Revisiting the role of public exposure and moral beliefs on feelings of shame and guilt: Replication of Smith et al. (2002)’s Study 1   
[Registered Report Stage 1]

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## Author bios

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## Declaration of conflict of interest

The authors declared no potential conflicts of interests with respect to the authorship and/orpublication of this article.

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## Authorship declaration

Fung Chit Cheung, Hei Tung Wong, Lok Yee Yuen, and Hui Ching Sin designed the study, developed the experimental materials for each study respectively, and wrote an initial draft of the Registered Report Stage 1. Yikang Zhang revised the designs and experimental materials, wrote the analysis scripts, conducted the data analyses, and drafted the manuscript for submission. Hiu Tang Chow provided feedback and guidance in initial stages. Gilad Feldman guided the replication efforts, supervised each step in the project, ran data collection and conducted the pre-registration, and edited the manuscript for submission.

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**Important links and information**

Citation of the target research article:

Smith, R. H., Webster, J. M., Parrott, W. G., & Eyre, H. L. (2002). The role of public exposure in moral and nonmoral shame and guilt. *Journal of Personality and Social Psychology, 83*(1), 138-159. doi:10.1037/0022-3514.83.1.138

## Contributor Roles Taxonomy

In the table below, we employed CRediT ([Contributor Roles Taxonomy](https://www.casrai.org/credit.html)) to identify the contribution and roles played by the contributors in the current replication effort.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Yikang Zhang | Fung Chit Cheung, Hei Tung Wong,  Lok Yee Yuen,  Hui Ching Sin | Hiu Tang Chow | Gilad Feldman |
| Conceptualization |  | X |  | X |
| Data curation | X | X |  |  |
| Formal analysis | X |  |  |  |
| Funding acquisition |  |  |  | X |
| Investigation | X | X |  | X |
| Methodology | X | X |  |  |
| Project administration |  |  |  | X |
| Resources | X | X |  | X |
| Software | X | X |  |  |
| Supervision |  |  | X | X |
| Validation | X |  |  |  |
| Visualization | X | X |  |  |
| Writing-original draft | X | X |  |  |
| Writing-review and editing | X |  |  | X |

# Abstract

***[IMPORTANT: This is a Registered Report Stage 1 before data collection. Written in past tense as a template to simulate what the final manuscript will look like. No pre-registration or data collection have been conducted.]***

Shame and guilt are unpleasant self-conscious emotions associated with negative evaluations of oneself or one’s behavior. Smith et al. (2002) demonstrated that shame and guilt are distinct and are impacted differently by public exposure, that is, the (potential) exposure to disapproving appraisals of one’s misdeeds by others. The impact of public exposure (compared to no exposure) was greater for feelings of shame than for feelings of guilt. We conducted a direct replication of Smith et al. (2002)’s Study 1 and found that exposure […] feelings of shame and guilt (effect sizes and confidence intervals). Our results suggest that …

*Keywords*: shame, guilt, public exposure, moral beliefs, replication, registered report

# Stage 1 Snapshot (revised)

(Note: To simplify the project, we decided to remove extensions and focus on a single data collection replication. We revised the snapshot accordingly.)

**Provisional title.**

Revisiting the role of public exposure and moral beliefs on feelings of shame and guilt: Replication of Smith et al. (2002)’s Study 1

**Authors and affiliations.**

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**Field and keywords.**

Field: social psychology; Keywords: shame, guilt, public exposure, morality

**Research question(s) and/or theory.**

We aim to replicate and extend Smith et al. (2002) Study 1 and will test their theory and hypotheses.

Research questions:

1. How do public exposure and moral beliefs impact feelings of shame and guilt?

**Hypotheses (where applicable).**

Our replication of Smith et al. (2002) Study 1 will follow their hypotheses:

1. Public exposure (vs. private) increases feelings of shame and guilt over wrongdoing.
2. The effect (#1) is stronger for shame than for guilt.
3. (Posthoc finding) High (vs. low) moral belief increases feeling of guilt and shame over wrongdoing.

**Study design and methods.**

In the replication we follow the original’s design 3 (exposure) by 2 (moral beliefs) with two dependent measures of guilt and shame.

Our data collection will be a direct replication with the original’s between-subject design and targeting a sample of US Americans on MTurk (using CloudResearch).   
We will employ best practices, tools, and survey design for ensuring comprehension, attentiveness, and high-quality data collection in labor markets. We aim to determine sample size with a power analysis (at least 80%, 0.05) of a conservative estimate of the original’s findings of the weakest effect.

**Key analyses that will test the hypotheses and/or answer the research question(s).**

In the replication, we will follow the original’s analyses.

Replication: We conduct a series of two-way ANOVAs of the 2 IVs with posthoc one-way ANOVAs and two condition contrasts on shame and guilt (emphasis on explicit measures, with complimentary analyses of related reactions).

**Conclusions that will be drawn given different results.**

We will evaluate the replicability of our findings against the original’s using the Lebel et al. (2019) paradigm (examining signal and comparison of confidence intervals with the original’s effect size).

