wearers' behavior in everyday life? We examine the effect of masks on wearers' deviant behavior in China, where mask wearing is mostly a public-health issue rather than a political issue. Drawing on behavioral ethics research, we test two competing hypotheses: (a) masks disinhibit wearers' deviant behavior by increasing their sense of anonymity and (b) masks are a moral symbol that reduces wearers' deviant behavior by heightening their moral awareness. The latter hypothesis was consistently supported by 10 studies (including direct replications) using mixed methods (e.g., traffic camera recording analysis, observational field studies, experiments, and natural field experiment) and different measures of deviant behavior (e.g., running a red light, bike parking in no-parking zones, cheating for money, and deviant behavior in the library). Our research (n = 68,243) is among the first to uncover the psychological and behavioral consequences of mask wearing beyond its health benefits.

social psychology | behavioral ethics | deviance | unethical behavior | COVID-19

Significance

Due to COVID-19, mask wearing has become a global phenomenon and a widespread topic of discussion. How do masks influence wearers' behavior in everyday life? We examine the effect of masks on wearers' deviant behavior in China, where mask wearing is mostly a public-health issue rather than a political issue. Across 10 studies using mixed methods and different measures of deviant behavior, we provide evidence that masks are a moral symbol in China that reduces wearers' deviant behavior by heightening their moral awareness. Our research is among the first to uncover the psychological and behavioral consequences of mask wearing beyond its health benefits.

Since the outbreak of the novel coronavirus (COVID-19), mask wearing has become a global phenomenon (1). Because masks reduce the spread of COVID-19, studies have examined predictors of mask wearing, including demographic factors (2–5), education level (6), mask policies (7), political affiliation (8, 9), empathy (10), and cultural values (6). By contrast, little research has examined the psychological consequences of mask wearing: How do masks influence wearers' behavior in everyday life?

To help address this knowledge gap, the present research examines the effect of masks on wearers' deviant behavior, which is defined as voluntary behavior that violates significant societal norms and threatens the well-being of a society, its members, or both (11). Examples of deviant behavior include running a red light, parking in no-parking zones (12), littering in public places (13), cheating for money (14–17), talking in the library (18), and so forth. It is important to mitigate such deviant behaviors because they harm individuals, organizations, and society (19, 20). For example, running red lights accounts for 21.5% of the deaths caused by pedestrians in China from 2009 to 2013 (21). As another example of the societal toll of deviant behavior, theft is estimated to cost 1.13 trillion yuan in China each year (22).

Drawing on behavioral ethics research, we test two competing hypotheses about the effect of masks on wearers' deviant behavior. On the one hand, masks may disinhibit wearers' deviant behavior by increasing their sense of anonymity. On the other hand, masks may function as a moral symbol that reduces wearers' deviant behavior by heightening their moral awareness. To test the link between mask wearing and deviance, we conducted 10 studies in China using mixed methods. We chose to focus on China for several reasons. First, mask wearing is mostly a public-health issue in China (23), whereas it has been a politically divisive issue in countries like the United States (4, 6), Austria (24), Germany (25), Spain (26), Australia (27), and South Africa (28), which have witnessed antimask campaigns. Second, Chinese citizens are used to being asked to put on masks in daily life (23). This ensures the ecological validity of our experimental manipulation, such that asking Chinese participants to put on masks would not be unnatural. Third, understanding the effect of mask wearing on deviance in China has large-scale practical implications, as China is the most populous country in the world. Fourth, we had unique empirical opportunities in China (e.g., privileged access to traffic camera recordings and a rare chance to conduct a natural field experiment in a university library). We discuss the generalizability of our findings in the *Limitations and Future Directions* section.

Do Masks Increase or Decrease Wearers' Deviant Behavior? Two Competing Hypotheses

Drawing on behavioral ethics research, we present two competing hypotheses for the effect of masks on wearers' deviant behavior.

Author affiliations: [a]MIT Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA 02142; and [b]School of Economics and Management, Tsinghua University, Beijing 100084, China

Author contributions: J.G.L., L.L.S., Y.Z., and L.C.W. designed research; L.L.S. collected data; J.G.L., L.L.S., and L.C.W. analyzed data; J.G.L. wrote the paper; and L.L.S, Y.Z., and L.C.W. provided critical revisions.

The authors declare no competing interest.

This article is a PNAS Direct Submission.

[1]J.G.L. and L.L.S. contributed equally to this work.

[2]To whom correspondence may be addressed. Email: lu18@mit.edu or zhengyh@sem.tsinghua.edu.cn.

This article contains supporting information online at http://www.pnas.org/lookup/suppl/doi:10.1073/pnas.2211144119/-/DCSupplemental.

Published October 4, 2022.

Competing Hypothesis: Masks as an Anonymizer. Masks may disinhibit wearers' deviant behavior by increasing their sense of anonymity. Masks cover a large part of the face and help conceal wearers' identities (e.g., it is hard to identify a red-light runner if the person is wearing a mask). When individuals feel anonymous, their social desirability concerns decrease (29). They are less concerned about projecting a positive self-image or about being caught when exhibiting deviant behavior. Indeed, prior studies suggest that a sense of anonymity can disinhibit deviant behaviors. For example, Zimbardo (30) found that participants dressed in identity-concealing hoods delivered longer electric shocks to strangers than did participants with no hoods. Another experiment found that participants in a room with dimmed lighting cheated for money more than those in a well-lit room (31). A simulation driving experiment (32) found that participants drove in a more deviant manner when they were anonymous (e.g., in convertible vehicles with the tops closed) than when they were visible (e.g., in convertible vehicles with the tops open). Furthermore, felt anonymity positively predicts cyberbullying behavior (33).

In light of this body of research, one hypothesis is that masks may increase wearers' deviant behavior, an effect mediated by an increased sense of anonymity.

Competing Hypothesis: Masks as a Moral Symbol. A competing hypothesis is that masks may function as a moral symbol that reduces wearers' deviant behavior by heightening their moral awareness. In China, masks are not only widely accepted as a preventative measure but may also be viewed as a moral symbol. Masks symbolize the moral duty and virtue of protecting others and sacrificing one's personal convenience for the collective welfare (6, 34). Enclothed cognition theory (35) posits that "what we wear can influence how we think, feel, and act" (p. 157). Empirical studies have shown that the symbolic meaning of clothes can influence wearers' psychological processes (36–38). For example, López-Pérez et al. (38) found that wearing a nurse's tunic increased empathic concern. Gamble and Walker (37) found that wearing a helmet (vs. a baseball cap) unconsciously activated safety-related concepts. In a similar vein, masks may be a moral symbol that influences wearers' psychology.

As a moral symbol, masks may increase the accessibility of the concept of morality and heighten wearers' moral awareness (39), which is defined as "a person's determination that a situation contains moral content and legitimately can be considered from a moral point of view" (40). When wearing a mask (vs. not), an individual may be more aware of how deviant behaviors are wrong or harmful (e.g., it is wrong to park bikes in no-parking zones, cheat for money, or talk in the library). Moral awareness can lead the individual to choose the morally right course of action (41). Indeed, studies have demonstrated that moral awareness can reduce deviant behavior (39, 42, 43). For example, Welsh and Ordóñez (43) found that raising moral awareness by priming participants with morality-related words (e.g., right, good, and fair) reduced dishonesty.

Taken together, if masks are a moral symbol that increases wearers' moral awareness and if moral awareness decreases deviance, then a reasonable competing hypothesis is that masks may reduce wearers' deviance, an effect mediated by increased moral awareness.

Overview of Studies

As discussed above, both competing hypotheses are theoretically plausible: While masks may disinhibit wearers' deviant behavior by increasing their sense of anonymity, they may also function as a moral symbol that reduces wearers' deviant behavior by heightening their moral awareness. For transparency, we were initially agnostic about whether masks would increase or decrease wearers' deviance in China.

