A Three-Level Meta-Analysis of the Effect of Shame on Prosocial Behavior

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Abstract

Shame is a prototypical moral emotion, and its effect on prosocial behavior has been inconsistent in previous studies. This study, for the first time, employs a three-level meta-analytic technique to integrate relevant empirical studies, examining the effect of shame on prosocial behavior and the role of moderating variables in their relationship. Through literature search and screening, a total of 26 studies, 85 effect sizes, and a total sample size of 5,823 participants were included. Main effect tests revealed that the shame group exhibited more prosocial behavior than the control group, and that shame can promote prosocial behavior. Moderation tests found that exposure contexts more effectively elicited the facilitative effect of shame on prosocial behavior than concealment contexts; the context of prosocial behavior generation (exposure or concealment context) had a significant moderating effect, but the moderating effects of variables such as age, cultural background, shame induction method, type of shame, and type of prosocial behavior were not significant. The use of a three-level meta-analytic method in this study ensured the completeness of information from included studies, thereby yielding more comprehensive and reliable conclusions regarding the effect of shame on prosocial behavior and the role of moderating variables in their relationship, contributing to an expanded understanding of the relationship between shame and prosocial behavior and its moderating mechanisms. Future research could further explore the role of cognitive factors and individual characteristics in the effect of shame on prosocial behavior, and examine the differences between shame and other moral emotions in their effects on prosocial behavior.

Full Text

The Effects of Shame on Prosocial Behavior: A Three-Level Meta-Analysis

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Abstract

Shame is a typical moral emotion, yet its effects on prosocial behavior have been inconsistent across previous studies. For the first time, this study employed three-level meta-analysis to integrate relevant empirical research, examining both the impact of shame on prosocial behavior and the role of moderating variables in this relationship. Through systematic literature search and screening, 26 studies comprising 85 effect sizes were included, with a total sample size of 5,823 participants. The main effect test revealed that the shame group exhibited significantly more prosocial behavior than the control group, indicating that shame can promote prosocial behavior. Moderator analyses showed that the generation context of prosocial behavior (exposed vs. masked situations) significantly moderated this effect—shame was more effective at promoting prosocial behavior in exposed situations than in masked ones. However, the moderating effects of age, cultural background, shame induction methods, shame type, and prosocial behavior type were not significant. By utilizing three-level meta-analysis, this study preserved the complete information from the included literature, yielding more comprehensive and reliable conclusions about the relationship between shame and prosocial behavior and its moderating mechanisms. These findings deepen our understanding of how shame relates to prosocial behavior and suggest that future research should further explore the roles of cognitive factors and individual characteristics in this relationship, as well as investigate differences between shame and other moral emotions in influencing prosocial behavior.

Keywords: shame, prosocial behavior, three-level meta-analysis, moderating effect

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When you lie and are caught, you may blush, feel embarrassed and distressed, and even want to disappear—these physiological and psychological reactions likely stem from shame. Shame (also called 羞耻 in Chinese) is a moral emotion triggered by personal failure or moral transgression [**?**] and has become a focal point in recent moral emotion research. When experiencing shame, individuals engage in self-reflection and self-evaluation, attributing mistakes to the self and consequently forming negative evaluations of their entire being [**?**], which further undermines their sense of power and confidence while generating feelings of inferiority and worthlessness [**?**, **?**]. Both shame and guilt are moral emotions, but they differ in their evaluation targets and behavioral orientations. Shame primarily involves evaluation of the self and can lead to both

destructive (internalized or externalized aggression) and constructive (prosocial behavior and self-improvement) outcomes [?], whereas guilt involves evaluation of specific behaviors and generally has a constructive orientation [?].

Early research predominantly viewed shame as a negative emotion with detrimental effects on individual behavior, including prosocial behavior [?, ?]. In recent years, however, shame has also been found to serve a social repair function [?] and to promote prosocial behavior [?, ?, ?]. Although existing studies have examined shame' s influence on prosocial behavior, findings remain inconsistent, suggesting that this relationship may be moderated by underlying factors. Meta-analysis excels at integrating existing research, identifying common effects, and revealing sources of heterogeneity through moderator analysis to provide new perspectives for future research [?]. Therefore, employing meta-analysis to synthesize previous studies is necessary to clarify the effects of shame on prosocial behavior and the role of moderating variables.