**Key references.**

Smith et al. (2002). <https://psycnet.apa.org/doi/10.1037/0022-3514.83.1.138>

LeBel et al. (2019). <https://doi.org/10.15626/MP.2018.843>

# Study Design Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Question | Hypothesis | Sampling plan | Analysis Plan | Rationale for deciding the sensitivity of the test for confirming or disconfirming the hypothesis | Interpretation given different outcomes | Theory that could be shown wrong by the outcomes |
| Does public exposure affect the magnitude of shame and guilt over one’s misconduct? | Public exposure (implicit and explicit) increases experienced shame more than guilt over one’s misconduct compared with in private settings.  Explicit public exposure has a stronger effect on shame than implicit exposure. | We followed the “small-telescope” appr oach (Simonsohn, 2015) to decide the sample size. Given *N* = 168 in Study 1 of Smith et al. (2002), the target sample was 420 (168× 2.5). However, considering there are 3 between-subject scenarios, we decided to recruit 420 participants for each scenario, which makes the total sample size being 1260. Accounting for possible exclusions, and allowing for the potential of additional analyses, we aimed for a larger total sample of 1350 participants. (75 per condition). | First, 3 (Publicity: private vs. implicit public vs. explicit public) × 2 (Moral belief: high vs. low) × 3 (Scenario: cheating vs. steal vs. disobey) between-subject ANOVAs to examine whether Scenario interacts with other experimental manipulations.  If Scenarios interacted with other experimental manipulations, we would report the three-way ANOVAs and examine the effect of public exposure and moral belief for each scenario. If not, we will run 3 (Publicity: private vs. implicit public vs. explicit public) × 2 (Moral belief: high vs. low) two-way ANOVAs and report the possible main effects of public exposure and moral belief manipulation and possible interactions.  To examine whether the effects of manipulations differ between the two emotions, we will also run mixed 3 (Public Exposure: private vs. implicit public vs. explicit public) × 2 (Moral belief: Low vs. High) × 2 (Emotion: shame vs. guilt) ANOVA with Emotion being the within-subject variable.  Planned contrasts will be conducted using the emmeans with “fdr” corrections. | We calculated the effect sizes for the primary results in the original article: the effect of public exposure on shame is f = .39 and the effect of moral belief on guilt is f = .27. Given the very large effects, it is likely that these are overestimations of the true effect size (Button et al., 2013; Halsey et al., 2015; Lakens, 2022), and – if true - we expected to find weaker effects for the primary analyses (around Cohen’s f = .20). The planned sample size can reliably detect at least am effect of f = .12 > .20. See *Sample Size Planning* for details. | Based on the criteria used by Lebel et al. (2019), we examine the replicability of findings from Smith et al. (2002). | Both hypotheses are not linked to a specific theory. However, the hypotheses are from the target article are argued as consistent with the functional approach of studying emotion from an evolutionary perspective. If the hypotheses were not supported, then this should prompt adjusting our priors regarding the original’s findings and the hypotheses they argue to support. |
| Does stronger moral belief increase guilt and shame over one’s misconduct? | Moral belief impacts guilt over one’s misconduct more than shame.  Higher moral beliefs result in higher ratings for shame. |

# Revisiting the role of public exposure and moral beliefs on feelings of shame and guilt: Replication of Smith et al. (2002)’s Study 1

Emotions are said to be the interface between an organism and its environment, mediating the ever-changing contexts and the behavioral responses of the organism (Scherer, 1984). In humans, emotions play a vital role in coordinating social interactions (Gilbert, 2004; Parrott, 2019), both signaling to ourselves how we feel about the experiences (Lazarus, 1994) and signaling our inner world to others (Van Kleef, 2009). The social emotions of shame and guilt have been linked to morality (Dempsey, 2017; Gilbert, 2003; Parrott, 2019; Teroni & Bruun, 2011) yet the theoretical explanations for distinguishing between the two emotional states are still in debate (Dempsey, 2017; Miceli & Castelfranchi, 2018).

## The public-private distinction

One of the many propositions is the distinction made between private and public emotions. In the eyes of Plato and Aristotle, individuals tend to feel shame when faced with the possibility of a worse reputation, discredit, or disgrace, whereas individuals tend to feel guilt when they have committed a wrongful act (Aristotle, ca, 350 B.C.E./1941; Plato, ca, 405 B.C.E./1997). Thus, public exposure is more strongly associated with shame than with guilt. This distinction was also noticed by Darwin, who referred to the association between the shame felt over norm violations and judgments by the fellow man (Darwin, 2008).

In this line of reasoning, shame is regarded as a moral emotion experienced when one’s faults are made public under others’ scrutiny and judgement. On the other hand, guilt is considered an emotion rooted primarily in self-directed negative evaluation and criticism (Combs, Campbell, Jackson, & Smith, 2010). Unlike shame, which involves the discrepancy between the self and the social ideal self, guilt is primarily focused on the self’s moral conduct (Higgins, 1987). That is, in the case of shame, individuals perceive the self from others’ perspectives and expectations, whereas the guilty individual refers to their own standpoint or agency. It should be noted that this presence of the “other” could be actual, presumed, or imagined (Ausubel, 1955). Thus, shame is not solely dependent on an actual “other” explicitly exposing a transgression. Rather, it depends on whether or not an individual senses that there is a discrepancy between the present, and the social ideal self—the latter of which is formed based on others’ expectations of us (Cooley, 1964). Put simply, it is the recognition of another’s dissatisfaction—presumed or otherwise—that causes the experience of shame (Ausubel, 1955; Higgins, 1987).

Humans evolved in social groups with status structures, where the fitness of the individual depends on their position in the group and the relations with their conspecifics. Shame and guilt can thus be distinguished by their function in solving the re-occurring adaptive problems in social lives.

Shame and guilt address two different kinds of challenges and originate from two distinct social motives. Shame is associated with being held in low esteem by other group members and motivates one to win their place within the group or to disengage to minimize the cost of conflicts. Whereas guilt originates from a care-providing system, which motives one to avoid harming others and make reparations when there is perceived harm (Beall & Tracy, 2020; Gilbert, 2004). De Hooge (2014) proposed shame as a general sociometer monitoring the threat of being excluded from the group, which motivates affiliative behaviors in many circumstances. Therefore, public exposure of wrongdoing or unethical behavior can induce a greater sense of shame as it increases one’s risk of exclusion by the group but not guilt because the perceived harm of one’s act is not conditioned on public exposure.

## The self-behavior distinction

The public vs. private distinction is not the only mainstream thought regarding the differentiation between shame and guilt. Another influential explanation posits that the object of negative evaluation (self vs. behavior) can differentiate shame and guilt (Tangney et al., 2007). While shame focuses on the negative evaluation of the global self (e.g., being a bad person), guilt is associated with the negative appraisal of the specific behavior (e.g., having done a bad thing). Previous research has found that when describing shame-inducing situations, participants expressed more concerns about negative evaluations of the self, compared with guilt-inducing situations. While the opposite holds for concerns about the effect on others (Tangney, 1994).

However, as expressed by Tangney and colleagues (2007), the two schools of thought need not be mutually exclusive. The salience of public exposure could shift the individual’s attention to the self and thus induce a greater feeling of shame. While in private, the individual may pay more attention to the effects of their behaviors on others. Other research has also pointed out that both accounts receive empirical support, and a new scale measuring shame and guilt-proneness (Guilt and Shame Proneness scale, GASP) has been developed taking into consideration arguments from both sides (Cohen, Wolf, Panter, &Insko, 2011).  GASP measures guilt-proneness using negative behavior evaluations towards private transgressions and shame proneness using negative self-evaluations towards public transgressions.

In view of the debate over the two schools of thought, it is thus more important to ensure the empirical foundations of the theorizing are reliable and replicable, which we hope to contribute by replicating one of the classic findings: Smith et al. (2002).