To test the link between mask wearing and deviance, we conducted 10 studies (n = 68,243) using different measures of deviance and mixed methods. In study 1, we procured privileged access to traffic camera recordings of a crossing and found that mask-wearing pedestrians and cyclists were less likely to run a red light than those without masks. To rule out individual differences in risk aversion as an alternative explanation, studies 2a and 2b examined a deviant behavior unrelated to mask wearers' personal safety: bike parking in no-parking zones. We conducted two observational field studies and found that mask wearing negatively predicted bike parking in no-parking zones. To establish causality between mask wearing and reduced deviance, we conducted experiments in studies 3, 4a, and 4b. Participants who were randomly assigned to wear a mask (vs. not) exhibited lower deviant intent (study 3) and deviant behavior (studies 4a and 4b). To understand why masks reduce wearers' deviance, study 5 found that Chinese people viewed masks as a moral symbol and that moral awareness tended to be higher in mask-wearing situations than at baseline (without mentioning masks). Consistent with study 5, studies 6a and 6b experimentally established moral awareness as a mediator for the mitigating effect of masks on wearers' deviance while ruling out the role of sense of anonymity. In study 7, we leveraged a natural field experiment and found that Chinese students who were randomly asked (vs. not asked) to wear a mask were less likely to exhibit deviant behavior in the library (e.g., talking, watching distracting videos, and playing video games). Table 1 summarizes the key findings of each study.

Study 1. Mask Wearing Negatively Predicts Traffic Violations

Leveraging a unique and large dataset of traffic camera recordings, study 1 examined whether mask wearing negatively predicted whether a pedestrian/cyclist ran a red light, a deviant behavior that violates traffic laws. For the period from January 4 to January 17, 2022, we were granted privileged access to traffic camera recordings of a crossing in an eastern Chinese city.

Besides gender, we considered various control variables to rule out alternative explanations. First, when it is cold outside, individuals may be both (a) more likely to wear a mask to stay warm and (b) more impatient with waiting for red lights in the cold. Thus, we controlled for daily mean temperature of the city, which was sourced from https://tianqi.2345.com. Second, when air pollution is high, individuals are more likely to wear a mask. Meanwhile, prior research suggests that air pollution may increase deviant behavior by heightening state anxiety (44–46). Thus, we controlled for daily mean Air Quality Index of the city, which was also sourced from https://tianqi.2345.com. Third, to account for unobserved time-specific characteristics, we controlled for day-of-the-week fixed effect and hour-of-the-day fixed effect.

Results and Discussion. We coded 60,827 pedestrians and cyclists in total (46.4% female). Of these, 74.0% wore masks and 5.9% ran a red light. A logistic regression with controls found that mask wearers were significantly less likely to run a red light than non-wearers (*SI Appendix*, Table S1, model 2: $B = -1.39$, $SE = 0.04$, $Wald\ z = -39.38$, $P < 0.001$); the pseudo-R^2 change from model 1 to model 2 in *SI Appendix*,

Table 1. Overview of studies

Study	Nature	Sample size	Findings
1	Traffic camera recording analysis	60,827	Mask-wearing pedestrians and cyclists were less likely to run a red light than those without masks. Mask wearing explained a meaningful proportion of the variance (5.6%) in running a red light.
2a	Observational field study	2,431	Mask-wearing cyclists were less likely to park bikes in a no-parking zone (a deviant behavior unrelated to mask wearers' personal safety) than those without masks. Mask wearing explained a meaningful proportion of the variance (4.0%) in deviant parking.
2b	Observational field study	874	Mask-wearing cyclists were less likely to park bikes in a no-parking zone than those without masks. Mask wearing explained a meaningful proportion of the variance (4.1%) in deviant parking.
3	Experiment	200	Compared with participants in the no-mask condition, participants in the mask condition exhibited lower deviant intent.
4a	Experiment	400	Compared with participants in the no-mask condition, participants in the mask condition were less likely to cheat for money.
4b	Experiment	400	Direct replication of Study 4a
5	Survey	200	Chinese people viewed masks as a moral symbol. They considered themselves more ethical if they wore masks (vs. not) and considered another person more ethical if he/she wore a mask (vs. not). Within an individual, moral awareness was on average higher in mask-wearing situations than at baseline (without mentioning masks).
6a	Experiment (mediator tested)	400	Compared with participants in the no-mask condition, participants in the mask condition were less likely to cheat for money. This effect was mediated by moral awareness, but not by sense of anonymity.
6b	Experiment (mediator tested)	400	Direct replication of Study 6a
7	Natural field experiment	2,111	Students who were randomly asked (vs. not asked) to wear a mask were less likely to behave deviantly in the library.

Table S1 indicates that mask wearing explained a reasonable and meaningful proportion of the variance (5.6%) in running a red light.* The effect of mask wearing was robust in an ordinary least squares (OLS) regression (*SI Appendix*, Table S2, model 2: $B = -0.09$, $SE = 0.002$, $P < 0.001$). Moreover, the effect existed for each of the 14 observation days (*SI Appendix*, Table S3), which highlights the reliability of our results.

Despite its methodological novelty and robust findings, study 1 was correlational in nature and open to alternative explanations. For example, individuals who care little about safety could be both less likely to wear a mask to prevent COVID-19 and more likely to run a red light. To address this possibility, the next two studies examined a deviant behavior unrelated to mask wearers' personal safety.

Study 2a. Mask Wearing Negatively Predicts Deviant Bike Parking

In study 2a, we conducted an observational field study at a Chinese university to test whether mask wearing would negatively predict bike parking in a no-parking zone. Notably, this deviant behavior is (a) unrelated to mask wearers' personal safety and (b) not punished by the university. Thus, individual differences in (a) safety concerns and (b) fear of punishment are unlikely to explain any observed effects of mask wearing.

We conducted the observational field study in a large Chinese university, where many people bike from one place to another on campus. Because of the heavy traffic during lunch and dinner hours, a university cafeteria designated a large bike-parking zone, indicated by white lines and the sign "Parking for bicycle" (Fig. 1). For emergency evacuation and fire-truck access, the cafeteria also designated a no-parking zone indicated by salient yellow cross marks (Fig. 1). However, for personal convenience, some people park their bikes in the no-parking zone—even when there are still empty racks in the parking zone (Fig. 2). This is a deviant behavior that inconveniences others and violates fire-control laws, which prohibit the blocking of evacuation routes, safety exits, or fire-truck access. Nevertheless, the university does not formally monitor or punish this deviant behavior (e.g., by confiscating bikes in the no-parking zone).

In April 2022, a student researcher observed deviant bike-parking behavior during lunch hours (12 PM–1 PM) or dinner hours (5:30 PM–6:30 PM) for five random nonholidays: April 6, 16, 18, 25, and 28. These dates included both weekdays and weekends, demonstrating the generalizability of our results.

Similar to study 1, we controlled for gender, daily mean temperature, Air Quality Index, lunch versus dinner period, and day-of-the-week fixed effect. In addition, the more cyclists there were in a given period, the fewer empty racks there were in the parking zone and the more likely people were to park in the no-parking zone. Therefore, we also controlled for the number of cyclists within each period.

Results and Discussion. The student researcher observed a total of 2,431 cyclists arriving at the cafeteria (25.9% female).† Of these, 71.5% wore masks and 15.4% parked deviantly. A logistic regression with controls found that mask wearers were significantly less likely to park deviantly than non-wearers (*SI Appendix*, Table S4, model 2: $B = -1.09$, $SE = 0.12$, *Wald* $z = -9.17$, $P < 0.001$); the pseudo-R^2 change from model 1 to model 2 in *SI Appendix*, Table S4 indicates that mask wearing explained a reasonable and meaningful proportion of the

*Without any controls, 3.6% of mask wearers versus 12.5% of non-wearers ran red lights. This large raw percentage difference suggests that other factors (e.g., individual differences) also played a meaningful role above and beyond mask wearing.

†The male–female student ratio at this university is about 2:1.

Fig. 1. Bike parking zone (indicated by white lines) and no-parking zone (indicated by yellow cross marks) in study 2a.

variance (4.0%) in deviant parking.[‡] This effect was robust in an OLS regression (*SI Appendix*, Table S5, model 2: $B = -0.15$, $SE = 0.02$, $P < 0.001$). Moreover, this effect existed for each day (*SI Appendix*, Table S6), which highlights the reliability of our results.

Study 2b. Mask Wearing Negatively Predicts Deviant Bike Parking

Study 2b had four aims. First, we examined whether study 2a's results were replicable at another location at another time

[‡]Without any controls, 11.0% of mask wearers versus 26.3% of non-wearers parked deviantly. This large raw percentage difference suggests that other factors (e.g., individual differences) also played a meaningful role above and beyond mask wearing.