1.1 The Effect of Shame on Prosocial Behavior

Initially, researchers focused primarily on shame' s negative effects. Attribution theory of shame, for instance, considers shame to be inherently maladaptive [?]. A six-month longitudinal study found that shame predicted subsequent decreases in prosocial behavior [?]. Additionally, Johnson et al. (1989) discovered that shame was negatively correlated with helping behavior among Chinese, American, and Egyptian university students. Following accidental harm to others, shame inhibited helping behavior [?]. Research also shows that shame can weaken donation behavior among those with high monetary desires by intensifying their craving for money [?] and reduce donations to individuals unaware of one' s shameful experience [?].

As research progressed, scholars gradually recognized the importance of examining shame' s positive functions as a moral emotion, particularly its role in promoting prosocial behavior [?, ?]. From an evolutionary perspective, violating social norms triggers group exclusion, while shame promotes cooperation and compliance with group members, fulfilling social belonging needs and maintaining interpersonal harmony [?]. The Information Threat Theory of Shame integrates evolutionary perspectives, proposing that shame addresses threats of social devaluation caused by negative information. When perceiving social devaluation, shame mobilizes individuals to make adaptive changes to their environment [?]. Functionalists argue that all emotions have positive functions, including shame. When the self is threatened, shame can mobilize motivation for self-repair and stimulate prosocial behavior to protect the self [?]. Numerous empirical studies support this positive role. For example, shame positively correlates with seeking forgiveness [?] and predicts compensation behavior toward in-group victims [?]. After experiencing shame, individuals increase donation amounts and exhibit helping behavior [?, ?, ?].

Given these conflicting findings, foreign scholars have conducted limited integra-

tive analyses. Leach and Cidam (2015) found through meta-analysis that when failure was highly reparable, state shame had a small positive effect on constructively oriented prosocial behavior. However, Tignor and Colvin (2017) found that trait shame was weakly negatively correlated with prosocial behavioral orientation. While these studies explored the shame-prosocial behavior relationship, they had limitations: (1) they did not consider differences in age, cultural background, shame type, prosocial behavior type, or context; and (2) they used traditional meta-analysis methods. Compared to traditional approaches, three-level meta-analysis can account for dependencies among effect sizes within studies, maximizing the use of original literature [**?**]. Therefore, this study employs three-level meta-analysis to more comprehensively and accurately reveal the nature and strength of shame' s effects on prosocial behavior, clarifying existing theoretical and empirical controversies. Based on the included literature and previous meta-analyses, this study examines for the first time potential moderators related to sample characteristics (age, cultural background) and experimental design (shame type, shame induction method, prosocial behavior type, prosocial behavior context).

1.2.1 Age

Research indicates that shame negatively predicts the occurrence and continuity of prosocial behavior in adolescents [**?**, **?**], yet increases adults' compensation tendencies [**?**]. When facing conflicts between self and others' interests, adults after experiencing shame tend to satisfy others at their own expense, showing more altruistic behavior [**?**]. Therefore, age may be a potential moderating variable in the shame-prosocial behavior relationship.

1.2.2 Cultural Background

Cultural context is essential for understanding the relationship between emotion and moral behavior. Studies show that in Eastern cultures, shame induced by both one' s own and significant others' misconduct promotes prosocial behavior, with consistent effects [**?**]. Confucian culture, as a typical Eastern culture, emphasizes knowing shame and maintaining a sense of shame as its spiritual core [**?**]. Under Confucian cultural background, virtuous individuals possess shame and can restrain themselves accordingly [**?**], as reflected in the saying "One who has no sense of shame is not human." Thus, shame is considered constructive or positive in Eastern cultures. In Western cultures, however, shame is viewed as a negative emotion related to privacy, often associated with defensive responses like avoidance and anger [**?**, **?**], and shows low correlation with prosocial behavior [**?**] or even negative effects [**?**]. These differences suggest that cultural background may influence how shame affects prosocial behavior.