## Choice of replication: Smith et al. (2002)

Smith and colleagues (2002) explored whether the level of public exposure could differently affect the levels of shame and guilt experienced over one’s transgression and found support for the public/private shame-guilt distinction. They found that public exposure (either implicit or explicit) was more strongly associated with shame than with guilt, compared to private situations.

Their findings had vast implications from theoretical developments of moral psychology to practical applications in pedagogy or the justice system. At the time of writing (March 2022), the target article has been cited 621 times (according to Google Scholar), with many impactful follow-ups, such as the development of GASP (Cohen et al., 2011) which measures shame and guilt by referring to reactions towards public and private transgressions or failures. The public-private distinction has also contributed to the theorizing of the relationship between morality and reputation (Sperber & Baumard, 2012) and considerations of the justice system reformations (Tangney, Stuewig, & Hafez, 2011).

We conducted a simple scientometric analysis of research articles on shame, guilt, and moral behavior for the last two decades (2001 -2022) in Scopus with the String: *shame AND guilt AND (\*moral\* OR norm\* OR \*ethical)* and the results of a total of 580 publications were visualized using VOSviewer (Waltman, Van Eck, & Noyons, 2010). As shown in Figure 1, Smith et al. (2002) is connected to many other highly influential papers in this research area, supporting the centrality of this work. However, to the best of our knowledge, despite its impact, there seem to be no published direct replications of Smith et al. (2002).

**Figure 1**

*Network of Research on Shame, guilt, and behavior*

Chart, map

Description automatically generated

*Note.* The scale of the circles reflects the weights of each paper, which are determined by their connections with other publications in the network. The color gradient represents the number of citations (from 0 to 100).

## Hypotheses and findings in the target article

The main hypothesis in the target article was that shame is stronger for public exposure of moral experiences (e.g., a defect, failure, or transgression) than guilt. We listed the hypotheses in Table 1 and summarized the supported findings in Table 2.

Table 1

*Summary of hypotheses of the target article*

|  |  |
| --- | --- |
|  | Hypotheses |
| H1 | Public exposure (private, implicit, and explicit) of moral (transgressions) and nonmoral (incompetence) experiences is more strongly associated with shame than with guilt.  Higher public exposure of moral (transgressions) and nonmoral (incompetence) experiences results in stronger feelings of shame. (Page 141 Line 1 in the target article) |
| H2 | Moral belief (low and high) is more strongly associated with guilt than with shame.  Stronger moral belief is associated with stronger feelings of guilt. (Page 141 Line 3-4 in the target article) |
| H3 | Public exposure and moral beliefs [do not] interact on guilt. (Page 141 Line 15-18 in the target article). [Reframed from a null hypothesis of no interaction in the target] |

*Note.* These hypotheses are interpreted and summarized in our own wordings as the hypotheses are not explicitly stated in the original article. The target article did not specify a hypothesis regarding an interaction between public exposure and moral beliefs for shame. Summary in the target article: “We expected moral beliefs to enhance guilt regardless of the public exposure of the transgression. In contrast, we expected public exposure to have relatively little effect on guilt, regardless of moral belief.”.

Table 2

*Smith et al. (2012) Study 1: Effect sizes and confidence intervals*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent Variables |  | Independent Variables | *F* statistics | Effect(*η*2) | CIL | CIH |
| Manipulation Check | “Judged by others” | Public Exposure | *F* (2, 156) = 9.64 | 0.11 | 0.03 | 0.21 |
| “Violate a personal value” | Moral Beliefs | *F* (1, 156) = 16.79 | 0.10 | 0.03 | 0.20 |
| Public Exposure × Moral Beliefs | *F* (2, 156) = 2.97 | 0.04 | 0 | 0.11 |
| Explicit Emotion | Shame | Public Exposure | *F* (2, 154) = 12.47 | 0.14 | 0.05 | 0.24 |
| Moral Beliefs | *F* (1, 154) = 11.03 | 0.07 | 0.01 | 0.16 |
| Public Exposure × Moral Beliefs | *F* (2, 154) = 3.15 | 0.04 | 0 | 0.11 |
|  | Guilt | Moral Beliefs | *F* (1, 154) = 14.14 | 0.08 | 0.02 | 0.18 |
| Shame-related measures | Bodily Change | Public Exposure | *F* (2, 156) = 14.47 | 0.16 | 0.06 | 0.26 |
| Moral Beliefs | *F* (1, 156) = 4.26 | 0.03 | 0 | 0.10 |
| Public Exposure × Moral Beliefs | *F* (2, 156) = 5.49 | 0.07 | 0.01 | 0.15 |
| Desire to Escape | Public Exposure | *F* (2, 155) = 14.35 | 0.16 | 0.06 | 0.26 |
| Public Exposure × Moral Beliefs | *F* (2, 155) = 3.63 | 0.04 | 0 | 0.12 |
| Embarrassment | Public Exposure | *F* (2, 155) = 4.71 | 0.06 | 0.003 | 0.14 |
| Humiliated | Public Exposure | *F* (2, 155) = 4.71 | 0.06 | 0.003 | 0.14 |
| Self-directed anger | Public Exposure | *F* (2, 155) = 6.89 | 0.08 | 0.01 | 0.17 |
| Moral Beliefs | *F* (1, 155) = 11.31 | 0.07 | 0.01 | 0.16 |
| Public Exposure × Moral Beliefs | *F* (2, 155) = 4.42 | 0.05 | 0.002 | 0.13 |
| Guilt-related measures | Inwardly guilty feelings | Moral Beliefs | *F* (1, 156) = 8.20 | 0.05 | 0.005 | 0.13 |
| Hurt others | Public Exposure | *F* (2, 155) = 21.46 | 0.22 | 0.11 | 0.33 |
| Moral Beliefs | *F* (1, 155) = 4.20 | 0.03 | 0 | 0.10 |

*Note*. Only supported findings are included. The effect sizes were calculated using the MOTE package (Buchanan et al., 2017) in R. Scripts are provided on the OSF.

## Replication overview

In view of its impact and the absence of direct replications, we embarked on well-powered close replication of Study 1 in Smith et al. (2002). We chose Study 1 as the most comprehensive well-controlled baseline experimental demonstration of the effect, using simplified clear vignettes that are well-suited for online administration and our target sample. The experimental design of the target’s Study 1 was a 3 (Publicity: private vs. implicit public vs. explicit public) × 2 (Moral belief: high vs. low) × 3 (Scenario: cheating vs. steal vs. disobey) × 2 (Gender: male vs. female) between-subject design. The factor Scenario was dropped from the analyses in Smith et al. (2002) as it produced no systematic effects on any dependent variables while Gender was included in the ANOVAs. The original article reported no interaction effect between Gender and Public exposure or Moral belief, and gender did not seem to have any theoretical importance. Therefore, in the current replication, we collapsed the two genders (male and female) and did not include the factor Gender in the analyses.