Fig. 2. Examples of deviant bike parking in the no-parking zone despite the availability of empty racks in the parking zone in study 2a.

point. Second, study 2b accounted for the number of bikes already in the no-parking zone and the number of bikes already in the parking zone, because research on norms suggests that individuals may be more likely to park deviantly if many other people have already done so (47). Third, study 2b controlled for the number of individuals accompanying each cyclist. Fourth, study 2b considered the type of mask worn by the cyclists, because personalized masks (e.g., the logo of someone's favorite band) may function as personal symbols rather than moral symbols.

In July 2022, we conducted an observational field study near another cafeteria of the same Chinese university. Study 2b's cafeteria designated a large bike-parking zone, indicated by white lines and bike logos (Fig. 3). However, the parking zone is not in the shade, so some individuals park deviantly in the no-parking zone which is in the shade—despite the prominent sign that says "FIRE EXITS. NO PARKING" (Fig. 4).

A student researcher observed deviant bike-parking behavior for four consecutive periods: July 23 lunch, July 23 dinner, July 24 lunch, and July 24 dinner.

Results and Discussion. The student researcher observed a total of 874 cyclists arriving at the cafeteria (28.7% female), 55.8% of whom wore masks.[§] Only one individual wore a personalized mask, nine individuals wore a university-branded mask, and the remaining 99% wore generic masks. Thus, mask type was unlikely to play a significant role in this research.

Overall, the deviant parking rate was high (33.9%), likely because the scorching sun (temperature range: 30–34 °C) tempted many individuals to park in the no-parking zone to stay away from the sun. Indeed, deviant parking was significantly higher during sunny lunch hours (48.4% parked deviantly) than dinner hours (21.1% parked deviantly; *SI Appendix*, Table S7, model 1: $B = 6.55$, $SE = 2.97$, $Wald\ z = 2.20$, $P = 0.028$). Consistent with the literature on norms (47), the number of bikes already parked in the no-parking zone positively predicted the likelihood of deviant parking (*SI Appendix*, Table S7, model 1: $B = 0.02$, $SE = 0.008$, $Wald\ z = 2.00$, $P = 0.046$).

Controlling for these factors, a logistic regression found that mask wearers were significantly less likely to park deviantly than non-wearers (*SI Appendix*, Table S7, model 2: $B = -1.08$, $SE = 0.16$, $Wald\ z = -6.67$, $P < 0.001$); the pseudo-R^2 change from model 1 to model 2 in *SI Appendix*, Table S7 indicates that mask wearing explained a reasonable and meaningful proportion of the variance (4.1%) in deviant parking.[¶] This effect was robust in an OLS regression (*SI Appendix*, Table S8, model 2: $B = -0.21$, $SE = 0.03$, $P < 0.001$). Moreover, this effect existed for each period (*SI Appendix*, Table S9), which highlights the reliability of our results.

In studies 1, 2a, and 2b, reverse causality was not a concern because mask wearing occurred before running a red light (study 1) or deviant bike parking (studies 2a and 2b). Nevertheless, we fully acknowledge the correlational nature of these studies. To address this limitation and establish causality, we conducted experiments in the next set of studies.

Study 3. Masks Reduce Wearers' Deviant Intent

Study 3 tested experimentally whether wearing a mask (vs. not) would reduce deviant intent. We conducted the experiment online (rather than in person) to mitigate participants' feeling of being watched and impression-management concerns. Notably, we verified that participants followed our instructions about whether to wear a mask (as detailed below).

Experimental Manipulation. Two hundred eligible Chinese participants were randomly assigned to a mask condition ($n = 100$) or a no-mask condition ($n = 100$). Participants in the mask condition were instructed to wear a mask throughout the study to better imagine a given scenario, whereas participants in the no-mask condition were instructed not to wear a mask throughout the study to better simulate a natural state.

Deviant Intent. We asked all participants to imagine walking on a street and witnessing the following two deviant behaviors: (a) someone running a red light when traffic is light and (b) someone littering when no one is watching. Participants indicated whether they agreed with each of the two behaviors (1 = strongly disagree, 7 = strongly agree) and indicated how likely they would be to engage in each of the two behaviors (1 = very unlikely, 7 = very likely). The display order of the four items was randomized across participants. We averaged the four items ($\alpha = 0.81$) to be the dependent measure of deviant intent.

Manipulation Check. At the end of the study, participants were asked: "Did you wear a mask during the study?" (1 = no, 2 = yes, 3 = other). We assured participants that their answer to this question would not affect their compensation. All participants in the no-mask condition reported not wearing a mask during the study. Only two participants in the mask condition reported not wearing a mask, so we excluded them from subsequent analyses. Overall, the mask-wearing manipulation was successful.

Results and Discussion. The mask and no-mask conditions did not differ significantly in any of the demographic variables (age, gender, education, and occupation), which demonstrates the success of our random assignment.

Participants in the mask condition ($M = 1.48$, SD = 0.57) indicated significantly lower deviant intent than participants in the no-mask condition ($M = 1.72$, SD = 0.90; $t = -2.25$, $P = 0.026$, $d = -0.32$, 95% CI = [−0.45, −0.03]). In sum, study 3 provided causal evidence that masks can reduce wearers' deviant intent among Chinese participants.

Study 4a. Masks Reduce Wearers' Deviant Behavior

To extend study 3, study 4a measured deviant behavior rather than deviant intent.

Experimental Manipulation. Four hundred eligible Chinese participants were randomly assigned to a mask condition ($n = 200$) or a no-mask condition ($n = 200$). In the mask condition, participants were instructed to wear a mask throughout the study to better simulate a given scenario. We then asked them to imagine running errands with a mask on and to write about how they would think, feel, and act. In the no-mask condition, participants were instructed not to wear a mask throughout the study to better simulate a natural state. We then asked them to imagine running errands and to write about how they would think, feel, and act.

Deviant Behavior. After the imagination task, participants proceeded with an ostensibly unrelated number-search matrix task

[§]Compared with people in study 2a (temperature range: 8.5–21.5 °C), fewer people wore masks in study 2b (temperature range: 30–34 °C), likely because of the hot summer.

[¶]Without any controls, 23.8% of mask wearers versus 46.6% of non-wearers parked deviantly. This large raw percentage difference suggests that other factors (e.g., individual differences) also played a meaningful role above and beyond mask wearing.

Fig. 3. Bike parking zone (indicated by white lines and bike logos) in study 2b. Note: Much of the parking zone is not in the shade, so some individuals park deviantly in the no-parking zone in the shade.

(48), which is widely used to measure deviant behavior (31, 49–57). Participants saw eight 4 × 3 matrices of three-digit numbers (Fig. 5). For each matrix, we asked participants to indicate whether they could find two numbers that summed to 10 (e.g., 1.17 and 8.83)—without asking them to specify the matching pair of numbers. In reality, four of the matrices were unsolvable (i.e., no two numbers summed to 10). If a participant claimed to have solved an unsolvable matrix, we counted it as one incidence of deviant behavior. As an incentive, participants were told that they would receive 10 points for each solved matrix and that participants whose total points were in the top 30% would receive an extra reward of 5 Chinese yuan.

Fig. 4. Examples of deviant bike parking in the no-parking zone in study 2b.

Manipulation Check. At the end of the study, participants were asked: "Did you wear a mask during the study?" (1 = no, 2 = yes, 3 = other). We assured participants that their answer to this question would not affect their compensation. All participants in the mask condition reported wearing a mask, and all participants in the no-mask condition reported not wearing a mask. That is, the mask-wearing manipulation was successful.

Results and Discussion. The mask and no-mask conditions did not differ significantly in any of the demographic variables (age, gender, education, and occupation), which demonstrates the success of our random assignment.

For the solvable matrices, there was no significant difference in the number of matrices that participants claimed to have solved between the mask condition (M = 3.36, SD = 0.84) and the no-mask condition (M = 3.38, SD = 0.78; t = −0.25, P = 0.81, 95% CI = [−0.18, 0.14]). In other words, for the four solvable matrices, both groups were able to solve more than three questions on average, such that there was little need for them to lie about their performance.

