

A Good Lamp is the Best Police: Darkness Increases Dishonesty and Self-Interested Behavior

Chen-Bo Zhong<sup>1</sup>

Vanessa K. Bohns<sup>1</sup>

Francesca Gino<sup>2</sup>

<sup>1</sup>*University of Toronto*, <sup>2</sup>*University of North Carolina in Chapel Hill*

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Please address correspondence to [chenbo.zhong@rotman.utoronto.ca](mailto:chenbo.zhong@rotman.utoronto.ca),

[vanessa.bohns@rotman.utoronto.ca](mailto:vanessa.bohns@rotman.utoronto.ca), or [fgino@unc.edu](mailto:fgino@unc.edu).

Abstract

Darkness can conceal identity and encourage moral transgressions; it may also induce a psychological feeling of *illusory anonymity* that disinhibits dishonest and self-interested behavior regardless of actual anonymity. Three experiments provided empirical evidence for this prediction. In Experiment 1, participants in a slightly dim room cheated more and thus earned more underserved money than those in a well-lit room. In Experiment 2, participants wearing sunglasses behaved more selfishly than those wearing clear glasses. Finally, in Experiment 3, an illusory sense of anonymity mediated the relationship between darkness and self-interested behaviors. Across all three experiments, darkness had no bearing on actual anonymity, yet it still increased morally questionable behaviors. We suggest that the experience of darkness, even one as subtle as wearing a pair of sunglasses, may induce a sense of anonymity that is disproportionate from actual anonymity in a given situation.

A Good Lamp is the Best Police: Darkness Increases Dishonesty and Self-Interested Behavior

The quote by Ralph Waldo Emerson in “Worship” in *The Conduct of Life* (1860), “as gaslight is the best nocturnal police, so the universe protects itself by pitiless publicity,” expresses an inherent nature of darkness: darkness conceals identity and decreases inhibitions. Indeed, criminal assaults are most frequent during hours of darkness (Hartley, 1974; Karnes, 1960) and dark rooms promote aggressive behavior (Page & Moss, 1976). As such, this licensing effect of darkness might have contributed to the popularization of street lights in urban landscape during the nineteenth century (Bouman, 1987).

Darkness can disinhibit criminal acts and moral transgressions by producing anonymity. Unethical acts are more likely when transgressors cannot be identified. In the *Ring of Gyges* (*The Republic*), Plato told the story of a ring that grants its owner the power of invisibility and eventually leads to the owner’s corruption. Similarly, Zimbardo (1969) has shown that participants dressed in concealing hoods and baggy clothing delivered longer electric shocks to strangers compared to those wearing regular clothing. The same effect has also been found for unrestrained, impulsive, and uncontrolled behavior when individuals experience anonymity or deindividuation through their association with a group (e.g., Festinger, Pepiton, & Newcomb, 1952; Singer, Brush, & Lublin, 1965).

Departing from this body of work, we suggest that darkness does more than simply produce conditions of actual anonymity. We contend that darkness may create a sense of *illusory anonymity* that disinhibits self-interested and unethical behaviors. Individuals in a room with slightly dimmed lighting or people who have donned a pair of sunglasses may feel anonymous not because the associated darkness significantly reduces others’ ability to see or identify them,

but because they are anchored on their own phenomenological experience of darkness. When individuals in such circumstances experience darkness and their vision is consequently impaired, they generalize that experience to others, expecting that others will conversely be less able to perceive or see them. Piaget (1936) described this kind of egocentrism among young children. In one study (Piaget & Inhelder, 1956), children were presented with a three-dimensional model of a scene with a small doll sitting on the opposite side and were asked to describe what the doll saw. Children between the ages of four and seven tended to identify an image that showed what *they* saw regardless of where the doll was placed. Even though adults are better able to take others' perspectives, they never completely grow out of egocentrism (e.g., Epley, Morewedge, & Keysar, 2004; Tversky & Kahneman, 1974). For example, people tend to overestimate the extent to which their thoughts, feelings, and sensations are accessible to others because they are anchored on their own experience, using it as a starting point to predict others' experiences (Gilovich, Savitsky, & Medvec, 1998). Thus, just as children playing "hide and seek" will close their eyes and believe that others cannot see them, the experience of darkness may lead adults to feel they are hidden from others regardless of whether that is actually true. This illusory anonymity can consequently license unethical behaviors.