## Open science declaration

This article is submitted as a Registered Report (Chambers & Tzavella, 2021; Nosek & Lakens, 2014). To support research transparency, the anonymized raw data, study materials, and analysis scripts are available on the Open Science Framework (<https://osf.io/j3ue4/>). Full open-science details are provided in the supplementary. We will report results after exclusion below and full sample results in the supplementary, with a comparison of the results. All measures, manipulations, and exclusions conducted for this investigation are reported, all studies were pre-registered, and data collection was completed before any analyses.

# Method

***[IMPORTANT:   
Method and results sections were written using a randomized dataset produced by Qualtrics to simulate what these sections will look like after data collection. These will be updated following the data collection. This is written in past tense, yet no pre-registration or data collection have been conducted.]***

## Sample size plan

We calculated the target article’s *η*2 effect sizes (Table 2). Our calculations indicated that the effect of public exposure on explicit shame was *η*2 = 0.14 and the effect of moral belief on explicit shame was *η*2 = 0.08. To make the effect sizes comparable with sensitivity analyses results (see below), we also computed the effect sizes in terms of Cohen’s *f* using Webpower (<https://webpower.psychstat.org/models/means03/effectsize.php>)*.* The effect of public exposure on shame is *f* = .39 and the effect of moral belief on guilt is *f* = .27 (for protocols see *Additional analyses and results* section in supplementary materials). Given the very large effects, it is likely that these are overestimations of the true effect size (Button et al., 2013; Halsey et al., 2015; Lakens, 2022), and – if true - we expected to find weaker effects for the primary analyses (around Cohen’s *f =* .20).

The “small-telescope” approach for replications (Simonsohn, 2015) proposed aiming for enough power to detect effects much weaker than those reported by the original study (*d*33%) with a general a rule of thumb that a simplified design replication should employ a sample size 2.5 times of the original. We followed this generalized approach, even if meant for other designs, and given *N* = 168 in Study 1 of Smith et al. (2002) the target sample was 420 (168× 2.5), per each of the 3 between-subject scenarios, overall, 1260. Accounting for possible exclusions, and allowing for the potential of additional analyses, we aimed for a larger total sample of 1350 participants (75 per condition).

A sensitivity analysis with Gpower (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a sample of 1260 would allow the detection of *f* = 0.12 (groups = 18, df = 4; 3 public exposure × 2 moral belief × 3 scenarios, between-subject ANOVA) and *d* = 0.23/ 0.19 for any contrasts between two conditions in collapsed main effects (independent samples, *n* = 420/630) (both: 95% power, alpha = 5%, one-tail), effects much weaker than any of the supported effects reported in the target article and considered weak in social psychology literature. We also ran sensitivity analysis for the two-way interactions (Public Exposure × Emotion and Moral belief × Emotion) mixed 3 (Public Exposure: private vs. implicit public vs. explicit public) × 2 (Moral belief: Low vs. High) × 2 (Emotion: shame vs. guilt) ANOVA using Morepower (Campbell & Thompson, 2012). Results showed that a sample of 1260 would allow the detection of *f* = 0.10 with a power of 95% and alpha of 5%. The protocols are available in *Additional analyses and results* section in supplementary materials. Overall, our target sample size was 8 times that of the original.

To demonstrate what the results would look like after data collection we simulated a dataset of 1260 participants using Qualtrics, which we will later update with the real data and our sample of 1350 minus exclusions.

## Participants

[*Reminder: To demonstrate what the results would look like after data collection we simulated a dataset of 1260 participants using Qualtrics and wrote the section below as if it is the actual data, which we will later update with the real data.*]

We recruited 1260 American participants (*n* women= 630) from Amazon Mechanical Turk via CloudResearch (Litman et al., 2017). The final sample consisted of 635 male participants (50.4%) and 625 female participants (49.6%). The average age of the sample was 51.3 (*SD* = 28.7), ranging from 0 to 100. [*Simulated data*]

We limited participation using the following criteria: (1) over 18 years old, (2) born, raised, and residing in the US, and (3) a native English speaker. Based on previous experience of running similar replications on MTurk, to ensure high-quality data collection, we employed the following CloudResearch options: Duplicate IP Block. Duplicate Geocode Block, Suspicious Geocode Block, Verify Worker Country Location, Enhanced Privacy, CloudResearch Approved Participants, Block Low-Quality Participants, etc. We will also employ the Qualtrics fraud and spam prevention measures: reCAPTCHA, prevent multiple submissions, prevent ballot stuffing, bot detection, security scan monitor, and relevantID.

Assignment pay was based on the federal wage of 7.25USD/hour, per minute, so for example - a 5-8 minutes survey would be paid one USD per participant. We first pretest survey duration with 30 participants to make sure our time run estimate was accurate and then adjust pay as needed, the data of the 30 participants will not be analyzed separately from the rest of the sample other than to assess survey completion duration and needed pay adjustments. For those pretest participants, if survey durations were longer than expected, they would be paid a bonus as pay adjustment. The average compensation for participation in this study was $ [].

## Procedure and materials

[*For review: The Qualtrics survey .QSF file and an exported DOCX file are provided on the OSF folder. A preview link of the Qualtrics survey is provided on:* [*https://hku.au1.qualtrics.com/jfe/preview/SV\_bqnlGd0mpbNivu6?Q\_CHL=preview&Q\_SurveyVersionID=current*](https://hku.au1.qualtrics.com/jfe/preview/SV_bqnlGd0mpbNivu6?Q_CHL=preview&Q_SurveyVersionID=current)]

The overall procedure of Study 1 was as follows: Participants first read the consent form, which includes the following information: purpose of the study, procedures, risks and benefits, compensation, confidentiality and voluntary participation. Then they had to confirm that they were over 18 years old and gave informed consent. Then, they read a short introduction of the study and instructions for imagining the scenarios, followed by several questions to ensure that they were eligible and willing to participate in the research. Next, participants indicated their gender (Options: male, female, other, and rather not disclose), and based on their gender participants who chose either male or female were randomly assigned to one of the eighteen conditions matching their gender. The three hypothetical transgression scenarios were: (1) cheating on a lab report, 2) stealing, and 3) disobeying parents. We informed participants that participation is limited to those who self-identify as male or female, given the gendered replication study materials, and those who did not indicate male or female were asked to return the HIT.