By contrast, participants in the mask condition claimed to have solved significantly fewer unsolvable matrices (M = 0.17, SD = 0.49) than participants in the no-mask condition (M = 0.38, SD = 0.93; t = −2.82, P = 0.005, d = −0.28, 95% CI = [−0.36, −0.06]). As a robustness check, we also examined the binary outcome of whether a participant claimed to have solved any of the unsolvable matrices (1 = cheated, 0 = no); participants in the mask condition (12.0%) were significantly less likely to claim to have solved any of the unsolvable matrices than participants in the no-mask condition (19.5%; B = −0.57, SE = 0.28, $Wald\ z$ = −2.04, P = 0.041).

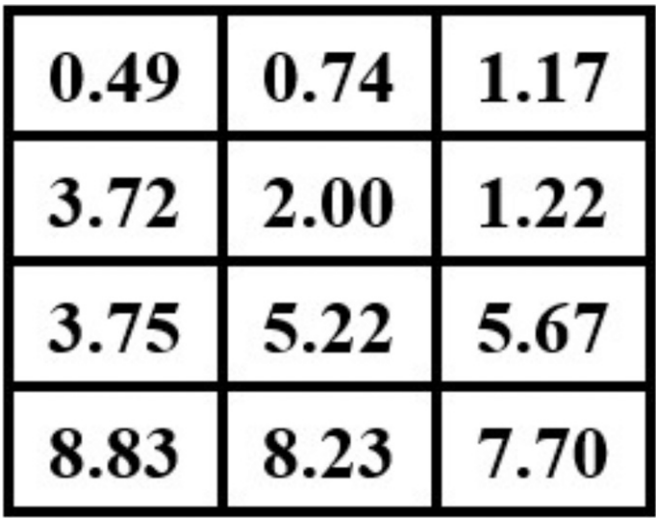

Fig. 5. A sample matrix of the number-search task.

Together, these results indicate that Chinese participants who were randomly assigned to wear a mask (vs. not) were less likely to cheat for money.

Study 4b. Masks Reduce Wearers' Deviant Behavior

To ascertain whether the mitigating effect of masks on wearers' deviant behavior is reliable, we conducted a direct replication of study 4a. As detailed in *SI Appendix*, study 4b ($n = 400$) fully replicated the results of study 4a. The only difference between studies 4a and 4b was that, to rule out potential demand effect, study 4b probed whether participants correctly guessed the purpose of our experiment. Only five participants correctly guessed the purpose of the experiment, suggesting that demand effect was not of significant concern; indeed, all results were robust whether our analyses included or excluded these five participants.

Study 5. Masks Are a Moral Symbol in China

Studies 3, 4a, and 4b have provided consistent causal evidence that masks reduce wearers' deviance in China. To explore why this is the case, study 5 examined (a) whether Chinese people view masks as a moral symbol and (b) whether moral awareness tends to be higher in mask-wearing situations than at baseline. The study was preregistered at https://aspredicted.org/H6J_Y9C. Two hundred eligible Chinese participants completed study 5.

As detailed below, participants first answered moral awareness questions and then moral symbol questions because the moral symbol questions contained words about morality, which might influence participants' moral awareness.

Moral Awareness. We conducted within-person analyses to test whether moral awareness would be higher in mask-wearing situations than at baseline. To assess baseline moral awareness, we asked participants (without mentioning masks) to imagine running errands, write about how they would think, feel, and act, and indicate how much they agreed with three items from the widely used moral awareness scale (39, 40, 58): "There are some ethical aspects to the situation I imagined", "The situation I imagined clearly had some ethical aspects to it", and "The situation I imagined could be described as a moral one" (1 = strongly disagree, 7 = strongly agree; $\alpha = 0.95$). The display order of the three items was randomized across participants. To assess moral awareness in mask-wearing situations, we asked the same participants to imagine running errands with a mask on, write about how they would think, feel, and act, and complete the same three-item measure of moral awareness ($\alpha = 0.91$). The display order of the three items was also randomized across participants.

Moral Symbol. To test whether Chinese people view masks as a moral symbol, we used both direct and indirect measures.

Direct measure of moral symbol. Participants indicated how much they agreed with the following three statements (1 = strongly disagree, 7 = strongly agree): "Masks are a moral symbol", "Mask wearing represents a moral behavior", and "Mask wearing is a symbol of morality." The display order of the three items ($\alpha = 0.71$) was randomized across participants.

Indirect measure of moral symbol. We also used a more indirect measure to assess whether Chinese people view masks as a moral symbol. Specifically, participants indicated how much they agreed with six statements (1 = strongly disagree, 7 = strongly agree): "People who wear masks are more moral than people who do not", "A person is more moral when he/she wears a mask versus not", "I feel more moral when I wear a mask versus not", "People who do not wear masks are more moral than people who do" (reverse coded), "A person is more moral when he/she does not wear a mask than when he/she does" (reverse coded), and "I feel more moral when I do not wear a mask than when I do" (reverse coded). The display order of the six items ($\alpha = 0.79$) was randomized across participants.

Results and Discussion.

Moral symbol. For the direct measure of moral symbol (i.e., viewing masks as a moral symbol), a one-sample t test found that the mean score ($M = 5.80$, SD = 0.70) was significantly higher than the midpoint of the seven-point scale ($t = 36.19$, $P < 0.001$, 95% CI = [5.70, 5.89]). For the indirect measure of moral symbol (i.e., viewing mask-wearing people as more moral), a one-sample t test found that the mean score ($M = 5.97$, SD = 0.60) was significantly higher than the midpoint of the seven-point scale ($t = 46.49$, $P < 0.001$, 95% CI = [5.89, 6.05]). Together, these results provide converging evidence that Chinese people view masks as a moral symbol.

Moral awareness. A paired-samples t test (i.e., within-participants test) found that participants indicated significantly higher moral awareness in mask-wearing situations ($M = 5.46$, SD = 1.13) than at baseline ($M = 3.85$, SD = 1.67; $t = 14.75$, $P < 0.001$, 95% CI = [1.39, 1.82]). This result points to moral awareness as a potential mechanism for why masks reduce wearers' deviance, which motivated us to directly test moral awareness as a focal mediator in studies 6a and 6b.

Study 6a. Moral Awareness Mediates the Mitigating Effect of Masks on Wearers' Deviant Behavior

In light of study 5's results, study 6a tested moral awareness as the focal mediator for the mitigating effect of masks on wearers' deviant behavior in China. In addition, study 6a explored sense of anonymity as an alternative mediator, as there may simultaneously be a positive indirect effect of masks on wearers' deviant behavior via sense of anonymity.

Participants were told that the study involved two unrelated tasks: one was an imagination task and the other was a problem-solving task.

Experimental Manipulation. Four hundred eligible Chinese participants were randomly assigned to a mask condition (n = 200) or a no-mask condition (n = 200). Experimental manipulation was the same as in study 4a.

Moral Awareness (Focal Mediator). After writing about their imagined situation, participants completed the same three-item measure of moral awareness as in study 5 ($\alpha = 0.91$). The display order of the three items was randomized across participants.

Sense of Anonymity (Alternative Mediator). We also measured participants' sense of anonymity in their imagined situation using four items adapted from Zhong et al. (31): "I was anonymous in the situation I imagined", "My behavior went unnoticed in the situation I imagined", "My identity was not known to others in the situation I imagined", and "No one was paying attention to my behavior in the situation I imagined" (1 = strongly disagree, 7 = strongly agree; $\alpha = 0.83$). The display order of the four items was randomized across participants.

Deviant Behavior. The measure of deviant behavior was the same number-search matrix task used in study 4a. As an incentive, participants were told that they would receive 10 points for each solved matrix and that participants whose total points were in the top 30% would receive an extra reward of 5 Chinese yuan.

Manipulation Check. At the end of the study, participants were asked: "Did you wear a mask during the study?" (1 = no, 2 = yes, 3 = other). We assured participants that their answer to this question would not affect their compensation. All participants in the mask condition reported wearing a mask, and all participants in the no-mask condition reported not wearing a mask. That is, the mask-wearing manipulation was successful.