1.2.3 Shame Induction Methods

Shame induction methods mainly include experimental priming (imagination, recall, and real situational priming) [**?**] and self-report measures (including self-

conscious affect tests and shame experience scales) [?]. Wang et al. (2020) used two different imagined scenarios to induce shame and found that shame increased helping intentions compared to neutral emotions. Ibanez and Roussel (2021) induced shame through personal recall and found that shame reduced donations to non-governmental environmental organizations compared to control conditions. de Hooge et al. (2008) used a real situational priming paradigm with simple task failure, providing false feedback about inferior performance after an intelligence test. They found that when interacting with peers who knew their results, participants showed more prosocial behavior. Self-report measures often use the Test of Self-Conscious Affect (TOSCA), a situational simulation technique for inducing and assessing trait shame [?, ?]. TOSCA presents scenarios that induce shame and asks participants to rate shame-related descriptions on a 5-point scale [?]. Ortiz Baron et al. (2018) used TOSCA and found shame negatively correlated with prosocial behavior. Thus, different shame induction methods may influence the shame-prosocial behavior relationship.

1.2.4 Shame Type

Shame can be divided into trait shame and state shame. Trait shame represents stable response tendencies and emotional characteristics measured through psychological tests, while state shame refers to direct feelings and experiences induced experimentally [?, ?]. Research shows that compared to control conditions, individuals experiencing state shame after "breaking" a computer were more likely to help the experimenter [?]. However, Carlo et al. (2012) found trait shame negatively correlated with altruistic behavior tendencies. These inconsistent effects may occur because stable shame experiences generate high self-protection motivation, leading to withdrawal or avoidance behaviors [?], whereas state shame briefly awakens emotions, making positive behaviors including prosocial behavior more likely [?].

1.2.5 Prosocial Behavior Type

Academia has not reached consensus on the definition of prosocial behavior. This study adopts the more common conceptualization referring to all behaviors beneficial to others or society [?], including cooperation, donation, helping, sharing, and consolation [?]. Research suggests shame may be more likely to induce donation behavior than cooperation or helping [?]. Whether in experimental or daily contexts, shame induced through imagination, recall, or real situations rarely triggers cooperation or helping behavior [?, ?] but can facilitate donation [?]. Therefore, prosocial behavior type may also moderate shame' s effects.

1.2.6 Context of Prosocial Behavior Generation

Shame' s influence on prosocial behavior also varies by context. Shame negatively predicts altruistic tendencies in daily situations [?] but increases donation amounts in experiments [?] and leads to more generous monetary allocations in

distribution games [**?**]. This suggests shame may more positively affect prosocial behavior in short-term experimental contexts. Additionally, whether behavior is exposed to interpersonal interaction influences shame' s effects. Declerck et al. (2014) compared shame' s effects using simultaneous and sequential prisoner' s dilemmas. In simultaneous dilemmas (masked situations), participants didn' t know others' choices, making "defection" motivated by various factors. In sequential dilemmas (exposed situations), participants knew others' choices, making "defection" a result of others' selfishness. The study found that shame induced in simultaneous dilemmas didn' t enhance cooperation, but participants in sequential dilemmas cooperated to conceal themselves [**?**]. Thus, shame appears to promote prosocial behavior more effectively when behavior is exposed to interpersonal interaction.

1.3 Research Purpose

Given ongoing disagreement about whether shame promotes prosocial behavior and previous meta-analyses' failure to clarify whether age, cultural background, shame type, induction method, prosocial behavior type, or context moderate this relationship, this study aims to use three-level meta-analysis to comprehensively examine shame' s effects on prosocial behavior and reveal the specific roles of these potential moderators. This will expand understanding of the shame-prosocial behavior relationship and advance theoretical research on prosocial behavior.

This study followed the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) [**?**] and was preregistered on the Open Science Framework (OSF; registration number: 10.17605/OSF.IO/YJ4F3).

2.1 Literature Search

Chinese and English databases were searched. Chinese databases included CNKI, China Doctoral/Master' s Dissertations Full-text Database, Wanfang, and VIP, with keyword searches in titles and abstracts. Shame keywords were "羞愧" or "羞耻"; prosocial behavior keywords were "亲社会行为", "助人行为", "利他行为", "合作", "捐助", "补偿", "分享", "安慰". English databases included PubMed, Web of Science, Elsevier, EBSCO, and ProQuest, supplemented by Google Scholar, with searches in titles and abstracts. Shame keyword: "shame"; prosocial behavior keywords: "prosocial behavior", "helping behavior", "altruistic behavior", "cooperation", "donation", "compensation", "share", "consolation". Backward citation searching was also used. The search was conducted up to 2022.