Three experiments tested whether darkness can license dishonesty and self-interested behaviors. Experiment 1 manipulated environmental dimness and examined whether participants would cheat to earn more undeserved money. Experiment 2 examined the extent to which people would act selfishly in a dictator game while wearing sunglasses versus clear glasses. Finally, Experiment 3 examined whether subjective perceptions of anonymity mediated the licensing effect of wearing sunglasses on selfish acts.

#### Experiment 1: Cheating in a Dim Room

A central aspect of our prediction is that darkness can license self-interested and unethical behaviors regardless of actual anonymity. In Experiment 1 we controlled for actual anonymity by having participants engage in an individual task where no identifying information was revealed and participants' choices could not be traced. To induce darkness, we created a dim room versus a well-lit room and examined whether room dimness promoted cheating.

Eighty-four college students at the University of North Carolina (40 female; average age 20.54) participated in the study for a maximum payment of \$12. Participants received a \$2 show-up fee and had the opportunity to earn an extra \$10. Participants were randomly assigned to one of two conditions (Dim-room vs. Control) upon arrival. We manipulated the level of darkness in artificially-lit rooms. The "well-lit" or control room (15 ft × 14 ft) was illuminated by 12 fluorescent lights mounted to the ceiling. The dim room was similar in size, however it was lit by 4 fluorescent lights, enough for the participants to see each other and the experimental material, but visibly dimmer than the well-lit room. Participants were simply told that some of the lights were out.

For the task, participants received a brown envelope that contained ten dollars (nine one-dollar bills and four quarters) and an empty white envelope, along with two sheets of paper. The first was a worksheet with 20 matrices, each with a set of 12 three-digit numbers (e.g., 4.78; Mazar, Amir, & Ariely, 2008). The second was a collection slip on which participants were to report their performance and answer demographic questions. On the back of the collection slip we included instructions of the task and a different matrix as an example.

Participants were told that they would have five minutes to find two numbers per matrix that added up to 10. For each pair of numbers correctly identified, they would keep \$0.50 from their supply of money; they were also asked to transfer the remaining amount to the white

envelope and drop it in a designated box along with the collection slip. Note that five minutes is not enough time to solve all 20 matrices. In previous studies (Mazar et al., 2008; Gino, Ayal, & Ariely, 2009) people were able to find 7 of the 20 pairs on average. In addition, there was no apparent identifying information anywhere on the two sheets, so results seemed anonymous. Thus, participants had both an incentive and opportunity to over-report their performance to earn more money.

One of the three-digit numbers of the matrix used as an example on the back of the collection slip was different for each participant and was equal to one of the three-digit numbers of a matrix in the test sheet. This allowed us to match the worksheet with the collection slip of each participant and compute the difference between self-reported performance and actual performance. Positive differences indicate that the participants over-reported their performance and cheated on the task.<sup>1</sup> This was our dependent variable.

After the five-minute task, participants in both conditions wrote down the number of correctly solved matrices on the collection slip and dropped it and remaining money in two separate boxes located in different corners of the room.

A t-test revealed that there were no significant differences in actual performance between the two conditions ( $M=7.26$ ,  $SD=2.27$  vs.  $M=6.95$ ,  $SD=2.49$ ),  $t(82) < 1$ ,  $p = .56$ ,  $p_{rep} = .46$ . Yet, we found significant differences in self-reported performance,  $t(82) = 4.48$ ,  $p < .001$ ,  $p_{rep} > .99$ . Participants in the control condition reported a lower number of correctly solved matrices ( $M=7.78$ ,  $SD=3.09$ ) than participants in the dim room ( $M=11.47$ ,  $SD=4.32$ ). This resulted in a difference of \$1.85 in actual payout. The same result holds when we examined the average number of matrices by which participants overstated their performance ( $M=4.21$ ,  $SD=4.12$  vs.

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<sup>1</sup> No participant underreported performance.