Examining Demand Effect. At the end of the study, we probed what participants thought the experiment was about. Only three participants correctly guessed the purpose of the experiment, suggesting that demand effect was not of significant concern. All results were robust whether our analyses included or excluded these three participants.

Results. The mask and no-mask conditions did not differ significantly in any of the demographic variables (age, gender, education, and occupation), which demonstrates the success of our random assignment.

Deviant behavior. Replicating studies 4a and 4b, for the solvable matrices, there was no significant difference in the number of matrices that participants claimed to have solved between the mask condition (M = 3.48, SD = 0.84) and the no-mask condition (M = 3.60, SD = 0.65; $t = -1.59$, $P = 0.11$, 95% CI = [−0.27, 0.03]). In other words, for the four solvable matrices, both groups were able to solve more than three questions on average, such that there was little need for them to lie about their performance.

By contrast, participants in the mask condition claimed to have solved significantly fewer unsolvable matrices (M = 0.19, SD = 0.60) than participants in the no-mask condition (M = 0.41, SD = 1.00; $t = -2.67$, $P = 0.008$, $d = -0.27$, 95% CI = [−0.38, −0.06]). As a robustness check, we also examined the binary outcome of whether a participant claimed to have solved any of the unsolvable matrices (1 = cheated, 0 = no); participants in the mask condition (12.0%) were significantly less likely to claim to have solved any of the unsolvable matrices than participants in the no-mask condition (20.0%; $B = -0.61$, $SE = 0.28$, $Wald\ z = -2.16$, $P = 0.031$).

Together, these results indicate that Chinese participants who were randomly assigned to wear a mask (vs. not) were less likely to cheat for money.

Moral awareness (focal mediator). Participants in the mask condition indicated significantly higher moral awareness (M = 5.09, SD = 1.15) than participants in the no-mask condition (M = 3.50, SD = 1.36; $t = 12.64$, $P < 0.001$, $d = 1.26$, 95% CI = [1.34, 1.84]). Moral awareness significantly mediated the effect of the condition (1 = mask condition, 0 = no-mask condition) on the number of unsolvable matrices that participants claimed to have solved (indirect effect = −0.14, bias-corrected bootstrapped 95% CI = [−0.25, −0.04], $P = 0.002$). Moral awareness also significantly mediated the effect of the condition on the binary outcome of whether a participant claimed to have solved any of the unsolvable matrices (indirect effect = −0.10, bias-corrected bootstrapped 95% CI = [−0.16, −0.06], $P < 0.001$). Together, these results indicate that moral awareness mediated the mitigating effect of masks on wearers' deviant behavior.

Sense of anonymity (alternative mediator). Participants in the mask condition (M = 4.87, SD = 1.21) indicated significantly higher sense of anonymity than participants in the no-mask condition (M = 4.57, SD = 1.40; $t = 2.30$, $P = 0.022$, d = 0.23, 95% CI = [0.04, 0.56]). However, sense of anonymity was neither a significant mediator for the number of unsolvable matrices that participants claimed to have solved (indirect effect = −0.008, bias-corrected bootstrapped 95% CI = [−0.05, 0.01], $P = 0.47$) nor a significant mediator for the binary outcome of whether a participant claimed to have solved any of the unsolvable matrices (indirect effect = −0.001, bias-corrected bootstrapped 95% CI = [−0.01, 0.01], $P = 0.77$).

Discussion. Replicating studies 4a and 4b, study 6a provided further causal evidence that masks reduce wearers' deviant behavior in China. Moreover, this study established moral awareness as a mediator and provided evidence against sense of anonymity as an alternative mediator.

Study 6b. Moral Awareness Mediates the Mitigating Effect of Masks on Wearers' Deviant Behavior

To ascertain whether study 6a's results were reliable, we conducted a direct replication. As detailed in *SI Appendix*, study 6b (n = 400) fully replicated the results of study 6a.

Study 7. A Natural Field Experiment: Masks Reduce Wearers' Deviant Behavior in the Library

To further substantiate the causal effect of masks on wearers' reduced deviant behavior, our final study leveraged a natural field experiment. Specifically, we examined whether masks would reduce wearers' deviant behavior in the library (e.g., talking).

Since the outbreak of the COVID-19 pandemic, the library of a university in Beijing has been encouraging students to wear masks. In particular, each desk in the quiet self-study area features a sign that reads: "Please wear a mask." However, as COVID-19 cases dwindled in China, students gradually stopped wearing masks despite these signs. In November 2021, several new cases of COVID-19 appeared in Beijing. To remind students to wear a mask, a library security guard walked around the self-study area, casually repeating, "Please put on your mask." The security guard did not interact with students,

nor did he pay attention to whether a student was studying or behaving deviantly. Therefore, any observed effects about deviance were likely not due to students' concerns about being reprimanded by the security guard.

Natural Randomization. The security guard issued his reminder only once at the beginning of his shift; for the remainder of his shift, he sat at the entrance of the library. Notably, his shifts were random, such that he worked in the morning for some days and in the afternoon for other days. Accordingly, his reminder occurred either around 10 AM or 3 PM. If he reminded students around 10 AM, few students wore masks in the afternoon (given the lunch break and many hours of gap). If he reminded students around 3 PM, few students wore masks in the morning, because no one reminded them to do so. This created a natural experiment with a mask condition (when the security guard reminded students to wear masks) and a control condition (when the security guard did not remind students to wear masks).

Leveraging this opportunity, a student researcher observed in the library for 6 d (11 shifts in total): November 27, November 28, November 29, November 30 afternoon,[#] December 3, and December 4, 2021. The security guard stopped the daily reminder after December 4 because COVID-19 cases dwindled in Beijing around that time. The mask condition happened to involve three mornings and two afternoons, while the control condition happened to involve two mornings and four afternoons.

The student researcher observed the entire self-study area unobtrusively (e.g., hiding between bookshelves). Instead of observing at 10 AM or 3 PM, the researcher waited for about 15 min to minimize the security guard's potential influence on students' behaviors. She observed whether each student (a) wore a mask and (b) engaged in deviant behavior around 10:15 AM or 3:15 PM.

Deviant Behavior in the Library. We operationalized deviant behavior in the library as activities that unambiguously deviated from library norms, including talking, playing video games, and watching distracting videos. Notably, there was no library staff to reprimand students for such deviant behaviors; thus, any observed differences between the two conditions were unlikely because students in the mask condition were more worried about being reprimanded.

Results and Discussion. The student researcher observed a total of 2,111 students (897 in mask condition and 1,214 in control condition). As evidence of successful "experimental manipulation," only 3.68% of the students in the mask condition did not wear a mask despite the security guard's reminder ($n = 33$), while only 3.71% of the students in the control condition wore a mask without the reminder ($n = 45$). We included these 78 cases (only 3.70% of the total sample) to be conservative; all results were robust after excluding them.

Consistent with our previous studies, a logistic regression revealed that students in the mask condition were significantly less likely to engage in deviant behavior than students in the control condition ($B = -0.75$, $SE = 0.15$, $Wald\ z = -5.09$, $P < 0.001$). This effect was robust ($B = -0.67$, $SE = 0.19$, $Wald\ z = -3.58$, $P < 0.001$) after controlling for morning-versus-afternoon and day-of-the-week fixed effects.

Another robustness check found that deviant behavior was consistently lower in all mask-condition observation periods (all <10%) and visibly higher in all control-condition observation periods (all >10%). These results provide further evidence that masks reduce wearers' deviant behavior.

[#]The student researcher was unable to observe in the library on the morning of November 30 because of personal commitments unrelated to the study.

General Discussion

Drawing on behavioral ethics research, we tested two competing hypotheses for the effect of masks on wearers' deviance in China. Across 10 studies ($n = 68{,}243$), we found consistent evidence for the hypothesis that masks are a moral symbol that reduces wearers' deviance by heightening their moral awareness and did not find evidence for the competing hypothesis that masks disinhibit wearers' deviance by increasing their sense of anonymity.