2.2 Inclusion and Exclusion Criteria

Inclusion criteria were: (1) empirical studies only (excluding reviews and meta-analyses); (2) English or Chinese language; (3) normal populations (excluding physical or clinical psychological conditions); (4) clearly reported measurement

instruments; (5) exclusion of domain-specific shame (e.g., body shame, work shame); (6) available effect size data (means, standard deviations, sample sizes, r, F, ^{2} values), excluding data from regression or structural equation modeling; (7) for experimental studies, inclusion of both experimental (shame) and control (neutral emotion) groups, excluding studies without control groups or with non-neutral controls. The PRISMA flowchart is shown in Figure 1 [Figure 1: see original paper]. Two authors independently conducted this step; disagreements were resolved through discussion with the corresponding author. For studies with incomplete data (n = 5), two were dissertations without author contact information, and three were published studies where authors did not respond to contact attempts; all five were excluded. The final sample comprised 26 studies (20 English, 6 Chinese) with 85 effect sizes and 5,823 participants.

Figure 1 PRISMA Flowchart (Note: n = number of studies, k = number of effect sizes)

2.3 Literature Coding and Effect Size Extraction

Studies were coded for: (1) publication information (author, year); (2) participant age (adolescent or adult); (3) sample sizes for experimental and control groups; (4) cultural background (Eastern or Western); (5) shame type (trait or state); (6) shame induction method (imagination, recall, real situation priming, self-report); (7) prosocial behavior type (cooperation, donation, helping, altruism, overall, other); (8) prosocial behavior context (experimental or daily; exposed or masked).

Coding principles: (1) each independent sample was coded as one effect size, with multiple independent samples from one article coded separately; (2) when individual group sample sizes were not provided, total sample size was divided by number of groups following Quarmley et al. (2022); (3) when data were duplicated, the study providing more information was selected; (4) for longitudinal studies, only the first time point was coded. To avoid coding errors, two authors independently coded with the following inter-rater reliabilities: age (Kappa = 0.93), cultural background (Kappa = 1.00), shame type (Kappa = 1.00), induction method (Kappa = 1.00), prosocial behavior context (experimental/daily: Kappa = 0.98; exposed/masked: Kappa = 0.95), and prosocial behavior type (Kappa = 0.97).

2.4 Literature Quality Assessment

The Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (NIH, 2018) was used. This 14-item tool includes yes/no/uncertain/not reported/not applicable options, scored as 1 for "yes" and 0 otherwise. Quality ratings were: good (>7), fair (5–7), and poor (<5). Two authors independently assessed quality (Kappa = 0.93).

2.5.1 Effect Size Calculation

Hedge' s g was used as the effect size, with small, medium, and large effects corresponding to 0.20, 0.50, and 0.80 [**?**]. Most effect sizes were calculated from means, standard deviations, and sample sizes; some were converted from r, F, or ^{2} values [**?**].

This study included multiple effect sizes from some studies because they used multiple shame or prosocial behavior measures or reported multiple outcome variables, violating traditional meta-analysis assumptions of independence. Three-level meta-analysis addresses this by adding an intermediate level to account for dependency among effect sizes [**?**], explaining three variance sources: sampling variance (Level 1), within-study variance (Level 2), and between-study variance (Level 3) [**?**, **?**]. This resolves the independence problem, preserves information integrity, and improves statistical efficiency [**?**].

2.5.2 Data Processing and Analysis

Three-level meta-analysis was conducted using the metafor package (Viechtbauer, 2010) and esc package (Lüdecke, 2019) in R X64 4.1.1 for Windows, following tutorials by Harrer et al. (2021) and Assink and Wibbelink (2016).

2.5.3 Publication Bias

Because studies with larger effect sizes are more likely to be published, creating upward bias in meta-analytic estimates, this study assessed publication bias using funnel plots, Egger' s regression test, and Rosenthal' s fail-safe N. Funnel plots provide visual inspection—symmetrical distribution around the central effect suggests no severe bias [**?**]. Egger' s test with non-significant p values indicates no severe bias [**?**]. Rosenthal' s fail-safe N exceeding $5k + 10$ *(where* k* = number of effect sizes) suggests bias can be ignored [**?**]. If bias was detected, the trim-and-fill method would be used for correction [**?**].

