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Abstract

Awe possesses a power that transcends ordinary positive emotions and can enhance individual prosociality. Based on the small-self hypothesis, true-self hypothesis, and social cognitive theory of social class, this study investigates the psychological mechanisms through which awe influences prosociality and the differences among individuals of varying socioeconomic status. Through five studies employing questionnaire surveys, diary methods, and experimental approaches, the results demonstrate that: awe significantly and positively predicts individuals' prosocial behavior, with small-self and true-self serving as parallel mediators; the effect of awe on small-self is more pronounced among low socioeconomic status individuals, while the effect of awe on true-self is more pronounced among high socioeconomic status individuals; high socioeconomic status individuals significantly enhance their prosociality through the mediating role of true-self; further mechanism testing reveals that low socioeconomic status individuals are more inclined to activate the small-self pathway through ability-oriented awe, whereas high socioeconomic status individuals tend to activate the true-self pathway through aesthetic-oriented awe, thereby strengthening their prosocial behavior. This study provides novel theoretical perspectives and empirical evidence for fully harnessing the potential intervention effects of awe, particularly in advancing the third distribution strategy centered on charitable giving.

Full Text

The Psychological Mechanisms Through Which Awe Influences Prosociality Across Different Socioeconomic Status Individuals

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Abstract

Awe possesses a transformative power that transcends ordinary positive emotions and can enhance individual prosociality. Grounded in the small self hypothesis, authentic self hypothesis, and social cognitive theory of social class, this research investigates the psychological mechanisms through which awe influences prosociality and how these mechanisms differ across individuals of varying socioeconomic status (SES). Through five studies employing questionnaires, diary methods, and experimental approaches, the results demonstrate that awe significantly and positively predicts prosocial behavior, with both small self and authentic self serving as parallel mediators. The effect of awe on small self is more pronounced among lower-SES individuals, whereas its effect on authentic self is stronger among higher-SES individuals. Higher-SES individuals significantly enhance their prosociality through the mediating role of authentic self. Further mechanism testing reveals that lower-SES individuals are more likely to activate the small self pathway through ability-based awe, while higher-SES individuals tend to activate the authentic self pathway through aesthetic awe, thereby strengthening their prosocial behavior. This research provides novel theoretical perspectives and empirical evidence for fully leveraging the potential intervention value of awe, particularly in advancing the third-distribution strategy centered on charitable giving.

Keywords: awe, socioeconomic status, small self, authentic self, prosociality

1. Introduction

Standing amidst majestic mountains and rivers, one feels the boundless power of nature; gazing at the ancient starry sky, one comprehends the profound vastness of the universe; or witnessing athletes surpass human limits in competition—each such experience evokes a unique emotion in people’s hearts: awe. Awe is an emotional response to stimuli that are vast and beyond one’s existing psychological schemas to accommodate [?, ?]. Building upon the pioneering work of Maslow (1962) and McDougall (1910), Keltner and Haidt (2003) first constructed a prototype model of awe, achieving systematic conceptualization of this emotion. They argued that awe can reorient individuals’ lifestyles, goals,

and values, and that awe experiences often represent one of the most effective pathways for rapid personal growth and transformation.

Recent research further demonstrates that awe has profound social implications. It not only helps individuals feel closely connected to others [?, ?] but also fosters identification with broader social categories (such as “all humanity” or “citizens of Earth”) [?, ?] and elicits prosocial behavior [?, ?, ?]. As an ideal experience and psychological quality, the emerging science of awe has attracted widespread research interest. However, existing studies have primarily focused on awe’ s universal effects and basic psychological mechanisms, with limited systematic investigation into its specific roles across different sociocultural contexts and diverse populations. Particularly against the backdrop of China’ s active promotion of third distribution and the trend toward “civilianization” and “middle-classization” of charitable donors, how to harness awe’ s prosocial effects across different SES groups has become an urgent issue. Grounded in cultural adaptation theory of emotion and social class cognitive theory, this research systematically examines awe’ s mechanisms of action across different SES groups and explores optimal pathways for its prosocial effects, providing theoretical foundations and practical guidance for promoting social harmony and charitable development.

1.1 The Prosocial Effects of Awe

Awe is an emotional response to vast, powerful stimuli (e.g., towering trees, sunsets) that exceed one’ s existing psychological structures [?, ?]. It arises from a sense of vastness—feeling that something is much larger than oneself or one’ s cognitive reference frame—and requires new psychological representations for comprehension, i.e., a need for accommodation [?]. Based on stimulus characteristics, researchers have identified five types of awe: beauty, extraordinary ability, virtue or character strength, threat, and supernatural causation [?, ?, ?].

Awe possesses transformative power beyond ordinary positive emotions, enhancing prosociality such as generosity and helping [?, ?, ?, ?]. Multiple studies support a positive correlation between dispositional awe and prosocial measures [?, ?, ?]. In a field experiment, Piff et al. (2015) induced awe by immersing participants in a towering eucalyptus forest and compared this with a condition involving viewing tall buildings. They found that participants in the awe condition offered more help, as evidenced by picking up more pencils when the experimenter pretended to accidentally drop 11 pens. Awe also motivates individuals to invest more time in charitable or helping behaviors [?, ?]. Furthermore, Luo et al. (2022) found that recalling awe-inspiring social stimuli—such as healthcare workers’ selfless dedication during the COVID-19 pandemic—enhanced participants’ willingness to donate goods and money. Notably, awe’ s promotion of prosocial behavior shows dimension-specific effects. For instance, Joye and Bolderdijk (2015) noted that while awe induced by natural landscape images enhanced prosocial values, it did not significantly increase willingness to donate resources to disaster victims. Additionally, Rudd et al. (2012) found

that awe more readily promoted time-related helping behaviors rather than monetary donations. Research in Chinese cultural contexts has revealed similar inconsistencies; Qian (2018) found that compared to happiness, awe did not significantly influence moral judgment. Overall, despite these controversies, substantial empirical evidence still supports awe as an important prosocial emotion. From magnificent natural landscapes to character and ability in social domains, various awe experiences produce positive effects on prosociality.

1.2 Psychological Mechanisms of Awe' s Influence on Prosociality

Why does awe have such a universally positive impact on prosocial tendencies? From a social functional perspective, emotions are not merely reflections of current arousal states but can profoundly influence self-conception, thereby assisting individuals in successfully adapting to complex and changing social environments [?, ?, ?]. Preliminary evidence suggests that when individuals encounter vast stimuli that transcend their existing cognitive frameworks, their established self-concept systems are impacted, promoting both small self and authentic self, which subsequently leads to prosocial behavior [?, ?, ?, ?].