$M=0.83$ ,  $SD=1.58$ ),  $t(82)=4.92$ ,  $p<.001$ ,  $p_{rep}>.99$ , or the percentage of participants who overstated their performance ( $M=60.5\%$ ,  $SD=50\%$  vs.  $M=24.4\%$ ,  $SD=44\%$ ),  $\chi^2=11.15$ ,  $p=.001$ ,  $p_{rep}=.99$ .

These results provide strong support for the predicted relationship between darkness and cheating. Although early studies such as Prentice-Dunn and Rogers (1980) have manipulated dimness and measured its effect on aggressive behaviors, in these studies room dimness was manipulated along with other factors such as white noise and confidentiality of personal information; thus, the causal relationship between darkness and cheating has not previously been established. In our first experiment, the task was completely anonymous and the only difference across conditions was room dimness. We found that a slightly dim room increased cheating above and beyond the guaranteed anonymity.

#### Experiment 2: Shades and Self-Interested Behavior

As we mentioned earlier, a useful metaphor for the illusory anonymity induced by darkness is the example of children playing “hide and seek,” who close their eyes and believe that others cannot see them. In Experiment 2 we tested this idea by having participants wear a pair of sunglasses (vs. clear glasses<sup>2</sup>) and engage in an online task without expectation of face-to-face interaction. Clearly, wearing a pair of sunglasses should not impair others’ sight, especially when there is no face-to-face interaction. Nevertheless, because darkness induces illusory anonymity, we expected that those wearing sunglasses would be more likely to behave selfishly than those wearing regular glasses in an anonymous dictator game.

Fifty students at the University of Toronto volunteered (31 female; average age 21.36) for a maximum payment of \$11. Participants received a \$5 show-up fee and had the opportunity to

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<sup>2</sup> Both without prescription.

earn up to \$6 during the study. The experiment had a one-factor (sunglasses vs. clear glasses) between-subjects design. Participants were randomly assigned to “test” either a pair of sunglasses or clear glasses while completing some “unrelated” tasks. We purposefully selected oversized glasses so that participants who came in with their own glasses could wear the experimental glasses on top of their own.

The supposedly unrelated task involved an ostensible interpersonal interaction with a stranger in a different room. The interaction was a typical one-shot dictator game that included two roles, initiator and recipient. The initiator had \$6 to allocate between the self and the recipient. Initiators kept whatever they did not offer; recipients could choose to accept or reject the offer, but their choices did not affect initiators’ outcomes. Although participants were told they had been randomly assigned to play the role of initiator or recipient, they all played the initiator role against the experimenter. We emphasized that participants would not see or talk to their counterparts during or after the experiment – all the interactions would be mediated by a computer program. This ensured that the sunglasses did not affect actual anonymity or visibility of facial expressions. The experiment ended after participants made their choice; they then answered a few demographic questions and were paid \$5 plus the amount they kept for themselves in the dictator game.

Participants offered between \$0 and \$6 ( $M=2.24$ ,  $SD=1.62$ ). As expected, those who wore sunglasses gave significantly less ( $M=1.81$ ,  $SD=1.30$ ) than those who wore clear glasses ( $M=2.71$ ,  $SD=1.83$ ),  $t(48)=2.02$ ,  $p=.049$ ,  $p_{rep}=.88$ . Also, participants in the sunglasses condition gave significantly less than the fair division (\$3),  $t(25)=-4.688$ ,  $p<.01$ ,  $p_{rep}>.95$ , whereas the amount given by those in the control condition was not significantly different from the fair division,  $t(23)=.78$ ,  $p=.44$ ,  $p_{rep}=.54$ . These results are consistent with those of Experiment 1 and



provide even stronger evidence that darkness can license dishonest and self-interested behaviors through illusory anonymity: wearing a pair of sunglasses should have no bearing on anonymity in an online task without face-to-face interaction.

### Experiment 3: Shades and Perceived Anonymity

In Experiment 3 we directly examine perceived anonymity as a mediator of the licensing effect of darkness on self-interested behaviors. Experiment 3 employed the same design and procedure as Experiment 2 except that we included a five-item measure of perceived anonymity after the dictator game. These items capture the extent to which participants felt anonymous and thought that others were not paying attention to them and their choices during the dictator game ( $\alpha=.93$ , see Appendix for specific items). Participants indicated their agreement on a 7-point Likert scale (from 1=strongly disagree to 7=strongly agree).