We used the original materials described in the target article for the stealing and cheating scenarios (summarized in the supplementary materials Table 2) yet had to reconstruct the materials for the disobeying account ourselves, as these were not provided in the original study (summarized in the supplementary materials Table 5).

Following Smith et al., (2002), moral belief manipulation was achieved by including information about the hypothetical individuals’ self-view of their characters before the wrongful act. For example, in the cheating scenario, high moral belief was manipulated by presenting that Julia [Jason] knows it would be very wrong to take the lab report, but, because of her desperation, she takes it. In the low moral beliefcondition, it was presented that she resents that many of the students have an unfair advantage over her and thinks that, given the high stakes, it would not harm anyone for her to copy the report. For public exposure manipulation, after reading about the transgression, participants read either that the individual in the account either came across or was reminded of someone who would not approve of his or her action (the implicit condition) or that the individual’s transgression is actually discovered by someone who would not approve of his or her action (the explicit condition). In the private condition, no such information was provided (for details, see Table 2 and Table 5 in supplementary materials).

Different from Smith et al. (2002), after reading the scenario, participants in all conditions first answered two comprehension questions (e.g., “Did Julia consider it wrong to take the report?” and “Did Juila see anyone nearby right after taking the report?”). Only after that they have chosen the correct answer for both comprehension questions, participants were reminded of the scenario and presented with a set of items depicting feelings or thoughts and indicated the degree to which they thought the item was characteristic of the individual’s experience over the transgression act (0 = *Not at all characteristic*; 9 = *Extremely characteristic*).

The main dependent measures were two manipulation checks for moral belief (“violated a personal value”) and public exposure (“judged by others”) respectively as well as three explicit measures of emotions of focus (“shame” and “guilt”). Following Smith et al. (2002), we also included the measures for shame-related reactions and guilt related measures (see Table 3 for the categorization and specific items).

Upon completion, participants answered a number of funnelling questions about the purpose of the study as well as whether they had participated in similar studies before. Then, they answered demographic questions about age, country of origin, country of residence, social class, and English proficiency regarding the experiment materials (see Table 8 in supplementary materials). Finally, participants were debriefed about the detailed purpose of the study and compensated for their participation.

Table 3

*Replication experimental design*

|  |  |  |  |
| --- | --- | --- | --- |
| IV1: Public exposure  (3 between)  IV2: Moral belief  (2 between)  IV3: Scenarios (1) cheating on a lab report, (2) stealing, and (3) disobeying parents | IV1: **Private condition**  E.g., Jody took some candy without anyone noticing | IV1: **Implicit public exposure condition**  E.g., Jody has hidden the M&Ms and is sure that nobody has seen her take the candy, she sees her boss from a distance | IV1: **Explicit public exposure condition**  Jody realizes that her boss had been watching her as she took the candy |
| IV2: **Low moral belief *(*incompetence)**  E.g., Jodysees herself as a fairly honest person, but she does not see anything wrong with taking a little candy now and then | Manipulation checks:   * Public Exposure: Judged by others * Moral Belief: Violate a personal value   Dependent variables:  0 (*Not at all characteristic*) to 9 (*Extremely characteristic*)  **Shame**  *Explicit measure of shame*  *Shame-related implicit measures:*   * Body change: Racing heart; sweaty and perspiring; shaken; loss of composure; a trembling and shaking feeling; flustered * Desire to escape: Desire to disappear; Desire to hide; Desire to be alone; Desire to escape public exposure * Embarrassed * Humiliated * Inferior self: learned something unflattering about him/herself; defective; others seemed superior; self-respect decreased; feeling worthless; inferior to others * Anger to others: a desire to lash out in anger; resentful, angry at others; vengeful; blaming others; helpless anger * Anger to self: anger at him/herself; blame for what happened; disgusted with him/herself   **Guilt**  *Explicit measure of guilt:*  *Guilt-related implicit measures:*   * Guilty conscience: Inwardly troubled; guilty conscience; a troubled conscience * Not real self: The action did not reflect the ‘real self’ * Hurt other: Concerned over how others were affected; thought others were hurt * Undo wrong: Desire to undo what was done; wanting to set things right; Desire to make amends; would try to make things better; Desire to apologize | | |
| IV2: **High moral belief (transgression)**  E.g., Jody sees herself as a very honest person and believes that stealing is wrong but succumbs to the temptation to take some candy without paying for it |

*Note.* The table only details the two IVs that are central to the conclusions drawn from the original study.

## Deviations

We provided a list of deviations between the original study and the present replication in Table 9 in the supplementary materials.

## Replication closeness evaluation

We provided details on the classification of the replications using the criteria by LeBel et al., (2018) criteria in Table 4 and concluded the replication as a close replication.

Table 4

*Classification of the replication, based on LeBel et al. (2018)*

|  |  |  |
| --- | --- | --- |
| Design facet | Replication | Details of deviation |
| Effect/hypothesis | Same |  |
| IV construct | Same |  |
| DV construct | Same |  |
| IV operationalization | Same |  |
| DV operationalization | Same |  |
| IV stimuli | Similar | Only 2 out of 3 scenarios were presented in the original, we reconstructed scenario 3 “Disobeying Parents”, with close consideration of the tone and wording of the original article. |
| DV stimuli | Same |  |
| Procedural details | Similar | We specified several exclusion criteria to ensure data quality and make the sample more comparable to the original study.  We added attention check questions before the scales measuring emotions.  Originally, participants were compensated with course credit, replication participants received monetary rewards. |
| Physical settings | Different | Replication was conducted online individually; the original experiment was carried out in person in groups of 30. |
| Contextual variables | Different | The original study was conducted in 2002; and replication was done in 2022 during the COVID-19 pandemic. The considerable time gap and pandemic may cause contextual variations. |
| Population (e.g., age) | Different | The original experiment focused on university students (Age 18-22), Age range for replication was 18 and above. |
| Replication classification | **Close** |  |

## Data Analysis Plan

### Overview

We conducted all data analyses in R (version 4. 1.0, R core team, 2021). We employed Null Hypothesis Significance Testing (NHST) to examine the hypotheses and exploratory relationships using the *afex* package (Singmann, Bolker, Westfall, Aust, & Ben-Shachar, 2015). We calculated the 95% CIs of *ηp2* with the *effectsize* package (Ben-Shachar, Lüdecke, & Makowski, 2020) and 95% CIs of Cohen’s *d* in planned contrasts and post-hocs with *emmeans* package (Lenth, 2022).