1.2.1 The Mediating Role of Small Self Awe promotes prosocial behavior through small self. Although operational definitions of small self vary across studies [?], based on current researchers' consensus, small self is defined as a feeling of self-diminishment, reduced self-significance, and insignificance [?]. The small self hypothesis posits that when facing stimuli more vast than oneself, awe shifts attention from the self to the broader world, reducing feelings of self-importance and making people feel small. This process of decreasing self-focus and self-interest can increase prosocial tendencies [?, ?]. Empirical research supports this view; Piff et al. (2015) found that after participants watched awe-inspiring nature videos, they reported feeling significantly more self-diminishment and insignificance. Moreover, this feeling mediated the positive effect of awe on generosity in economic games. Recalling awe experiences has also been shown to make people feel their self is smaller, as they tend to choose smaller figures to represent themselves, thereby shifting attention away from the self and leading to greater collective engagement, further confirming awe' s role in promoting positive social effects [?]. However, as research has deepened, increasing scholars have noted limitations of the small self hypothesis: First, self-orientation and other-orientation are not zero-sum; shifting attention away from oneself does not necessarily mean focusing on others, and vice versa. Second, focusing on others does not necessarily translate into altruistic motivation. Finally, merely weakening self-focus cannot explain awe' s capacity to produce profound personal transformation [?].

1.2.2 The Mediating Role of Authentic Self Addressing the limitations of small self, researchers proposed the authentic self hypothesis, suggesting that the authentic self triggered by awe may be key to achieving self-transformation, personal growth, and psychological maturity [?]. Authentic self is defined as the

perception of alignment with one's true, unadorned inner self [?]. The authentic self hypothesis posits that awe promotes self-transcendence [?, ?, ?], shifting focus away from trivial matters and fostering a sense of goodwill and benevolence that promotes pursuit of the authentic self [?, ?]. Pursuing authentic self can awaken awareness of core values and motivate individuals to attend to others' interests [?, ?, ?], thereby promoting prosociality. Theoretically, the authentic self hypothesis clarifies awe's transformative and motivational functions, explaining what the small self hypothesis cannot: Awe, as a transformative experience, allows individuals to encounter pivotal moments in their lives and stimulates internal motivation for change [?, ?, ?, ?]. Mere self-diminishment cannot explain why individuals would reflect and pursue change [?]. Jiang and Sedikides (2022) conducted a series of studies providing preliminary validation for the authentic self hypothesis: Awe-motivated authentic self pursuit played a key mediating role in promoting general prosocial behavior and inhibiting inauthentic prosocial behavior (Study 14). In laboratory studies using recall tasks to manipulate awe, authentic self pursuit similarly mediated the relationship between awe and general prosocial behavior (Study 11).

1.2.3 An Integrated Self-Framework: Parallel Mediation of Small Self and Authentic Self

The "small self" and "authentic self" hypotheses explain the psychological mechanisms through which awe promotes prosocial behavior from different facets of the self. First, the small self hypothesis suggests that awe may have initially emerged as a deferential response to powerful, high-status others before expanding to other vast stimuli [?]. In awe experiences, contact with vast stimuli is accompanied by a perception of self-diminishment in comparison, giving experiencers a "small self" that promotes other-orientation and collective integration [?]. Therefore, small self is typically represented as an affiliative, compliant self, belonging to the communal dimension of self-concept [?, ?]. Additionally, the authentic self hypothesis attempts to explain awe's capacity for profound transformation that the small self hypothesis cannot account for [?]. The authentic self hypothesis posits that by motivating authentic self, awe can influence people's key goals and values, thereby promoting self-growth and change [?, ?]. Thus, authentic self is considered unique and self-determined, belonging to the agentic dimension of self. Since agentic and communal selves represent two distinct dimensions of self, individuals who achieve balanced integration of agency and communion often exhibit profound prosocial motivation [?, ?]. In other words, when facing a vast world, people may feel their self is small while simultaneously gaining a transcendent perspective that inspires pursuit of authentic self [?]. Based on this, we propose that awe promotes prosociality through two parallel pathways across the two fundamental dimensions of self: On the communal dimension, awe promotes small self, leading to prosocial behavior; on the agentic dimension, awe promotes authentic self, leading to prosocial behavior (H1).

1.3 Psychological Mechanisms of Awe's Influence on Prosociality Across Different SES Groups

The functional universality hypothesis of emotion, from a framework of psychological universality, posits that human emotions exhibit cross-cultural consistency at the functional level—that is, emotions show functional universality in regulating social relationships and adapting to environmental stress [?]. However, cultural construction theory emphasizes that specific emotional expressions and response patterns are profoundly shaped by cultural scripts [?]. As a crucial dimension of cultural construction, socioeconomic status (SES) profoundly influences individuals' self-representation through resource distribution patterns and social cognitive schemas [?]. Lower-SES individuals occupy subordinate positions long-term, possess fewer resources and lower control, and face more threats, leading them to develop interdependent self-construal and other-oriented focus [?, ?]. This relationship-oriented social cognitive framework may cause lower-SES individuals to experience stronger small self feelings. Empirical research shows that lower-SES individuals are more likely to choose smaller circles to represent self-concept in self-schema tasks [?]. This small self representation not only reflects individuals' perceptual adaptation to their lower SES but also promotes prosocial tendencies through attention resource reallocation mechanisms [?]. Based on these theoretical constructions and empirical findings, we propose that compared to higher-SES individuals, the effect of awe in enhancing prosocial behavior through the small self pathway is more significant among lower-SES individuals (H2a).

Conversely, higher-SES individuals occupy superior positions, possess abundant resources, and have greater control, which grants them stronger autonomy and fosters independent self-construal and self-oriented focus [?, ?]. Pursuing authentic self helps satisfy higher-SES individuals' desire for independence and autonomy and their focus on internal goals and values [?]. Indirect evidence suggests that higher-SES individuals are more inclined to pursue authentic self. Higher SES is associated with greater sense of power [?], and high power enables people to more freely pursue their emotions, goals, and values [?], thereby experiencing related authenticity. In other words, higher SES backgrounds allow individuals to “be themselves” without situational constraints. In summary, pursuing authentic self may better align with the internal cognition and environmental context of higher-SES individuals. Therefore, we propose that compared to lower-SES individuals, the effect of awe in promoting prosocial behavior through the authentic self pathway is more significant among higher-SES individuals (H2b).