3.1 Study Characteristics

The literature search identified 26 eligible studies (20 English, 6 Chinese) with 85 effect sizes and 5,823 participants. Within-study effect sizes ranged from 1 to 16. Publication years spanned February 1973 to January 2022 (see Table 1). Study counts and effect size numbers for each moderator are shown in Table 2 . Quality assessment rated included studies as good ($n = 19$) or fair ($n = 7$).

Table 1 Characteristics of Included Studies

Table 2 Moderator Effect Test Results for Shame' s Influence on Prosocial Behavior

3.2 Publication Bias Assessment

The funnel plot showed effect sizes evenly distributed in the upper middle region and on both sides of the overall effect (see Figure 2 [Figure 2: see original paper]), visually indicating no severe publication bias. Egger' s test was non-significant (t = -0.01, p = 0.996), with an intercept of -0.01 and 95% CI [-1.84, -1.82]. Rosenthal' s fail-safe N was 7,088, exceeding $5k + 10$ (k* = 85). Overall, no severe publication bias was detected, and no trim-and-fill correction was needed.

Figure 2 Funnel Plot of Shame' s Effect on Prosocial Behavior

3.3 Main Effect and Heterogeneity Tests

The main effect test indicated a small but significant difference between shame and control groups in prosocial behavior (g = 0.33, 95% CI [0.12, 0.53]). Variance decomposition showed sampling variance (Level 1) = 7.96%, within-study variance (Level 2) = 36.12%, and between-study variance (Level 3) = 55.92%. One-tailed likelihood ratio tests revealed significant variance at both Level 2 ($p < 0.001$) and Level 3 ($p < 0.001$), indicating significant heterogeneity and justifying moderator analysis [**?**, **?**].

3.4 Moderator Effect Tests

We examined moderating effects of age (adolescent, adult), cultural background (Eastern, Western), shame type (state, trait), induction method (imagination, recall, real situation, self-report), prosocial behavior type (cooperation, donation, helping, altruism, other, overall), and context (experimental/daily; exposed/masked). Results showed non-significant moderating effects for age (F(1, 83) = 0.57, p = 0.454), cultural background (F(1, 83) = 1.27, p = 0.263), shame type (F(1, 83) = 0.05, p = 0.821), induction method (F(3, 81) = 0.17, p = 0.916), and prosocial behavior type (F(5, 79) = 0.91, p = 0.482). Regarding prosocial behavior context, experimental vs. daily situations showed no effect (F(1, 83) = 0.09, p = 0.762), but masked vs. exposed situations significantly moderated the effect (F(1, 83) = 6.90, p = 0.010). Shame promoted prosocial behavior more strongly in exposed situations (g = 0.69, 95% CI [0.36, 1.02]) than in masked situations (g = 0.20, 95% CI [-0.85, -0.12]) (see Table 2). With only one significant moderator, multicollinearity among moderators was not examined [**?**].

This study is the first to quantitatively integrate 26 studies using three-level meta-analysis, confirming that shame groups show more prosocial behavior than control groups and that shame positively promotes prosocial behavior. Moderator analyses revealed that only the context of prosocial behavior generation (masked vs. exposed) significantly moderated this relationship, with exposed situations more strongly promoting prosocial behavior than masked ones. These findings deepen and expand understanding of the shame-prosocial behavior relationship and provide new insights for future research.

4.1 The Effect of Shame on Prosocial Behavior

That shame promotes prosocial behavior can be explained through both Information Threat Theory and functionalist perspectives. Information Threat Theory posits that shame evolved to avoid social devaluation [**?**, **?**]. Sznycer et al. (2018) found shame to be consistent across 15 regions, suggesting it is a universal human adaptation. In early human development, harsh environments required cooperation with group members for survival and gene propagation [**?**]. Once social norms were violated, individuals faced reduced value in group members' eyes and risked exclusion. To avoid devaluation, shame prompts individuals to choose cooperation and appeasement to maintain interpersonal harmony [**?**].