### Outliers and exclusions.

Our generalized exclusion criteria are detailed in the “exclusion criteria” subsection of supplementary materials. Note that the original article did not report any criteria or operations for exclusions. Therefore, there is a possibility that the exclusion process will constitute a deviation from the original study. However, most of the exclusion criteria we employed were to make the sample more comparable to the original sample and ensure data quality, which makes it unlikely to be a consequential deviation.

### Confirmatory analyses.

In the original study, the authors did not report the correlations between explicit emotions measures and the corresponding emotion-related reactions in Study 1. Although similar analyses were done in Study 4 of the original article, the measures were different. Therefore, after performing internal consistency analyses (i.e., Cronbach’s Alpha) following the original study, we first ran and reported the Pearson correlations between explicit shame and shame-related reactions as well as the correlations between explicit guilt and guilt-related reactions to establish the validities of the measures.

In addition, considering that in this replication we created a scenario on our own, to ensure it is justified to collapse the three scenarios in the following reporting, we first ran 3 (Publicity: private vs. implicit public vs. explicit public) × 2 (Moral belief: high vs. low) × 3 (Scenario: cheating vs. steal vs. disobey) between-subject ANOVAs for all the dependent variables to rule out that there were significant interaction effects between Scenario and Public exposure/ Moral belief. The results showed that Scenario did not interact with other experimental manipulations. Therefore, we ran and reported the following two-way between-subject ANOVAs and three-way mixed ANOVAs (see below).

[This paragraph is written as if there is no interaction. If there are interactions between Scenario and other experimental manipulations, we will revise the report and report the effects for each scenario in the manuscript]

### Main analysis: Explicit guilt and shame

To test the focal hypotheses that public exposure is associated with elevated levels of shame more than guilt experienced over one’s transgression and that high moral belief is associated more with an elevated level of guilt than shame, we ran two types of analyses. First, following Smith et al. (2002), we ran 3 (Public Exposure: private vs. implicit public vs. explicit public) × 2 (Moral belief: Low vs. High) between-subject two-way ANOVAs to examine the effects of *public exposure* and moral beliefs on the level of reported explicit shame and guilt, respectively. Second, we also transformed the data into long format and did a mixed 3 (Public Exposure: private vs. implicit public vs. explicit public) × 2 (Moral belief: Low vs. High) × 2 (Emotion: shame vs. guilt) ANOVA. This was done to examine whether the effects of manipulations differ significantly between the two emotions (i.e., the two-way interaction between public exposure and emotion and the two-way interaction between moral belief and emotion).

### Secondary analysis: Guilt and shame reactions.

Next, following the original study, we examined the effect of public exposure and moral beliefon the level of reported shame-related reactions as well as guilt-related reactions with a series of 3 (Public Exposure: private vs. implicit public vs. explicit public) × 2 (Moral belief: Low vs. High) between-subject two-way ANOVAs.

## Evaluation criteria for replication findings

We aimed to compare the replication effects with the original effects using the criteria set by LeBel et al. (2019), where we will provide a simplified replication taxonomy based on comparing the CI of our replication effects with that of the original article’s effects.

# Results

*[IMPORTANT:   
Method and results sections were written using a* ***randomized dataset*** *produced by Qualtrics to simulate what these sections will look like after data collection. These will be updated following the data collection. This is written in past tense, yet no pre-registration or data collection have been conducted.*

*Note to reviewers: Please refer to the R Markdown file (“Study1\_analyses.Rmd/html”) shared on the Open Science Framework for analysis scripts and outputs.]*

## Correlation between manipulation checks, explicit emotions, and emotion reactions

First, as shown in Table 5, all multi-item measures of emotion reactions had acceptable reliability [except for]. As for correlational structure, a higher score on the manipulation check for public exposure (“judged by others”) was associated with higher scores of explicit shame, *r* (1260) = -.02, *p =* .56. A higher score on the manipulation check for moral belief (“violates a personal value”) was associated with higher scores of explicit guilt, *r* (1260) = .00, *p =* .96.

Explicit shame had stronger correlations with shame-related reactions compared with guilt-related reactions while the opposite pattern was true for explicit guilt: explicit guilt was more strongly correlated with guilt-related reactions (see Table 5).

[Results were written in a way confirming the hypotheses despite the simulated data being simple noise.]

## Manipulation check

To test whether the experimental manipulations were successful, we ran two-way ANOVAs for the two manipulation checks. We found no support for a main effect of public exposure manipulation on public exposure check, *F* (2, 1254) = 0.64, *p =* .53, *µ*p2 = .001, 95% CI [.00, 1.00], for a main effect of moral belief on public exposure check, *F* (1, 1254) = 2.47, *p =* .12, *µ*p2 = .002, 95% CI [.00, 1.00], or for an interaction between public exposure and moral belief, *F* (2, 1254) = 0.44, *p =* .64, *µ*p2 < .001, 95% CI [.00, 1.00]. For moral belief check, we found no support for a main effect of public exposure manipulation on public exposure check, *F* (1, 1254) = 0.31, *p =* .73, *µ*p2 < .001, 95% CI [.00, 1.00], for a main effect of moral belief on public exposure check, *F* (1, 1254) = 0.83, *p =* .35, *µ*p2 < .001, 95% CI [.00, 1.00], and for an interaction between public exposure and moral belief, *F* (1, 1254) =1.70, *p =* .18, *µ*p2 = .003, 95% CI [.00, 1.00]. We provided estimated marginal means for each condition in Table 6.