Not only do the psychological mechanisms through which awe influences prosocial behavior differ across SES, but susceptibility to different types of awe may also vary by SES. Lower-SES individuals long occupy subordinate positions where awe more often manifests as subordinates' responses to leaders. Leaders are often perceived as having ability or extraordinary talent but may also be threatening. This response, which places self-interest beneath powerful others,

helps stabilize social hierarchies and increases group members' chances of survival and cooperation [?]. This in turn helps lower-SES individuals adapt to their more threatening and uncertain environments. For higher-SES individuals, awe may more often manifest as an aesthetic response to sublime stimuli (e.g., art or nature). According to Konecni (2005), sublime stimuli must meet three criteria: spectacular, rare, and beautiful—qualities not easily accessible. Higher-SES individuals possess more necessary resources (e.g., money) to obtain aesthetic awe. This in turn helps them signal elite status within their group, demonstrating the economic and material means to encounter sublime stimuli, which is considered a desirable trait for potential mates [?]. Therefore, we propose that lower-SES individuals relatively more frequently experience awe related to ability and threat, while higher-SES individuals relatively more frequently experience awe related to aesthetics (H2c). If lower-SES individuals show stronger small self mediation effects and tend to experience ability-related awe, while higher-SES individuals show stronger authentic self mediation effects and tend to experience aesthetic awe, then awe conditions consistent with each SES group' s self-representation and social focus characteristics may further enhance psychologically aligned mechanisms. Therefore, we further hypothesize that for lower-SES individuals, ability-related awe is more likely to activate the small self mechanism, thereby promoting prosociality (H3a); for higher-SES individuals, aesthetic awe is more likely to activate the authentic self mechanism, thereby promoting prosociality (H3b).

1.4 Overview of Studies

Although the emerging science of awe has attracted widespread attention, the specific mechanisms of awe' s action across different social groups require deeper investigation. First, researchers have proposed two seemingly competing explanatory pathways: The small self hypothesis suggests awe promotes prosocial behavior by making individuals feel small and reducing egocentrism, while the authentic self hypothesis posits that awe drives altruistic behavior by helping individuals identify and pursue internal values. Are these mechanisms parallel or competing? This requires thorough examination. Second, different SES groups exhibit systematic differences in cognitive style, social motivation, and emotional experience. How these differences combine with awe experiences to influence prosocial consequences has rarely been studied. Furthermore, these theoretical issues are closely connected to China' s current social development needs. As “third distribution” has been elevated to a national strategy and encouraging universal participation in charity has become social consensus, donation behavior has shifted from “elitism” to “civilianization.” This demands more precise practical answers: For different SES groups, how can awe be effectively used to stimulate donation and other prosocial behaviors? Do the underlying psychological pathways differ? If so, how should different types of awe experiences be designed and guided to maximize overall societal prosociality? Answering these questions not only deepens theoretical understanding of awe science but also provides crucial scientific evidence for promoting social

equity and prosocial behavior practices.

To address these issues, this paper conducted five studies examining the parallel mediating roles of small self and authentic self in awe's effect on prosocial behavior, and the moderating role of SES on these mediating effects. Additionally, we examined SES's influence on different types of awe experiences. Study 1 used a large-scale questionnaire to investigate the relationship between awe and individual prosociality and test the parallel mediating roles of small self and authentic self. Study 2a conducted a 14-day diary study with typical higher- and lower-SES individuals to examine whether SES moderates the impact of daily awe experiences on small self and authentic self. Study 2b manipulated subjective SES (high vs. low) and emotion (awe vs. joy) to further test whether SES moderates the mediating effects of small self and authentic self, as well as SES differences in the frequency of aesthetic and ability awe experiences. Studies 3a and 3b manipulated subjective SES (high vs. low) and awe type (Study 3a: aesthetic awe vs. ability awe vs. amusement; Study 3b: aesthetic awe vs. ability awe vs. joy) to test whether SES moderates the mediating effects of different awe types on prosociality through small self and authentic self.

2. Study 1: The Prosocial Effect of Awe: The Roles of Small Self and Authentic Self

This study employed a correlational design to test H1 at the trait level: Awe can significantly and positively predict individual prosocial tendencies, with small self and authentic self serving as parallel mediators.

2.1 Method

2.1.1 Participants This study used Monte Carlo power analysis procedures [?] to determine sample size. Based on the following assumptions: correlation between small self and authentic self is non-significant, $r = .00$; associations among other variables are moderate, $r = .30$, $SD = .10$ [?], at least 132 participants were needed to achieve statistical power of 0.80. To ensure sufficient data for analysis, this study recruited 485 university students through an online platform. After careful screening, invalid responses were eliminated. The questionnaire included two attention-check items; failure to pass these was considered invalid [?]. The final sample comprised 414 valid responses, with an effective recovery rate of 85.36% (exceeding 70%). Among valid participants, 95 were male (22.95%); mean age was 21.64 ($SD = 2.31$), with six participants missing age data.

2.1.2 Measures Dispositional Awe. We assessed trait awe using the awe subscale of the Dispositional Positive Emotions Scale (DAS) [?]. The scale contains six items, sample items include "I feel wonder almost every day" and "I often feel awe" (1 = strongly disagree, 7 = strongly agree; $M = 5.04$, $SD = 1.00$, $\alpha = .810$).

Small Self. Following Luo et al. (2022), we measured small self with two items: “I feel relatively small” and “I feel unimportant” (1 = strongly disagree, 7 = strongly agree; $M = 4.12$, $SD = 1.52$, $\alpha = .675$), with higher scores indicating smaller self.

Authentic-Self Pursuit. Following Jiang and Sedikides (2022), we measured trait authentic self pursuit using specific instructions. Participants completed the Southampton Authenticity Scale (SAS), which consists of five items. Sample items include “I have a strong motivation to pursue my authentic self” and “I want to spend more time and energy pursuing my authentic self” (1 = not at all, 9 = extremely; $M = 6.98$, $SD = 1.45$, $\alpha = .917$).

Prosocial Tendencies. We used the Prosocial Tendencies Measure (PTM) developed by Carlo and Randall (2002) and validated in Chinese populations by Kou et al. (2007). The scale includes 26 items, sample item: “When others ask me for help, I rarely refuse” (1 = strongly disagree, 5 = strongly agree; $M = 3.70$, $SD = .59$, $\alpha = .931$).

Positive and Negative Affect. We used the Positive and Negative Affect Schedule (PANAS) developed by Watson et al. (1988) and validated in Chinese populations by Huang et al. (2003). The scale contains 20 items describing different emotional states, divided into two independent dimensions of positive and negative affect (1 = very slightly, 5 = extremely; positive affect: $M = 2.84$, $SD = .56$, $\alpha = .837$).

Demographic Information. Finally, participants answered necessary demographic questions including age, gender, and ethnicity.

2.2 Results

2.2.1 Common Method Bias Test Given that data were collected via questionnaire, we used exploratory factor analysis to test for common method bias [?]. Using Harman’s single-factor test, the first extracted common factor explained 31.30% of variance, less than the 40% threshold. Therefore, no serious common method bias existed in this study’s data.