Eighty-three students at the University of North Carolina in Chapel Hill participated (39 female; average age 20.71) for a maximum payment of \$11 (\$5 show-up fee and a potential \$0-\$6 earning). On average, participants offered \$2.35 ( $SD=1.43$ ). As expected, those who wore sunglasses gave significantly less ( $M=1.93$ ,  $SD=1.27$ ) than those who wore clear glasses ( $M=2.76$ ,  $SD=1.46$ ),  $t(81)=-2.77$ ,  $p<.01$ ,  $p_{rep}>.95$ . Also, participants in the sunglasses condition gave significantly less than the fair division (\$3),  $t(40)=-5.40$ ,  $p<.001$ ,  $p_{rep}>.99$ , whereas the amount given by those in the clear glasses condition was not significantly different from the fair division,  $t(41)=-1.06$ ,  $p=.30$ ,  $p_{rep}=.65$ . These results fully replicated the findings of Experiment 2.

Further, participants who wore sunglasses reported feeling more anonymous during the study ( $M=4.73$ ,  $SD=1.10$ ) than those who wore clear glasses ( $M=4.01$ ,  $SD=1.17$ ),  $t(81)=2.87$ ,  $p<.01$ ,  $p_{rep}>.95$ . We examined whether this perceived anonymity mediated the effects of darkness on the amount participants offered in the dictator game (Baron & Kenny, 1986). The

effect of wearing sunglasses was reduced to non-significance (from  $\beta = -.29$ ,  $p < .01$ ,  $p_{rep} > .95$ , to  $\beta = -.09$ ,  $p = .28$ ,  $p_{rep} = .66$ ) when perceived anonymity was included in the equation, and perceived anonymity was a significant predictor of the offered amount ( $\beta = -.67$ ,  $p < .001$ ,  $p_{rep} > .99$ ). A bootstrap analysis showed that the 99% bias-corrected confidence intervals for the size of the indirect effect excluded zero (-.77, -.75), suggesting a significant indirect effect (MacKinnon, Fairchild, & Fritz, 2007). These results show that perceived anonymity mediated the effect of darkness on selfish behavior.

### General Discussion

Imagine a person alone in a closed room is deciding whether to lie to a total stranger in an email. Clearly, whether the room is well-lit would not affect the person's actual level of anonymity. Nevertheless, darkness may license unethical behavior in such situations. Across three studies we found that darkness, induced by room dimness (Experiment 1) or sunglasses (Experiments 2 & 3), licensed self-interested and cheating behavior. In addition, an illusory sense of anonymity seems to mediate this licensing effect of darkness (Experiment 3). Darkness appears to induce a false sense of concealment, leading people to feel that their identities are hidden.

It is important to note that across all three experiments our darkness manipulations did not have any bearing on actual anonymity. Experiment 1 manipulated darkness by dimming the lights. Although the room in the experimental condition was darker than the one in the control condition, participants had no trouble seeing and identifying each other. Experiments 2 and 3 manipulated darkness simply by asking participants to wear a pair of sunglasses. The task used in these experiments was fully mediated by computers and participants did not expect to see or talk to each other during or after the experiment. Further, the task was designed so that it promised

complete anonymity. Nevertheless, in each of these studies darkness increased dishonesty and self-interested behaviors.

Thus, unlike previous studies that treated darkness as just one of many factors that induce a state of deindividuation (e.g., Zimbardo, 1969), we suggest that the experience of darkness, combined with the difficulty of transcending our own phenomenological experience, triggers a fundamental psychological belief that we are warded from others' attention and inspections. Our results suggest that darkness, even experienced one-sidedly through the act of wearing sunglasses, can have potentially harmful consequences. Thus, Ralph Waldo Emerson may have been correct when he stated that a good lamp is the best police.

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## Appendix

Items used to measure perceived anonymity and concealed identity

1	I was watched during the study.*
2	I was anonymous during the study.
3	My choice went unnoticed during the study.
4	My identity was not known to others during the study.
5	Others were paying attention to my behavior during the study.*

\* Indicates reverse-scored items