Methodological Strengths. Our studies feature notable methodological strengths. First, to ascertain the reliability of our results, we conducted 10 complementary studies, including direct replications. Second, we used different measures of deviant behavior with high ecological validity (e.g., running a red light, bike parking in no-parking zones, cheating for money, and deviant behavior in the library). Third, our studies employed mixed methods (e.g., traffic camera recording analysis, observational field studies, experiments, and natural field experiment), thus mitigating common method bias. In particular, study 1 was methodologically interesting in analyzing objective traffic camera recordings to study traffic violations. We were able to zoom in/out, slow down, and rewind the recordings of multiple high-resolution cameras at different angles, which ensured the coding's accuracy. Study 7 leveraged a natural field experiment, which found that students who were randomly asked (vs. not asked) to wear a mask were less likely to behave deviantly in the library.

Theoretical Contributions and Societal Implications. The present research offers important theoretical contributions and broad societal implications. To begin with, we contribute to the literature on the psychology of mask wearing, thereby advancing the understanding of how public policies about the COVID-19 pandemic shape human behaviors. Although the mask literature has been growing, past research has mostly examined predictors of mask wearing (2, 4, 6, 10). By contrast, the current research is among the first to examine the psychological and behavioral consequences of mask wearing. This contribution is timely and valuable because mask wearing has become a global phenomenon. While masks are first and foremost a preventative measure, we revealed their function as a moral symbol in China. Across our 10 studies, mask wearing consistently predicted less rather than more deviance in China. This finding is notable, given that some people have speculated that COVID-19 masks could increase wearers' deviant behavior, such as committing crimes (59). By encouraging mask wearing during the pandemic, policymakers may indirectly raise citizens' moral awareness in some countries. More broadly, our research underscores the importance of understanding the psychological spillover effects of public-health policies.

Moreover, we contribute to the behavioral ethics literature in four ways. First, across our studies in China, we revealed mask wearing as a mitigator of deviance, which is detrimental to individuals, organizations, and society. Second, we identified moral awareness as a psychological mechanism for why masks can reduce wearers' deviance. In doing so, we provide insights into how moral-awareness nudges can temper deviance in society. Third, we contribute to the limited research on moral symbols by spotlighting masks as a moral symbol in China during the pandemic. Whereas Desai and Kouchaki's (39) studies examined how other people react to a person's display of moral

symbols, we extend this literature by demonstrating the effect of moral symbols on wearers themselves. Fourth, we add to the behavioral ethics literature (47, 60) by examining deviant behaviors in everyday contexts with high ecological validity (e.g., traffic violation, bike parking in no-parking zones, and deviant behavior in the library).

Limitations and Future Directions. The current research has several limitations, which provide opportunities for future research. First, our studies were situated in the historical and cultural contexts of China. In fact, antiepidemic masks were invented in China around 1911 to fight the pneumonic plague (34). As medical anthropologist Christos Lynteris noted: "In the West, the use of masks did not last much past World War II. But in China, masks remained markers of medical modernity and continued to be used for public-health crises" (34). Later, during the 2002–2003 severe acute respiratory syndrome (SARS) epidemic, masks were widely adopted as a preventative measure and "a signal of mutual assurance that allows a society to keep functioning during an epidemic" in China (34). To understand the generalizability of our findings, future studies should examine other countries. For example, our observed effects may not occur in places where masks are viewed as a symbol of infringement on personal freedom ("masks are muzzles") rather than a moral symbol (61).

Second and relatedly, in our observational studies, most Chinese individuals wore generic rather than personalized masks (e.g., in study 2b). We speculate that the observed moral symbol effect may not apply to individuals who choose to wear personalized masks, because such masks are personal symbols rather than moral symbols. For example, a mask with the logo of someone's favorite band may primarily activate cognitions about the band rather than the moral meaning of masks. This possibility awaits future research.

Third, while we focused on the effect of masks on wearers' deviance, future research should investigate other psychological effects of mask wearing. For example, masks may also increase wearers' prosocial behavior—defined as voluntary behavior intended to benefit others (62)—by heightening their moral awareness. Recent research on Austrians found that mask wearers and non-wearers did not differ significantly in prosocial behavior (63), though this research was correlational and situated in the cultural and political contexts of Austria (24). As another example, mask wearing may relieve social anxiety for some individuals. A tweet that has attracted about 28,000 retweets and 123,000 likes noted: "Masks protect you from coronavirus yes, but they also protect you from running into people you know in public" (64). It would also be fruitful to study the psychological effects of other pandemic policies (e.g., social distancing, lockdown, and vaccination).

Fourth, future research could explore a potential habituation effect. It is possible that, if a person wears a mask daily for a prolonged period of time, its effect could fade due to habituation. Notably, many Chinese individuals have been wearing masks since the outbreak of COVID-19 (January 2020), and the mitigating effect of masks on wearers' deviance was observed across our 10 studies, which ranged from October 2021 to July 2022. Thus, it appears that even if there was any habituation effect, it was not strong enough to override the moral-symbol effect of mask wearing in China. This is unsurprising because COVID-19 remains a highly salient topic in China, so the moral meaning associated with mask wearing is activated in everyday life.

Last but not least, the meaning of masks is dynamic and contextualized. While our research suggests that masks currently function as a moral symbol in China, they could take on new meanings if everyday life returns to relative normalcy. For example, after the pandemic calms down, students who continue wearing masks in the classroom may be viewed as timid by their classmates. Hence, future research should track the implications of mask wearing as its meanings change over time.

Conclusion

The present research demonstrated that masks have become a moral symbol in China during the COVID-19 pandemic. Across 10 studies ($n = 68{,}243$) using mixed methods and different measures of deviant behavior, we consistently found that masks reduced wearers' deviance by heightening their moral awareness. Overall, this research is among the first to uncover the psychological and behavioral consequences of mask wearing beyond its health benefits.

Materials and Methods

This research was approved by the Institutional Review Boards of the Massachusetts Institute of Technology (Protocol No. 3987) and Tsinghua University (Protocol No. 2022-TSEM-09). All participants in our survey and experimental studies provided informed consent. To ensure data quality, we emphasized that participants' answers were anonymous and used only for academic research purposes, so they should answer questions as honestly as they could.

Study 1. For the period from January 4 to January 17, 2022, we were granted privileged access to traffic camera recordings of a crossing in an eastern Chinese city. This crossing is a suitable study context for two reasons. First, the crossing is located in the downtown area, thus providing a large sample of pedestrians and cyclists. Second, this crossing has multiple high-resolution cameras at different angles, which enabled us to reliably code whether a person (a) wore a mask and (b) ran a red light. We could also zoom in/out, slow down, and rewind the camera recordings when necessary.

For each of the 14 d, we coded the camera recordings from 7 AM to 6 PM, as hours outside this 11-h window were too dark for us to ascertain whether a person was wearing a mask. To ensure the reliability of our coding, we double checked (a) all coding for the first 2 d and (b) one randomly sampled hour of coding from each of the remaining 12 d.

Running a red light is a deviant behavior that violates traffic laws. For every pedestrian or cyclist, we coded their gender, whether they wore a mask, and whether they ran a red light. We only coded pedestrians and cyclists for two reasons. First, whereas we could easily ascertain whether pedestrians and cyclists wore masks, it was difficult to do so for people riding in cars (who seldom wear masks anyways) and helmet-wearing motorcyclists. Second, few car and motorcycle drivers run red lights because they would be severely punished by law. By contrast, pedestrians and cyclists in this Chinese city are not formally punished for the same behavior. Thus, some pedestrians and cyclists run red lights, especially because the wait time at this crossing is long (60 s).

Studies 2a and 2b. To observe deviant parking unobtrusively, the student researcher stood in a corner and recorded information on her phone instead of a notepad; she used her phone horizontally and wore headphones as if she were watching videos or playing games. She only observed people who arrived at the cafeteria by bike. In study 2a, she recorded each person's gender, whether the person was wearing a mask when arriving, and whether the person parked in the no-parking zone. In study 2b, the student researcher coded additional variables for each arriving cyclist: the number of companions (range: 0–3), the number of bikes already parked in the no-parking zone, the number of bikes already parked in the parking zone, and mask type (personalized, university branded, or generic).