2.2.2 Descriptive Statistics and Correlation Analysis After controlling for general positive and negative affect, we examined partial correlations among main variables. Consistent with previous research, dispositional awe positively correlated with prosocial tendencies, $r(410) = .41$, $p < .001$, providing preliminary support for H1 and validating awe’s prosocial effect (see Table 1). Additionally, other main variables showed significant positive correlations. Dispositional awe positively correlated with small self, $r(410) = .15$, $p = .002$, and with authentic self, $r(410) = .39$, $p < .001$. Small self positively correlated with prosocial tendencies, $r(410) = .18$, $p < .001$, as did authentic self, $r(410) = .28$, $p < .001$. Notably, small self and authentic self were not significantly correlated, $r(410) = -.01$, $p = .801$.

Table 1 Descriptive Statistics and Correlation Analysis

[Table content showing correlations with significance levels]

Note: $p < .01$, $*p < .001$

2.2.3 Mediation Analysis We conducted mediation analysis using SPSS PROCESS [?, ?] with 5000 bootstrap samples to test the parallel mediating roles of small self and authentic self in awe's prosocial effect. Dispositional awe served as the predictor, small self and authentic self as independent mediators, and prosocial tendencies as the outcome variable, with positive and negative affect as covariates. Results (see Table 2) showed a significant indirect effect through small self, $b = .01$, $SE = .01$, 95% CI [.003, .028]; a significant indirect effect through authentic self, $b = .04$, $SE = .01$, 95% CI [.012, .067]; and a significant direct effect of awe on prosociality, $b = .22$, $SE = .03$, 95% CI [.155, .283]. These results support H1, confirming that small self and authentic self serve as significant positive parallel mediators in awe's prosocial effect (Figure 1 [Figure 1: see original paper]).

Figure 1 Dispositional Awe Predicting Prosociality Through Parallel Mediation of Small Self and Authentic Self

[Figure showing mediation paths with coefficients]

Table 2 Bootstrap Analysis Results of Mediation Effects

[Table showing direct and indirect effects with confidence intervals]

Note: AWE = dispositional awe, SS = small self, AS = authentic self, PT = prosocial tendencies

2.3 Discussion

Consistent with previous findings [?, ?, ?], this study confirmed awe's prosocial effect. Moreover, this study advances previous work by providing the first empirical evidence for the parallel mediating roles of small self and authentic self. This model reveals individuals' dual self-regulatory adaptation mechanisms: achieving group integration by reducing self-size while guiding behavior by strengthening authentic self. This model effectively compensates for the shortcomings of single-mechanism explanations. While the small self mechanism can explain altruistic motivation arising from self-diminishment, it cannot account for the active self-reflection and values-based prosocial behavior observed in awe experiences, which the authentic self mechanism powerfully supplements.

3. Study 2: Socioeconomic Status Differences in the Prosocial Effects of Awe Through Small Self and Authentic Self

Building on Study 1, Study 2 further examined SES' s moderating role on the mediating effects of small self and authentic self using diary and experimental

methods. Specifically, Study 2a conducted a 14-day diary study with typical higher- and lower-SES individuals to examine whether SES moderates the impact of daily awe experiences on small self and authentic self. Study 2b manipulated subjective SES (high vs. low) and emotion type (awe vs. joy) to further test whether SES moderates the mediating effects of small self and authentic self.

3.1 Study 2a: Socioeconomic Status Differences in Small Self and Authentic Self Effects

In this diary study, we selected typical higher- and lower-SES participants who recorded their awe experiences for 14 consecutive days to test the hypotheses: For lower-SES individuals, the mediating effect of small self is stronger (H2a); for higher-SES individuals, the mediating effect of authentic self is stronger (H2b); lower-SES individuals more frequently experience ability- and threat-related awe, while higher-SES individuals more frequently experience aesthetic awe (H2c).

3.1.1 Method (1) Participants. Following sample size settings from similar diary studies [?], we screened 147 participants with high and low SES from a university in southwestern China. Screening criteria drew on Bai et al. (2021) and combined subjective and objective SES indicators. Specifically, higher-SES participants scored 6 or above on the subjective ladder [?] and had parents whose higher-status occupation was technician or above; lower-SES participants scored 3 or below on the subjective scale and had parents whose higher-status occupation was non-technical worker or below. Seven participants indicated they could not understand the definition of awe, leaving a final sample of 140 participants, including 71 higher-SES participants (21 males; M age = 20.55, SD = 1.69) and 69 lower-SES participants (18 males; M age = 21.03, SD = 2.03).

(2) Procedure and Measures. First, awe was defined for participants. Following previous research [?], we used theoretical definitions to guide participants' understanding of awe before the daily diary portion began. Over the next 14 days, participants completed daily diaries. Each day (between 8 PM and 8 AM the next morning), they were first asked whether they experienced awe that day; if yes, they described it. If not, they were asked whether they experienced joy. If neither, they wrote something they wanted to share to maintain daily participation (not included in analysis). They then reported their small self and authentic self. The study yielded 1,886 diary entries. After excluding entries used solely to maintain participation and those two coders agreed did not represent awe experiences, 1,353 emotion diaries remained. Higher-SES participants completed 703 diaries (428 awe experiences, 275 joy experiences); lower-SES participants completed 650 diaries (376 awe experiences, 274 joy experiences). Specific measures:

Daily Emotion Experience. Participants reported the extent to which they

felt a range of emotions that day, including awe, wonder, compassion, gratitude, love, pride, surprise, happiness, hope, amusement, joy, envy, shame, embarrassment, guilt, fear, anger, and sadness (1 = not at all, 10 = extremely).

Small Self. We used Bai et al.'s (2017) Perceived Self-size Scale, which includes five items. Two were narrative (e.g., "I feel relatively small"), and three were graphical (e.g., presenting seven progressively larger circles). All five items were rated 1-7. After reverse-coding graphical items, mean scores were calculated ($M = 4.40$, $SD = 1.29$, $\alpha = .842$), with higher scores indicating smaller self.

Authentic Self. Consistent with Study 1, we continued using the Southampton Authenticity Scale (SAS) to assess authentic self pursuit (1 = not at all, 9 = extremely; $M = 6.98$, $SD = 1.55$, $\alpha = .935$).

(3) Coding and Data Analysis Strategy. We coded the elicitors of awe. After training, two research assistants coded the primary elicitor in each awe diary into one of five mutually exclusive categories: 1 = beauty; 2 = virtue/character strength; 3 = ability; 4 = supernatural causality; 5 = threat. All coders were blind to hypotheses; intercoder reliability (Cronbach's α) = .889. A third coder read all entries and resolved disagreements.

Our data analysis strategy involved using R 4.4.0 with the lmerTest package to construct factorial linear mixed models (LMMs; [?]) to examine associations between perceived emotion (awe vs. joy) and authentic self/small self across SES. Data had a two-level nested structure: daily observations (Level 1) nested within participants (Level 2). SES was coded as 1 (higher) and 0 (lower); emotion was coded as 1 (awe) and 0 (joy). The model entered SES, emotion, and their interaction as fixed effects. We allowed random intercepts and linear slopes across participants, with emotion and intercept entered as random effects [?]. Two sets of analyses were conducted with small self and authentic self as dependent variables, focusing on testing SES' s moderating role in the awe-small self/authentic self relationship.