Functionalism maintains that shame serves self-protection and has constructive meaning, with destructive behaviors emerging only when failures or social images are irreparable [**?**]. A positive self-view is a fundamental human motivation [**?**]. After experiencing shame, individuals attribute errors to the self, form negative global self-evaluations, and experience distress [**?**, **?**]. Shame' s function is to mobilize self-protection, repair the damaged self, and release negative emotions—a process manifested through prosocial behaviors like helping and compensation [**?**, **?**]. Self-control plays an important role here. Previous research shows shame can enhance self-control [**?**], driven by the need to maintain a good self-image. After shame, individuals strongly desire to escape this emotion and restore their self-image, requiring mobilization of self-control resources. Self-control can inhibit selfish desires and increase prosocial behavior [**?**], whereas depleted self-control resources lead to deceptive behavior [**?**] and negatively affect altruism [**?**]. Thus, shame may positively influence prosocial behavior by mobilizing self-control resources.

In summary, Information Threat Theory suggests shame-induced prosocial behavior aims to reduce social devaluation likelihood, while functionalism believes prosocial behavior after shame repairs the self, maintains positive self-image, and releases negative emotions. This explains why shame promotes prosocial behavior.

4.2 Moderator Analysis of the Shame-Prosocial Behavior Relationship

Moderator tests showed that prosocial behavior context (exposed vs. masked) significantly moderated the relationship, with exposed situations more strongly promoting prosocial behavior than masked ones. This reflects the influence of shame experience intensity. Scheff and Retzinger (1991) argued that individuals experience shame more intensely in exposed situations. Empirical research also found that informing participants their behavior in a centipede game would be disclosed to others increased shame intensity [**?**]. Thus, already-induced shame intensity is further elevated in exposed contexts. According to the Affect Infusion Model (AIM), emotions permeate and influence cognition and judgment of unrelated targets during interpersonal interactions [**?**]. Emotional intensity

affects the degree of affect infusion, leading to different cognitive processing strategies and ultimately different decision outcomes [?, ?]. In masked situations with low shame intensity and limited affect infusion, individuals use motivation-driven processing strategies where shame minimally influences decisions. These decisions involve trade-offs between immediate rewards (e.g., saving time and money) and long-term benefits for self and group, with selfish desires making immediate rewards more attractive and shame leading individuals away from prosocial behavior [?, ?]. In exposed situations with high shame intensity and greater affect infusion, individuals use heuristic processing where shame directly influences decisions. These decisions affect not only interests but also self-image. When behavior is exposed in interpersonal interactions, refusing prosocial behavior labels one as selfish and greedy, triggering negative evaluations of self-image and reputation and activating shame' s defensive mechanisms. The desire to maintain self-image and reputation then outweighs selfish desires for immediate gain, increasing prosocial behavior [?, ?]. This important finding provides the first evidence from a situational perspective on boundary conditions for shame' s effects on prosocial behavior, suggesting future research should consider contextual factors when examining this relationship.

Age did not significantly moderate the relationship. By around age 10, individuals can already experience and understand shame, which predicts their helping and donation behaviors [?]. Although understanding of shame deepens with age, shame promotes prosocial behavior in both adolescents and adults. Notably, because studies involving children were insufficient [?], this study only included adolescents and adults; whether shame can induce prosocial behavior in children under 10 requires further verification.

Cultural background also showed no significant moderating effect. Shame promotes prosocial behavior not only in Eastern but also Western cultures, demonstrating cross-cultural stability. Although cultural differences in moral emotion-behavior relationships are well-established, some research supports our findings. Ghorbani and Liao (2014) conducted cross-cultural research comparing Chinese (Eastern culture) and Chinese Canadians (living in Western culture for over 6 years) and found that acculturation did not moderate the shame-compensation relationship. This may be because in collectivist Eastern cultures, individuals prioritize the group over the self, emphasize collective needs and harmony, and experience shame more readily [?, ?]. After wrongdoing, they feel they have lost "face" and use prosocial behavior to restore it. In Western culture, although some researchers view shame as negative and associated with avoidance, increasingly studies show shame is a fundamental component of human biology originating from natural selection rather than cultural evolution [?]. Information Threat Theory also views shame as an evolutionary adaptation to avoid negative evaluation by others [?]. Thus, shame serves human survival across cultures with adaptive and constructive functions. While cultural background was not a significant moderator, this study is more objective and persuasive than meta-analyses conducted in single or undifferentiated cultural contexts, providing insights for future theoretical and empirical research from cultural

perspectives and contributing to localized theory building.