Study 3. We used G*Power to determine the sample size required for a small-to-medium-sized effect in a between-subjects design with two conditions; 78

participants per condition were required for the study to be powered at 80%. To exceed this sample-size requirement, we recruited 200 Chinese participants in October 2021 via http://www.credamo.com, a widely used data-collection platform for Chinese participants (44). Participants who failed an attention check were automatically excluded by the system; the two conditions did not differ significantly in the rate of attention check failure ($\chi^2 = 0.31$, $P = 0.58$). We compensated each participant 3 Chinese yuan for completing the experiment. The 200 participants ($M_{age} = 29.72$, SD = 5.57; 65.0% female) were located in 91 Chinese cities. Of these, 87.5% were employees and 12.5% were students. Their educational backgrounds were as follows: 3.0% high school, 9.5% associate degree, 75.0% undergraduate degree, and 12.5% graduate degree.

Study 4a. We recruited 400 new Chinese participants via http://www.credamo.com. Participants who failed an attention check were automatically excluded by the system; the two conditions did not differ significantly in the rate of attention check failure ($\chi^2 = 1.30$, $P = 0.25$). We compensated each participant 2 Chinese yuan for completing the experiment. The participants ($M_{age} = 28.57$, SD = 6.90; 69.0% female) were located in 136 Chinese cities. Of these, 69.2% were employees, 29.3% were students, and the remaining 1.5% chose "other." Their educational backgrounds were as follows: 0.2% middle school, 1.8% high school, 7.8% associate degree, 72.0% undergraduate degree, and 18.2% graduate degree.

Study 5. We conducted a power analysis with G*Power to determine the required sample size. For both a one-sample *t* test and a paired-samples *t* test, a small-sized effect would require 128 participants for the study to be powered at 80%. To exceed this sample-size requirement, we recruited 200 new Chinese participants via http://www.credamo.com. Participants who failed an attention check were automatically excluded by the system. We compensated each participant 1 Chinese yuan for completing the study. The participants ($M_{age} = 29.46$, SD = 7.50; 67.0% female) were located in 96 Chinese cities. Of these, 72.5% were employees, 27.0% were students, and the remaining 0.5% chose "other." Their educational backgrounds were as follows: 0.5% middle school, 4.0% high school, 10.0% associate degree, 70.5% undergraduate degree, and 15.0% graduate degree.

Study 6a. We recruited 400 new Chinese participants via http://www.credamo.com. Participants who failed an attention check were automatically excluded by the system; the two conditions did not differ significantly in the rate of attention check failure ($\chi^2 = 0.92$, $P = 0.34$). We compensated each participant 2 Chinese yuan for completing the experiment. The participants ($M_{age} = 28.30$, SD = 8.12; 65.5% female) were located in 149 Chinese cities. Of these, 64.0% were employees, 33.5% were students, and the remaining 2.5% chose "other." Their educational backgrounds were as follows: 0.2% middle school, 2.3% high school, 10.7% associate degree, 70.3% undergraduate degree, and 16.5% graduate degree.

Data, Materials, and Software Availability. Data and R code are available at the Open Science Framework (https://osf.io/vu6xc/) (65).

ACKNOWLEDGMENTS. We are grateful to John Carroll, Jane Minyan Chen, Yiming Huang, Tucker Kuman, Zhenyu Liao, Kyra Rodriguez, Steve Ziwei Song, Haoyue Zhang, Lu Zhang, and Manyi Zheng for their helpful feedback or research assistance. We thank the National Natural Science Foundation of China (Grants No. 71272027, No. 71472107).

1. J. Howard *et al.*, An evidence review of face masks against COVID-19. *Proc. Natl. Acad. Sci. U.S.A.* **118**, e2014564118 (2021).
2. M. H. Haischer *et al.*, Who is wearing a mask? Gender-, age-, and location-related differences during the COVID-19 pandemic. *PLoS One* **15**, e0240785 (2020).
3. M. C. Howard, Gender, face mask perceptions, and face mask wearing: Are men being dangerous during the COVID-19 pandemic? *Pers. Individ. Dif.* **170**, 110417 (2021).
4. S. R. Mallinas, J. K. Maner, E. A. Plant, What factors underlie attitudes regarding protective mask use during the COVID-19 pandemic? *Pers. Individ. Dif.* **181**, 111038 (2021).
5. J. A. Salomon *et al.*, The US COVID-19 Trends and Impact Survey: Continuous real-time measurement of COVID-19 symptoms, risks, protective behaviors, testing, and vaccination. *Proc. Natl. Acad. Sci. U.S.A.* **118**, e2111454118 (2021).
6. J. G. Lu, P. Jin, A. S. English, Collectivism predicts mask use during COVID-19. *Proc. Natl. Acad. Sci. U.S.A.* **118**, e2021793118 (2021).
7. C. Betsch *et al.*, Social and behavioral consequences of mask policies during the COVID-19 pandemic. *Proc. Natl. Acad. Sci. U.S.A.* **117**, 21851–21853 (2020).
8. S. L. DeMora, J. L. Merolla, B. Newman, E. J. Zechmeister, Reducing mask resistance among White evangelical Christians with value-consistent messages. *Proc. Natl. Acad. Sci. U.S.A.* **118**, e2101723118 (2021).
9. E. Dimant, *et al.*, Politicizing mask-wearing: Predicting the success of behavioral interventions among republicans and democrats in the U.S. *Sci. Rep.* **12**, 7575 (2022).
10. S. Pfattheicher, L. Nockur, R. Böhm, C. Sassenrath, M. B. Petersen, The emotional path to action: Empathy promotes physical distancing and wearing of face masks during the COVID-19 pandemic. *Psychol. Sci.* **31**, 1363–1373 (2020).
11. S. L. Robinson, R. J. Bennett, A typology of deviant workplace behaviors: A multidimensional scaling study. *AMJ.* **38**, 555–572 (1995).
12. X.-L. Jin, Z. Zhou, Y. Tian, A configurational analysis of the causes of consumer indirect misbehaviors in access-based consumption. *J. Bus. Ethics* **175**, 135–166 (2022).
13. R. B. Cialdini, R. R. Reno, C. A. Kallgren, A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *J. Pers. Soc. Psychol.* **58**, 1015–1026 (1990).
14. M. Kouchaki, S. D. Desai, Anxious, threatened, and also unethical: How anxiety makes individuals feel threatened and commit unethical acts. *J. Appl. Psychol.* **100**, 360–375 (2015).
15. N. Mazar, C.-B. Zhong, Do green products make us better people? *Psychol. Sci.* **21**, 494–498 (2010).
16. M. E. Schweitzer, L. Ordóñez, B. Douma, Goal setting as a motivator of unethical behavior. *AMJ* **47**, 422–432 (2004).
17. J. A. Yip, M. E. Schweitzer, S. Nurmohamed, Trash-talking: Competitive incivility motivates rivalry, performance, and unethical behavior. *Organ. Behav. Hum. Decis. Process.* **144**, 125–144 (2018).
18. H. Aarts, A. Dijksterhuis, The silence of the library: Environment, situational norm, and social behavior. *J. Pers. Soc. Psychol.* **84**, 18–28 (2003).
19. T. M. Jones, Ethical decision making by individuals in organizations: An issue-contingent model. *AMR* **16**, 366–395 (1991).
20. L. K. Treviño, G. R. Weaver, S. J. Reynolds, Behavioral ethics in organizations: A review. *J. Manage.* **32**, 951–990 (2006).
21. Sohu, 还闯红灯?这些后果是你不能承受的 [Still running red lights? You can't afford these consequences] (2015) https://www.sohu.com/a/44672605_115402. Accessed 1 May 2022.
22. Sohu, 据统计,每年因盗窃造成的经济损失达113001亿,如何避免![According to statistics, the annual economic loss caused by theft was 1.13 trillion yuan] (2019) https://www.sohu.com/a/301124033_610439. Accessed 1 May 2022.
23. M. Ives, Americans are just learning what people in East Asia already know about masks. *NY Times*, 15 January 2022. https://www.nytimes.com/2022/01/15/world/china-masks-usa.html. Accessed 1 May 2022.
24. France 24, Thousands of anti-maskers rally in Vienna (2021) https://www.france24.com/en/live-news/20210116-thousands-of-anti-maskers-rally-in-vienna. Accessed 1 May 2022.
25. BBC News, Coronavirus: Thousands protest in Germany against restrictions. https://www.bbc.com/news/world-europe-53622797. Accessed 1 May 2022.
26. BBC News, Coronavirus: Hundreds gather in Madrid for anti-mask protest. https://www.bbc.com/news/av/world-europe-53802226. Accessed 1 May 2022.
27. NPR, Thousands of people protest coronavirus lockdowns in Australia. https://www.npr.org/2021/07/24/1020158692/australia-covid-lockdown-protests-sydney-arrests-coronavirus. Accessed 1 May 2022.
28. IOL News, WATCH: Police shut down anti-vaxxer and anti-maskers protest in Cape Town. https://www.iol.co.za/weekend-argus/news/watch-police-shut-down-anti-vaxxer-and-anti-maskers-protest-in-cape-town-104c93b1-f8dc-4a54-b818-5bb8136f74c3. Accessed 1 May 2022.
29. J. B. Hirsh, A. D. Galinsky, C.-B. Zhong, Drunk, powerful, and in the dark: How general processes of disinhibition produce both prosocial and antisocial behavior. *Perspect. Psychol. Sci.* **6**, 415–427 (2011).
30. P. G. Zimbardo, "The human choice: Individuation, reason, and order versus deindividuation, impulse, and chaos" in *Nebraska Symposium on Motivation*, W. J. Arnold, D. Levine, Eds. (Lincoln: University of Nebraska Press, 1969), Vol. 17, pp. 237–307.
31. C.-B. Zhong, V. K. Bohns, F. Gino, Good lamps are the best police: Darkness increases dishonesty and self-interested behavior. *Psychol. Sci.* **21**, 311–314 (2010).
32. P. Ellison-Potter, P. Bell, J. Deffenbacher, The effects of trait driving anger, anonymity, and aggressive stimuli on aggressive driving behavior. *J. Appl. Soc. Psychol.* **31**, 431–443 (2001).
33. C. P. Barlett, D. A. Gentile, C. Chew, Predicting cyberbullying from anonymity. *Psychol. Pop. Media Cult.* **5**, 171 (2016).
34. C. Lynteris, Why do people really wear face masks during an epidemic? *NY Times*, 13 February 2020. https://www.nytimes.com/2020/02/13/opinion/coronavirus-face-mask-effective.html. Accessed 1 May 2022.
35. H. Adam, A. D. Galinsky, Reflections on enclothed cognition: Commentary on Burns et al. *J. Exp. Soc. Psychol.* **83**, 157–159 (2019).
36. H. Adam, A. D. Galinsky, Enclothed cognition. *J. Exp. Soc. Psychol.* **48**, 918–925 (2012).
37. T. Gamble, I. Walker, Wearing a bicycle helmet can increase risk taking and sensation seeking in adults. *Psychol. Sci.* **27**, 289–294 (2016).
38. B. López-Pérez, T. Ambrona, E. L. Wilson, M. Khalil, The effect of enclothed cognition on empathic responses and helping behavior. *Soc. Psychol.* **47**, 223–231 (2016).
39. S. D. Desai, M. Kouchaki, Moral symbols: A necklace of garlic against unethical requests. *AMJ* **60**, 7–28 (2017).
40. S. J. Reynolds, Moral awareness and ethical predispositions: Investigating the role of individual differences in the recognition of moral issues. *J. Appl. Psychol.* **91**, 233–243 (2006).
41. J. B. Hirsh, J. G. Lu, A. D. Galinsky, Moral Utility Theory: Understanding the motivation to behave (un)ethically. *Res. Organ. Behav.* **38**, 43–59 (2018).
42. K. A. DeCelles, D. S. DeRue, J. D. Margolis, T. L. Ceranic, Does power corrupt or enable? When and why power facilitates self-interested behavior. *J. Appl. Psychol.* **97**, 681–689 (2012).
43. D. T. Welsh, L. D. Ordóñez, Conscience without cognition: The effects of subconscious priming on ethical behavior. *AMJ* **57**, 723–742 (2014).
44. S. Gong *et al.*, Polluted psyche: Is the effect of air pollution on unethical behavior more physiological or psychological? *Psychol. Sci.* **31**, 1040–1047 (2020).