3.1.2 Results (1) Moderating Effect Analysis on Small Self. In the analysis with small self as the dependent variable, all 1,353 emotion diaries were included. Results showed a significant main effect of SES, $F(1, 135) = 18.08$, $p < .001$, with lower-SES individuals ($M = 4.76$, $SE = .12$) reporting smaller self than higher-SES individuals ($M = 4.05$, $SE = .12$). The main effect of emotion was significant, $F(1, 113) = 39.67$, $p < .001$, with participants in the awe condition ($M = 4.68$, $SE = .08$) reporting smaller self than those in the joy condition ($M = 4.13$, $SE = .10$). The $SES \times$ emotion interaction on small self was significant, $F(1, 113) = 5.01$, $p = .027$ (see Figure 2a [Figure 2: see original paper]). Simple effects analysis revealed that for lower-SES individuals, awe significantly affected small self, $b = -.74$, $t(113) = -5.98$, $p < .001$, with those in the awe condition ($M = 5.13$, $SE = .12$) reporting smaller self than those in the joy condition ($M = 4.38$, $SE = .15$). For higher-SES individuals, awe also significantly affected small self, $b = -.35$, $t(108) = -2.88$, $p = .005$, with those in

the awe condition ($M = 4.23$, $SE = .12$) reporting smaller self than those in the joy condition ($M = 3.88$, $SE = .14$). Importantly, this result supports H2a: The effect of awe on small self was stronger among lower-SES individuals compared to higher-SES individuals.

(2) Moderating Effect Analysis on Authentic Self. Classic research on awe and authentic self suggests that negative variants of awe are associated with fear, lower self-control, and higher situational control, and thus may not evoke authentic self pursuit [?]. To avoid masking awe's true effects, we excluded all awe diaries coded as 5 (threat) in the analysis with authentic self as the dependent variable, leaving 1,167 emotion diaries.

Figure 2 Interaction Between Socioeconomic Status and Emotion on Small Self and Authentic Self

Note: SES = socioeconomic status, 0 = lower SES, 1 = higher SES

Results with authentic self as the dependent variable showed a significant main effect of SES, $F(1, 137) = 4.18$, $p = .043$, with higher-SES individuals ($M = 7.18$, $SE = .16$) reporting stronger authentic self pursuit than lower-SES individuals ($M = 6.72$, $SE = .16$). The main effect of emotion was marginally significant, $F(1, 491) = 3.56$, $p = .060$, with participants in the awe condition ($M = 7.00$, $SE = .11$) reporting marginally stronger authentic self than those in the joy condition ($M = 6.90$, $SE = .12$). The $SES \times$ emotion interaction on authentic self was significant, $F(1, 491) = 5.25$, $p = .022$ (see Figure 2b). Simple effects analysis revealed that for higher-SES individuals, awe significantly affected authentic self, $b = -.23$, $t(81) = -3.04$, $p = .003$, with those in the awe condition ($M = 7.29$, $SE = .15$) reporting stronger authentic self than those in the joy condition ($M = 7.07$, $SE = .17$). However, for lower-SES individuals, awe did not significantly affect authentic self, $b = .02$, $t(96) = .27$, $p = .785$. Importantly, this result supports H2b: The effect of awe on authentic self was stronger among higher-SES individuals compared to lower-SES individuals.

(3) Analysis of Differences in Perception of Five Types of Awe Across SES. Figure 3 [Figure 3: see original paper] shows the frequency of each type of awe reported in higher- and lower-SES groups. In both groups, beauty was the most common awe elicitor (higher-SES: 41.36%; lower-SES: 31.12%), and supernatural causality was the least common (higher-SES: 0.70%; lower-SES: 1.60%). Importantly, chi-square tests showed that SES influenced the experience of awe themes. Beauty was significantly more likely to elicit awe in higher-SES individuals (41.36%) than in lower-SES individuals (31.12%), $\chi^2 = 9.05$, $p = .003$. Extraordinary ability was significantly more likely to elicit awe in lower-SES individuals (16.22%) than in higher-SES individuals (11.21%), $\chi^2 = 4.28$, $p = .038$. Threat was significantly more likely to elicit awe in lower-SES individuals (27.39%) than in higher-SES individuals (19.39%), $\chi^2 = 7.21$, $p = .007$.

Figure 3 Differences in Perception of Five Awe Themes in Daily Experiences Across SES Groups

3.1.3 Discussion This diary study revealed SES' s moderating role in the relationship between awe and self-representation. Specifically, the small self effect of awe was more pronounced among lower-SES individuals, while the authentic self effect was more pronounced among higher-SES individuals, supporting preliminary hypotheses H2a and H2b. Additionally, the study found that SES influences the types of awe individuals experience. Lower-SES individuals tend to experience more ability- and threat-related awe, while higher-SES individuals experience more aesthetic awe, supporting H2c. These findings not only enrich the integrated perspective of emotion functional universality hypothesis [?] and cultural construction theory [?] but also provide a solid empirical foundation for revealing SES' s moderating role in the internal mechanisms through which awe promotes prosocial behavior.

3.2 Study 2b: Socioeconomic Status Differences in Mediating Effects of Small Self and Authentic Self

This experimental study further tested H2a and H2b: The effect of awe in enhancing prosocial behavior through the small self pathway is more significant among lower-SES individuals; the effect of awe in promoting prosocial behavior through the authentic self pathway is more significant among higher-SES individuals.

3.2.1 Method (1) Participants and Design. Study 2b used a 2 (subjective SES manipulation: higher vs. lower) \times 2 (emotion manipulation: awe vs. joy) between-subjects design. Using *GPower 3.1.9.2 for a priori sample size estimation*, we set statistical power at 0.80 ($\alpha = .05$) for the between-subjects design. According to *GPower* analysis [?], at least 128 participants were needed to detect a medium effect size ($f = .25$). To ensure sufficient data, we recruited 200 participants nationwide through the online platform NAODAO. After excluding four participants who did not follow instructions (for failing to write emotion recalls according to instructions), the final sample included 196 participants (95 males, M age = 22.72, SD = 2.95).

(2) Procedure. After providing consent, participants were directed to a secure online platform and completed the study on their computers, being randomly assigned to one of four conditions. First, following classic studies [?, ?], participants were randomly divided into two groups for subjective SES manipulation. A 10-rung ladder was presented, with participants understanding that ladder position represented SES, with higher rungs indicating higher status. One group received high subjective SES instructions, the other low subjective SES instructions, requiring them to compare themselves with individuals at the bottom or top of the ladder, reflect on their own SES, and finally indicate their position on the ladder. Participants then completed the MacArthur Scale as a manipulation check.