Table 5

*Correlation between all measures: Manipulation check, explicit emotions, and emotional reactions*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1.Explicit shame | - |  |  |  |  |  |  |  |  |  |  |  |  |
| 2.Explicit guilt | .00 | - |  |  |  |  |  |  |  |  |  |  |  |
| 3.Body change | .00 | -.02 | [α] |  |  |  |  |  |  |  |  |  |  |
| 4.Desire to escape | .02 | .06 | -.01 | [α] |  |  |  |  |  |  |  |  |  |
| 5.Embarrassed | -.07 | -.02 | .00 | .02 | - |  |  |  |  |  |  |  |  |
| 6.Humiliated | -.02 | .06 | .02 | .02 | .01 | - |  |  |  |  |  |  |  |
| 7.Inferior self | .02 | .01 | .00 | .03 | .03 | -.01 | [α] |  |  |  |  |  |  |
| 8.Anger-other | .00 | .08 | .02 | .03 | -.01 | -.02 | .03 | [*r*] |  |  |  |  |  |
| 9.Anger-self | -.01 | .00 | .00 | .02 | -.01 | .-01 | .01 | .04 | [α] |  |  |  |  |
| 10.Guilty conscience | -.02 | -.02 | -.05 | -.03 | -.03 | .03 | -.01 | -.03 | -.02 | [α] |  |  |  |
| 11.Real self | .00 | .06 | .01 | .04 | .01 | -.02 | .03 | -.03 | .00 | .00 | [α] |  |  |
| 12.Hurt other | .02 | -.02 | .01 | -.01 | .02 | .04 | -.04 | -.04 | .03 | .04 | .02 | - |  |
| 13.Undo wrong | -.02 | -.04 | .00 | .03 | -.01 | .02 | -.01 | -.06 | -.02 | .00 | -0.3 | -.04 | [α] |

*Note*. Reliability is provided on the diagonal, we calculated Cronbach’s *α* for scales with more than two items, and Pearson’s correlation for two item scales.

Table 6

*Estimated Marginal Means for Manipulation Checks*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Manipulation Check | Public Exposure | Moral Belief | Emmeans | SE | df | 95%CI |
| Public Exposure | Private | High | 4.72 | 0.20 | 1254 | [4.33, 5.11] |
| Implicit | High | 4.66 | 0.20 | 1254 | [4.27, 5.06] |
| Explicit | High | 4.66 | 0.20 | 1254 | [4.27, 5.06] |
| Private | Low | 4.54 | 0.20 | 1254 | [4.15, 4.93] |
| Implicit | Low | 4.19 | 0.20 | 1254 | [3.80, 4.58] |
| Explicit | Low | 4.55 | 0.20 | 1254 | [4.16, 4.93] |
| Moral belief | Private | High | 4.52 | 0.20 | 1254 | [4.13, 4.91] |
| Implicit | High | 4.46 | 0.20 | 1254 | [4.07, 4.85] |
| Explicit | High | 4.91 | 0.20 | 1254 | [4.52, 5.30] |
| Private | Low | 4.44 | 0.20 | 1254 | [4.05, 4.83] |
| Implicit | Low | 4.63 | 0.20 | 1254 | [4.24, 502] |
| Explicit | Low | 4.36 | 0.20 | 1254 | [3.97, 4.75] |

## Explicit Shame and Guilt

To examine whether experimental manipulations had an effect on explicit shame and guilt, we performed two-way ANOVAs for the two explicit measures of emotion (see Figure 2). We found no support for a main effect of public exposure manipulation on explicit shame, *F* (2, 1254) = 0.54, *p =* .58, *µ*p2 < .001, 95% CI [.00, 1.00], for a main effect of moral belief on explicit shame, *F* (1, 1254) = 0.01, *p =* .94, *µ*p2 < .001, 95% CI [.00, 1.00], or for an interaction between public exposure and moral belief, *F* (2, 1254) =1.82, *p =* .16, *µ*p2 = .003, 95% CI [.00, 1.00]. For explicit guilt, we found no support for a main effect of public exposure manipulation, *F* (2, 1254) =2.77, *p =* .06, *µ*p2 = .004, 95% CI [.00, 1.00], for a main effect of moral belief, *F* (1, 1254) = 0.05, *p =* .82, *µ*p2 <.001, 95% CI [.00, 1.00], and for an interaction between public exposure and moral belief, *F* (2, 1254) =0.46, *p =* .63, *µ*p2 <.001, 95% CI [.00, 1.00]. We summarized estimated marginal means for each condition in Table 7.

[Results were written in a way confirming the hypotheses despite the simulated data being simple noise. Simple effects analyses and pairwise comparisons will be added after data collection]

Results from the 3 (Public Exposure: private vs. implicit public vs. explicit public) × 2 (Moral belief: Low vs. High) × 2 (Emotion: shame vs. guilt) ANOVA showed that there were a main effect of public exposure, *F* (2, 1254) =2.02, *p =* .13, µp2 = .004, 95% CI [.00, 1.00], and a main effect of moral belief, *F* (1, 1254) =0.02, *p =* .88, µp2 < .001, 95% CI [.00, 1.00], and a main effect of emotion, *F* (2, 1254) =1.26, *p =* .14, µp2 = .001, 95% CI [.00, 1.00]. We also discovered a two-way interaction between public exposure and emotion, *F* (2, 1254) =0.35, *p =* .70, µp2 < .001, 95% CI [.00, 1.00], and a two-way interaction between moral belief and emotion, *F* (2, 1254) =0.14, *p =* .71, µp2 < .001, 95% CI [.00, 1.00]. There was no significant three-way interaction among public exposure, moral belief, and emotion, *F* (2, 1254) =0.58, *p =* .56, µp2 = .001, 95% CI [.00, 1.00].

Table 7

*Estimated Marginal Means for Explicit Emotions*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent Variables | Public Exposure | Moral Belief | Emmeans | SE | df | 95%CI |
| Shame | Private | High | 4.76 | 0.20 | 1254 | [4.37, 5.14] |
| Implicit | High | 4.81 | 0.20 | 1254 | [4.42, 5.20] |
| Explicit | High | 4.28 | 0.20 | 1254 | [3.89, 4.67] |
| Private | Low | 4.58 | 0.20 | 1254 | [4.20, 4.97] |
| Implicit | Low | 4.53 | 0.20 | 1254 | [4.14, 4.92] |
| Explicit | Low | 4.70 | 0.20 | 1254 | [4.32, 5.09] |
| Guilt | Private | High | 4.45 | 0.20 | 1254 | [4.07, 4.84] |
| Implicit | High | 4.61 | 0.20 | 1254 | [4.22, 5.00] |
| Explicit | High | 4.74 | 0.20 | 1254 | [4.34, 5.13] |
| Private | Low | 4.28 | 0.20 | 1254 | [3.89, 4.67] |
| Implicit | Low | 4.71 | 0.20 | 1254 | [4.32., 5.10] |
| Explicit | Low | 4.92 | 0.20 | 1254 | [4.53, 5.31] |

Figure 2

*The effects of Public Exposure and Moral Belief Manipulation on Explicit Shame*



Figure 3

*The effects of Public Exposure and Moral Belief Manipulation on Explicit Guilt*



## Shame-related and Guilt-related Reactions

We conducted a series of two-way ANOVAs to examine the effect of public exposure and moral belief manipulation on shame-related and guilt-related reactions. For shame-related reactions, we found support for public exposure effect on [list of measures] but not on [list of measures]; and support for moral belief had an effect on [list of measures] but not on [list of measures]. We found support for an interaction effect between public exposure and moral belief on [list of measures] but not on [list of measures].