Shame type also showed no significant moderating effect—trait shame also promoted prosocial behavior. This may relate to moral identity and empathy. Trait shame depends on identification with moral norms [**?**], and moral identity effectively predicts prosocial behavior and enhances willingness to engage in it [**?**]. Trait shame also positively correlates with empathy [**?**], a typical prosocial trait [**?**]. Therefore, trait shame also positively contributes to prosocial behavior.

Shame induction method showed no significant moderating effect. In practice, shame and guilt often co-occur, though guilt promotes prosocial behavior more strongly than shame [**?**]. Feelings of rejection and inferiority are often conceptualized as part of shame, and common induction methods simultaneously elicit shame, rejection, and inferiority. However, after controlling for rejection and inferiority, shame promotes prosocial behavior more than guilt [**?**]. Due to this impurity in shame induction, different methods produce correlated shame experiences, and other feelings may influence results. Future research should focus on purifying shame induction methods and excluding other potential influences.

Prosocial behavior context (experimental vs. daily) showed no significant moderating effect. A possible explanation is that prosocial behavior is a normative, socially approved adaptive behavior. Therefore, whether in experimental or daily contexts, individuals experiencing shame can exhibit prosocial behavior [**?**].

Prosocial behavior type also showed no significant moderating effect, indicating shame' s promotion of prosocial behavior does not vary by behavior type. This aligns with Li and Wang (2020), who found shame increased both willingness to lend materials and willingness to donate to disaster victims. Shameful individuals engage in prosocial behavior to compensate for faults, focusing not on the behavior type but on whether it achieves compensation.

In summary, except for prosocial behavior context (exposed vs. masked), no other moderators were significant, indicating that shame' s effect on prosocial behavior is relatively stable.

5 Theoretical Contributions, Limitations, and Future Directions

First, this study confirmed that shame has a small positive effect on prosocial behavior ($g = 0.33$), clarifying the nature and strength of this relationship, addressing controversies in existing research, and supporting relevant theories (e.g., Information Threat Theory). Second, leveraging three-level meta-analysis' s unique advantages, moderator analyses revealed sources of heterogeneity in shame' s effects from multiple perspectives. This study is the first to examine age, cultural background, shame type, induction method, prosocial behavior type, and context as potential moderators, confirming that exposed situations more strongly promote prosocial behavior than masked ones. This provides a new coordinating perspective for inconsistent findings and suggests future

research should consider contextual factors, advancing previous meta-analyses and offering an integrative framework. Third, compared to Leach and Cidam (2015) and Tignor and Colvin (2017), this study is the first to include Eastern cultural samples, expanding understanding of shame's effects in Eastern cultures and contributing to localized theory building.

Limitations include: First, due to literature constraints, only some sample and experimental characteristics were examined. Future research should explore cognitive factors (e.g., shame' s effects on in-group vs. out-group members) and individual characteristics (e.g., self-control ability). Second, this study only included control groups with neutral emotions, excluding comparisons between shame and other moral emotions like guilt or pride. Future studies should include such comparisons for a more comprehensive understanding. Third, some moderator subgroups had imbalanced effect sizes, potentially influencing results. Fourth, this study examined state and trait shame, but shame can also be divided into endogenous and exogenous shame based on relevance to decision-making situations, with endogenous shame promoting prosocial behavior more strongly [**?**, **?**]. However, research on endogenous shame remains limited. Finally, while this study shows shame promotes prosocial behavior, this does not negate the view that shame can lead to destructive behavior; differences in shame' s effects on prosocial versus destructive behavior require further investigation.

In conclusion, this three-level meta-analysis found that shame promotes prosocial behavior. This relationship is moderated by prosocial behavior context (exposed vs. masked) but not by age, cultural background, shame induction method, shame type, experimental vs. daily context, or prosocial behavior type, demonstrating considerable stability.

Note: Asterisks indicate studies included in the meta-analysis.

Note: Figure translations are in progress. See original paper for figures.