Next, we used the recall paradigm developed by Bai et al. (2021) to manipulate awe. Participants in different SES conditions were randomly assigned to

recall an experience that induced awe or joy. Participants first read the definition of the target emotion and viewed a prototypical emoji expressing it (see supplementary materials; [?]). They were then asked to write 150-250 words describing event details and accompanying feelings (including when it occurred, what triggered the emotion, specific circumstances, and resulting emotions and thoughts). Manipulation checks followed, with participants reporting the extent to which they felt happy, awed, amused, sad, angry, grateful, proud, and joyful (1 = not at all, 7 = extremely). Finally, they completed assessments related to small self, authentic self, and prosociality.

(3) Measures. Small Self. Consistent with Study 2a, we used the Perceived Self-size Scale ($M = 3.87$, $SD = 1.36$, $\alpha = .889$).

Authentic Self. Consistent with Study 1, we continued using the Southampton Authenticity Scale (SAS; 1 = not at all, 9 = extremely; $M = 7.33$, $SD = .92$, $\alpha = .825$).

Prosociality. We used the altruism subscale from the Prosocial Tendencies Measure used in Study 1, which includes four items. Sample item: “I donate money and goods not to benefit from it” (1 = strongly disagree, 5 = strongly agree; $M = 4.22$, $SD = .59$, $\alpha = .745$).

Demographic Variables. Finally, participants reported necessary demographic information.

3.2.2 Results (1) Subjective SES Manipulation Check. We used independent samples t-tests to compare subjective SES scores between higher and lower SES conditions. Results showed that participants in the higher SES condition ($M = 5.42$, $SD = 1.42$) reported higher subjective SES ranking than those in the lower SES condition ($M = 5.00$, $SD = 1.38$), $t(194) = 2.07$, $p = .040$, Cohen’s $d = .30$.

(2) Awe Manipulation Check. Results showed that participants who recalled awe experiences ($M = 6.08$, $SD = 1.09$) felt more awe than those who recalled joy experiences ($M = 3.96$, $SD = 1.58$), $F(1, 194) = 121.00$, $p < .001$, $p^2 = .38$. Participants who recalled joy experiences ($M = 6.12$, $SD = 1.00$) reported more joy than those who recalled awe experiences ($M = 4.38$, $SD = 1.65$), $F(1, 194) = 78.22$, $p < .001$, $p^2 = .29$. These results indicate successful awe manipulation.

(3) Moderating Effect Analysis. First, a 2 (subjective SES: higher vs. lower) \times 2 (emotion: awe vs. joy) ANOVA tested the effects on small self.

Main effects showed a significant emotion effect, $F(1, 192) = 47.68$, $p < .001$, $p^2 = .20$, with the awe condition ($M = 4.45$, $SD = 1.36$) significantly promoting small self compared to the joy condition ($M = 3.26$, $SD = 1.06$). The SES main effect was non-significant, $F(1, 192) = 2.94$, $p = .088$.

The interaction effect was significant, $F(1, 192) = 4.85$, $p = .029$, $p^2 = .03$ (see Figure 4a [Figure 4: see original paper]). Simple effects analysis revealed that

for the lower SES group, awe ($M = 4.79$, $SD = 1.16$) significantly promoted small self compared to joy ($M = 3.22$, $SD = 1.09$), $F(1, 192) = 43.33$, $p < .001$, $p^2 = .18$. For the higher SES group, awe ($M = 4.11$, $SD = 1.48$) also significantly promoted small self compared to joy ($M = 3.30$, $SD = 1.03$), $F(1, 192) = 10.60$, $p = .001$, $p^2 = .05$. Further analysis showed that although awe significantly promoted small self in both groups, this effect was stronger in the lower SES group, $F(1, 192) = 7.93$, $p = .005$, $p^2 = .04$. These results indicate that awe's small self effect is stronger among lower-SES individuals compared to higher-SES individuals.

Next, a 2 (subjective SES: higher vs. lower) \times 2 (emotion: awe vs. joy) ANOVA tested effects on authentic self.

Main effects showed a significant emotion effect, $F(1, 192) = 4.39$, $p = .038$, $p^2 = .02$, with the awe condition ($M = 7.46$, $SD = .84$) significantly promoting authentic self pursuit compared to joy ($M = 7.19$, $SD = .98$). The SES main effect was significant, $F(1, 192) = 5.38$, $p = .021$, $p^2 = .03$, with the higher SES group ($M = 7.49$, $SD = .72$) showing stronger authentic self pursuit than the lower SES group ($M = 7.18$, $SD = 1.05$).

The interaction effect was significant, $F(1, 192) = 4.13$, $p = .043$, $p^2 = .02$ (see Figure 4b). Simple effects analysis revealed that for the higher SES group, awe significantly affected authentic self pursuit, $F(1, 192) = 8.17$, $p = .005$, $p^2 = .04$, with awe ($M = 7.74$, $SD = .64$) significantly promoting authentic self compared to joy ($M = 7.21$, $SD = .71$). For the lower SES group, awe did not significantly affect authentic self pursuit, $F(1, 192) = .00$, $p = .965$. These results indicate that awe's authentic self effect is stronger among higher-SES individuals compared to lower-SES individuals.

Figure 4 Moderating Effect of Socioeconomic Status on Awe's Small Self and Authentic Self Effects

(5) Moderated Mediation Analysis. To examine whether the mediating effects of small self and authentic self differed across SES groups, we established two moderated mediation models. Emotion manipulation served as the independent variable (1 = awe, 0 = joy), prosociality as the dependent variable, and SES (1 = higher, 0 = lower) as the moderator, input into Model 7 (Hayes 2018, PROCESS 3.5; 5,000 iterations).

First, moderated mediation analysis with small self as the mediator (see Figure 5a [Figure 5: see original paper], Table 3) showed a significant awe \times SES interaction on small self, $b = -.76$, $SE = .35$, $p = .029$, 95% CI [-1.442, -.079], indicating that SES influenced the awe-small self relationship. However, the moderated mediation index was non-significant, Index = .04, $SE = .03$, 95% CI [-.008, .116]. That is, the indirect effect through small self was non-significant for both higher and lower SES groups (higher SES: $b = -.04$, $SE = .03$, 95% CI [-.098, .011]; lower SES: $b = -.08$, $SE = .05$, 95% CI [-.182, .018]). These results partially support H2a.

Figure 5 Moderated Mediation Models (Study 2b)

Next, moderated mediation analysis with authentic self as the mediator (see Figure 5b, Table 3) showed a significant awe \times SES interaction on authentic self, $b = .52$, $SE = .26$, $p = .044$, 95% CI [.015, 1.023], indicating that SES influenced the awe-authentic self relationship. The moderated mediation index was significant, Index = .11, $SE = .06$, 95% CI [.003, .231]. In the lower SES group, the indirect effect through authentic self was non-significant, $b = .00$, $SE = .05$, 95% CI [-.075, .107]; in the higher SES group, the indirect effect was significant, $b = .11$, $SE = .05$, 95% CI [.035, .215]. These results support H2b.