For guilt-related reactions, we found support for public exposure effect on [list of measures] but not on [list of measures]; and support for moral belief effect on [list of measures] but not on [list of measures]. We found support for an interaction effect between public exposure and moral belief on [list of measures] but not on [list of measures]. We summarized inferential statistics in Tables 8 and 9.

Table 8

*Estimated Marginal Means for Shame-related and Guilt-related Reactions*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Private | | Implicit Public | | Explicit Public | |
|  | High moral (*n* = ) | Low moral (*n* = ) | High moral (*n* = ) | Low moral (*n* = ) | High moral (*n* = ) | Low moral (*n* = ) |
| Body change | 4.51 (0.08) | 4.66 (0.08) | 4.49 (0.08) | 4.67 (0.08) | 4.63 (0.08) | 4.39 (0.08) |
| Desire to escape | 4.50 (0.10) | 4.41 (0.10) | 4.39 (0.10) | 5.53 (0.10) | 4.35 (0.10) | 4.34 (0.10) |
| Embarrassed | 4.50(0.20) | 4.48 (0.20) | 4.34 (0.20) | 4.71 (0.20) | 4.63 (0.20) | 4.81 (0.20) |
| Humiliated | 4.45 (0.20) | 4.19 (0.20) | 4.54 (0.20) | 4.29 (0.20) | 4.50 (0.20) | 4.95 (0.20) |
| Inferior self | 4.53 (0.08) | 4.46 (0.08) | 4.42 (0.08) | 4.42 (0.08) | 4.42 (0.08) | 4.41 (0.08) |
| Anger at other | 4.50 (0.09) | 4.65 (0.09) | 4.49 (0.09) | 4.52 (0.09) | 4.36 (0.09) | 4.45 (0.09) |
| Anger at self | 4.31 (0.11) | 4.62 (0.11) | 4.45 (0.11) | 4.46 (0.11) | 4.45 (0.11) | 4.45 (0.11) |
| Guilty conscience | 4.45 (0.11) | 4.47 (0.11) | 4.35 (0.11) | 4.49 (0.11) | 4.56 (0.11) | 4.45 (0.11) |
| Not real self | 4.60 (0.20) | 4.66 (0.20) | 4.59 (0.20) | 4.33 (0.20) | 4.67 (0.20) | 4.47 (0.20) |
| Hurt other | 4.36 (0.14) | 4.79 (0.14) | 4.51 (0.14) | 4.34 (0.14) | 4.69 (0.14) | 4.38 (0.14) |
| Undo wrong | 4.42 (0.09) | 4.73 (0.09) | 4.39 (0.09) | 4.50 (0.09) | 4.49 (0.09) | 4.57 (0.09) |

*Note.* The statistics outside the parentheses are estimated marginal means and the statistics inside the parentheses are corresponding standard errors.

Table 9

*Effect sizes and confidence intervals for Shame-related and Guilt-related Reactions*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dependent Variables | Independent Variables | F statistics | P statistics | Effect(ηp2) | 95%CI |
| Body change | Public Exposure | *F* (2. 1254) = 3.11 | .05 | .005 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.01 | .92 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 1.32 | .23 | .002 | [0.00, 1.00] |
| Desire to escape | Public Exposure | *F* (2. 1254) = 1.53 | .22 | .002 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.10 | .76 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.12 | .89 | <.001 | [0.00, 1.00] |
| Embarrassed | Public Exposure | *F* (2. 1254) = 0.03 | .97 | <.001 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 2.89 | .09 | .002 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.34 | .71 | <.001 | [0.00, 1.00] |
| Humiliated | Public Exposure | *F* (2. 1254) = 2.49 | .08 | .004 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 1.26 | .26 | .001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 1.18 | .31 | .002 | [0.00, 1.00] |
| Inferior self | Public Exposure | *F* (2. 1254) = 0.25 | .78 | <.001 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.64 | .43 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.18 | .83 | <.001 | [0.00, 1.00] |
| Anger at other | Public Exposure | *F* (2. 1254) = 0.14 | .87 | <.001 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 1.99 | .16 | .002 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 1.77 | .17 | .003 | [0.00, 1.00] |
| Anger at self | Public Exposure | *F* (2. 1254) = 0.90 | .41 | .001 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.01 | .94 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.94 | .39 | .001 | [0.00, 1.00] |
| Guilty conscience | Public Exposure | *F* (2. 1254) = 0.53 | .59 | <.001 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.61 | .43 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.03 | .97 | <.001 | [0.00, 1.00] |
| Not real self | Public Exposure | *F* (2. 1254) = 0.53 | .59 | <.001 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.58 | .45 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.24 | .79 | <.001 | [0.00, 1.00] |
| Hurt other | Public Exposure | *F* (2. 1254) = 2.89 | .06 | .005 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 1.39 | .24 | .001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 0.04 | .96 | <.001 | [0.00, 1.00] |
| Undo wrong | Public Exposure | *F* (2. 1254) = 1.71 | .18 | .003 | [0.00, 1.00] |
| Moral Belief | *F* (1. 1254) = 0.00 | .95 | <.001 | [0.00, 1.00] |
| Public Exposure × Moral Belief | *F* (2. 1254) = 3.19 | .04 | .005 | [0.00, 1.00] |

## Comparing Replication to Original Findings

Since the simulated dataset generated random noise, the comparison between replication and original findings is irrelevant, and will only be completed after data collection. We will describe whether the replication successfully replicated the original findings as well as compare the results of the replication to original findings for different hypotheses based on the criteria by LeBel et al. (2019) indicating detection of signal, comparison of effects (whether original effect size overlaps with the replication’s confidence intervals), and directionality (see supplementary materials for more details).

# Discussion

[To be added at Stage 2]

[Given feedback, we plan to discuss: Validity and improvement of the measures]

[Given feedback, we plan to discuss: Possible impact of the deviations from the target’s, such as the change in public/private data collection settings.]

# Conclusion

[To be added at Stage 2]

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