45. J. G. Lu, J. J. Lee, F. Gino, A. D. Galinsky, Polluted morality: Air pollution predicts criminal activity and unethical behavior. *Psychol. Sci.* **29**, 340–355 (2018).
46. J. G. Lu, J. J. Lee, F. Gino, A. D. Galinsky, Air pollution, state anxiety, and unethical behavior: A meta-analytic review. *Psychol. Sci.* **31**, 748–755 (2020).
47. K. Keizer, S. Lindenberg, L. Steg, The spreading of disorder. *Science* **322**, 1681–1685 (2008).
48. N. Mazar, O. Amir, D. Ariely, The dishonesty of honest people: A theory of self-concept maintenance. *J. Mark. Res.* **45**, 633–644 (2008).
49. F. Gino, M. E. Schweitzer, N. L. Mead, D. Ariely, Unable to resist temptation: How self-control depletion promotes unethical behavior. *Organ. Behav. Hum. Decis. Process.* **115**, 191–203 (2011).
50. F. Gino, D. Ariely, The dark side of creativity: Original thinkers can be more dishonest. *J. Pers. Soc. Psychol.* **102**, 445–459 (2012).
51. F. Gino, S. S. Wiltermuth, Evil genius? How dishonesty can lead to greater creativity. *Psychol. Sci.* **25**, 973–981 (2014).
52. M. Kouchaki, I. H. Smith, The morning morality effect: The influence of time of day on unethical behavior. *Psychol. Sci.* **25**, 95–102 (2014).
53. M. Kouchaki, J. Wareham, Excluded and behaving unethically: Social exclusion, physiological responses, and unethical behavior. *J. Appl. Psychol.* **100**, 547–556 (2015).
54. J. G. Lu *et al.*, The dark side of going abroad: How broad foreign experiences increase immoral behavior. *J. Pers. Soc. Psychol.* **112**, 1–16 (2017).
55. N. L. Mead, R. F. Baumeister, F. Gino, M. E. Schweitzer, D. Ariely, Too tired to tell the truth: Self-control resource depletion and dishonesty. *J. Exp. Soc. Psychol.* **45**, 594–597 (2009).
56. L. C. Vincent, K. J. Emich, J. A. Goncalo, Stretching the moral gray zone: Positive affect, moral disengagement, and dishonesty. *Psychol. Sci.* **24**, 595–599 (2013).
57. L. C. Vincent, M. Kouchaki, Creative, rare, entitled, and dishonest: How commonality of creativity in one's group decreases an individual's entitlement and dishonesty. *AMJ* **59**, 1451–1473 (2016).
58. S. J. Reynolds, Moral attentiveness: Who pays attention to the moral aspects of life? *J. Appl. Psychol.* **93**, 1027–1041 (2008).
59. E. Sheard, G. Farrell, COVID facemasks as crime facilitators. https://www.ucl.ac.uk/jill-dando-institute/sites/jill-dando-institute/files/covid_facemasks_as_crime_facilitators.pdf.
60. P. K. Piff, D. M. Stancato, S. Côté, R. Mendoza-Denton, D. Keltner, Higher social class predicts increased unethical behavior. *Proc. Natl. Acad. Sci. U.S.A.* **109**, 4086–4091 (2012).
61. E. Stewart. Anti-maskers explain themselves. https://www.vox.com/the-goods/2020/8/7/21357400/anti-mask-protest-rallies-donald-trump-covid-19. Accessed 1 May 2022.
62. J. G. Lu, T. Zhang, D. D. Rucker, A. D. Galinsky, "On the distinction between unethical and selfish behavior" in *Atlas of Moral Psychology*, K. Gray, J. Graham, Eds. (Guilford Press, 2018), pp. 465–474.
63. Y. Seetahul, T. Greitemeyer, A practical test of the link between perceived identifiability and prosociality with two field studies. *Sci. Rep.* **12**, 13149 (2022).
64. B. Thompson, Coronavirus and the gift of anonymity. *The Boston Globe*, 10 July 2020. https://www.bostonglobe.com/2020/07/10/opinion/coronavirus-gift-anonymity. Accessed 1 May 2022.
65. J. G. Lu, L. L. Song, Y. Zheng, L. C. Wang, Data and R code for "Masks as a moral symbol: Masks reduce wearers' deviant behavior in China during COVID-19." OSF. https://osf.io/vu6xc/. Accessed 21 September 2022.