Table 3 Moderated Mediation Model Analysis Results (Study 2b)

[Table showing coefficients for small self and authentic self mediation paths]

Note: $p < .05$, $p < .01$, $p < .001$

3.2.3 Discussion This study examined the internal pathways through which awe elicits prosociality across different SES conditions, revealing differential mechanisms of small self and authentic self pathways. Consistent with H2a, among lower-SES individuals, awe's small self effect was more pronounced; however, awe did not significantly promote prosociality through small self among lower-SES individuals. This may suggest that lower-SES individuals' prosocial behavior relies more on situation-specific resource allocation strategies rather than activation of a single emotional pathway. In contrast, higher-SES individuals' independent self-construal and resource control abilities make them more likely to express prosocial behavior through the authentic self pathway [?]. Research data showed that authentic self had a significant mediating effect in the higher-SES group, validating H2b and indicating that awe can activate higher-SES individuals' focus on internal goals and values, thereby promoting prosocial behavior. These findings provide important insights for developing prosocial behavior intervention strategies targeting different SES groups.

4. Study 3: Optimizing Awe's Prosocial Effects for Higher- and Lower-SES Individuals Through Different Mechanisms

Based on Study 2's findings, Study 3 attempted to design optimization strategies to further promote prosocial effects of awe for different SES groups by targeting their respective internal mechanisms. Study 2 showed that among lower-SES individuals, awe's small self effect was more pronounced, and they more frequently experienced ability-related awe; among higher-SES individuals, awe's authentic self effect was more pronounced, and they more frequently experienced aesthetic awe. Building on this, Study 3 refined awe into different types to optimize its prosocial effects across SES groups. Specifically, Study 3 further explored the interaction between different awe types and SES to determine whether there exist more effective awe themes for each SES context—whether higher- or lower-SES individuals facing these themes would more readily evoke

corresponding psychological mechanisms and influence prosociality. Two sub-studies were conducted: Study 3a examined ability-related awe's promotion of prosocial behavior in lower-SES individuals and its small self mechanism; Study 3b examined aesthetic awe's promotion of prosocial behavior in higher-SES individuals and its authentic self mechanism.

4.1 Study 3a: Optimizing Small Self Mechanism for Lower-SES Individuals' Prosocial Effects

Study 3a attempted to optimize lower-SES individuals' prosocial effects of awe by targeting the small self mechanism, testing H3a: For lower-SES individuals, ability-related awe is more likely to activate the small self mechanism, thereby promoting prosociality.

4.1.1 Method (1) Participants and Design. Study 3a used a 2 (subjective SES manipulation: higher vs. lower) \times 3 (awe type manipulation: aesthetic awe vs. ability awe vs. amusement) between-subjects design. Using G*Power 3.1.9.2 for a priori sample size estimation with power set at 0.80 ($\alpha = .05$), at least 158 participants were needed to detect a medium effect size ($f = .25$) [?]. To ensure sufficient data, we recruited 188 participants from a Chinese university. After excluding one participant who failed the attention check, the final sample included 187 participants (34 males, M age = 20.47, $SD = 1.56$).

(2) Procedure. After providing consent, participants completed the experiment in the laboratory. First, participants were randomly assigned to higher or lower subjective SES groups for manipulation (same as Study 2b). Next, we used a video induction paradigm [?] to randomly assign all participants to aesthetic awe, ability awe, or amusement conditions. Each video was 3 minutes long: The aesthetic awe video presented magnificent natural scenery from BBC's *Planet Earth* [?]; the amusement video selected montage clips from BBC's *Walk on the Wild Side* with humorous Chinese dialogue [?]; the ability awe video was newly selected for this study, featuring charismatic leader Nelson Mandela's remarkable achievements from *Xinwen Lianbo* [?].

Manipulation checks followed. To ensure videos successfully induced intended emotions, participants first reported the extent to which they felt happy, awed, amused, sad, angry, grateful, proud, and joyful (1 = not at all, 7 = extremely). Additionally, to further assess awe-related themes, participants reported their experience of five awe-related feelings: admiration, aesthetic enjoyment, fear, inspiration, and sense of incredulity (1 = not at all, 7 = extremely). They then completed assessments related to small self and prosociality.

(3) Measures. Small Self. We used the 5-item scale developed by Piff et al. (2015) to measure small self. Sample item: "I feel that my everyday concerns are relatively trivial" (1 = strongly disagree, 7 = strongly agree; $M = 3.87$, $SD = 1.18$, $\alpha = .776$).

Prosociality. Following Piff et al. (2015), we used the Ethical Decision-making

Scale to assess participants' willingness to place self-interest above collective norms and others' interests [?, ?]. Participants were presented with eight hypothetical scenarios, each describing a different self-serving behavior that violated accepted moral norms or behavioral standards. For each scenario, participants rated the likelihood they would engage in the described behavior on a 7-point Likert scale (1 = extremely unlikely, 7 = extremely likely). Responses to the eight scenarios were reverse-scored, summed, and averaged to measure ethical decision-making ($M = 3.84$, $SD = 1.01$, $\alpha = .664$).

Demographic Variables. Finally, participants answered demographic questions before being debriefed and thanked.

4.1.2 Results (1) Subjective SES Manipulation Check. Independent samples t-tests compared subjective SES between conditions. Higher-SES participants ($M = 5.91$, $SD = 1.71$) reported higher subjective SES than lower-SES participants ($M = 3.96$, $SD = 1.66$), $t(185) = 7.94$, $p < .001$, Cohen's $d = 1.16$.

(2) Awe Manipulation Check. One-way ANOVA tested awe manipulation effectiveness. As shown in Table 4, both awe videos induced similar awe levels (aesthetic awe: $M = 5.78$, $SD = 1.03$; ability awe: $M = 5.71$, $SD = .99$), both significantly higher than the amusement condition ($M = 2.76$, $SD = 1.58$), $F(2, 184) = 118.01$, $p < .001$, $p^2 = .56$. Additionally, participants reported stronger aesthetic enjoyment for the aesthetic awe video ($M = 5.90$, $SD = 1.10$) than the ability awe video ($M = 2.97$, $SD = 1.51$), and stronger admiration for the ability awe video ($M = 5.79$, $SD = 1.33$) than the aesthetic awe video ($M = 3.58$, $SD = 2.12$). These results indicate successful awe type manipulation.

Table 4 Emotional Experiences Across Different Emotion Manipulation Conditions (Study 3a)

[Table showing means and standard deviations for awe, aesthetic enjoyment, and admiration across conditions]

Note: *** indicates F-values significant at $p < .001$; numerator $dfs = 2$, denominator $dfs = 184$; a indicates mean significantly differs from aesthetic awe condition; b indicates mean significantly differs from ability awe condition; c indicates mean significantly differs from amusement condition.

(3) Moderating Effect of Ability Awe on Small Self in Lower-SES Individuals. Next, a 2 (subjective SES: higher vs. lower) \times 3 (emotion: aesthetic awe vs. ability awe vs. amusement) ANOVA tested effects on small self.

Main effects showed a significant emotion effect, $F(2, 181) = 6.99$, $p = .001$, $p^2 = .07$, with ability awe ($M = 4.28$, $SD = 1.10$) significantly promoting small self compared to aesthetic awe ($M = 3.77$, $SD = 1.31$) and amusement ($M = 3.52$, $SD = .94$), which did not differ significantly. The SES main effect was non-significant, $F(1, 181) = 1.43$, $p = .234$.

The interaction effect was significant, $F(2, 181) = 3.07$, $p = .049$, $p^2 = .03$ (see

Figure 6 [Figure 6: see original paper]). Simple effects analysis revealed that for the lower SES group, awe type significantly affected small self, $F(2, 181) = 6.34$, $p = .002$, $p^2 = .07$, with ability awe ($M = 4.54$, $SD = .96$) significantly promoting small self compared to aesthetic awe ($M = 3.59$, $SD = 1.33$) and amusement ($M = 3.75$, $SD = .88$), which did not differ. For the higher SES group, awe also significantly affected small self, $F(2, 181) = 3.78$, $p = .025$, $p^2 = .04$, with ability awe ($M = 4.04$, $SD = 1.19$) significantly promoting small self compared to amusement ($M = 3.29$, $SD = .95$), while aesthetic awe ($M = 3.96$, $SD = 1.28$) did not differ from either group. Results show that ability awe promoted small self more than other emotions for both groups, but this effect was larger among lower-SES individuals. Importantly, these findings support our hypothesis that for lower-SES individuals, applying positive awe elicitors consistent with their background (i.e., ability awe) would further promote small self.

Figure 6 Interaction Between Socioeconomic Status and Awe Type on Small Self

Note: * $p < .05$, ** $p < .01$

(4) Moderated Mediation Analysis. Following Fang et al.'s (2022) recommended method for categorical variables, we tested whether ability awe promotes prosociality in lower-SES individuals through small self.

Table 5 Moderated Mediation Model Analysis Results (Study 3a)

[Table showing coefficients for small self mediation paths]

Note: * $p < .05$, ** $p < .01$; D1 and D2 are dummy variables.

Emotion manipulation served as the independent variable (categorical: aesthetic awe, ability awe, amusement). We dummy-coded the independent variable with amusement as the reference level ($D1 = 0$, $D2 = 0$); aesthetic awe was coded as $D1 = 1$, $D2 = 0$; ability awe as $D1 = 0$, $D2 = 1$. Small self was the mediator, prosociality the dependent variable, and SES (1 = higher, 0 = lower) the moderator. We used Mplus to fit a first-stage moderated mediation model (5,000 iterations). Model fit indices were: $\chi^2 = 1.93$, $df = 3$, $CFI = 1.00$, $TLI = 1.29$, $RMSEA = .00$, $SRMR = .03$. Moderated mediation results (see Table 5) showed that the difference in relative indirect effects through small self between higher- and lower-SES groups was non-significant for aesthetic awe vs. amusement, $b = -.03$, $SE = .07$, 95% CI $[-.178, .101]$. Similarly, the difference was non-significant for ability awe vs. amusement, $b = .00$, $SE = .03$, 95% CI $[-.072, .061]$.

4.1.3 Discussion Study 3a results indicate that ability awe significantly activated the small self mechanism in lower-SES individuals but did not significantly affect prosocial behavior. This partially validates H3a, showing that matching awe type with SES characteristics can enhance the small self mechanism, though its downstream effect on prosocial behavior may be constrained by other factors.

First, the “small self” mechanism in lower-SES individuals was significantly activated when facing ability awe, supporting Keltner and Haidt’s (2003) view that lower-status individuals in threatening and uncertain environments more readily experience awe toward powerful others, thereby adapting to social hierarchies. However, prosocial behavior as a complex social outcome may require additional incentives or resource support. Lower-SES individuals in resource-scarce environments may prioritize meeting survival needs, which could weaken awe’s direct impact on prosocial behavior. This suggests the small self mechanism may require more contextual resources to translate into actual prosocial behavior.

4.2 Study 3b: Optimizing Authentic Self Mechanism for Higher-SES Individuals’ Prosocial Effects

Study 3b attempted to optimize higher-SES individuals’ prosocial effects of awe by targeting the authentic self mechanism, testing H3b: For higher-SES individuals, aesthetic awe is more likely to activate the authentic self mechanism, thereby promoting prosociality.

4.2.1 Method (1) Participants and Design. Study 3b used a 2 (subjective SES: higher vs. lower) \times 3 (emotion: aesthetic awe vs. ability awe vs. joy) between-subjects design. Using G*Power 3.1.9.2 with power set at 0.80 ($\alpha = .05$), at least 158 participants were needed to detect a medium effect size ($f = .25$) [?]. To ensure sufficient data, we recruited 181 Chinese participants from a university. After excluding four who failed the attention check, the final sample included 177 participants (33 males, M age = 20.85, $SD = 1.87$).

(2) Procedure. After providing consent, participants completed the experiment in the laboratory. First, participants were randomly assigned to higher or lower subjective SES groups (same as Study 2b). Next, we adapted Bai et al.’s (2021) recall paradigm to manipulate different types of awe. Participants in different SES conditions were randomly assigned to recall an experience that induced aesthetic awe, ability awe, or joy. Participants first read the definition of the target emotion (see appendix). They were then asked to write 150-250 words describing event details and accompanying feelings (including when it occurred, what triggered the emotion, specific circumstances, and resulting emotions and thoughts).

Manipulation checks followed. To ensure recalls successfully induced intended emotions, participants first reported the extent to which they felt happy, awed, amused, sad, angry, grateful, proud, and joyful (1 = not at all, 7 = extremely). Additionally, they reported their experience of five awe-related feelings: admiration, aesthetic enjoyment, fear, inspiration, and sense of incredulity (1 = not at all, 7 = extremely). They then completed assessments related to authentic self and prosociality.

(3) Measures. Authentic Self. Consistent with Study 1, we continued using

the Southampton Authenticity Scale (1 = not at all, 9 = extremely; $M = 6.73$, $SD = 1.04$, $\alpha = .823$).

Prosociality. Consistent with Study 3a, we continued using the Ethical Decision-making Scale to measure prosociality (1 = extremely unlikely, 7 = extremely likely; $M = 3.99$, $SD = .98$, $\alpha = .686$).

Demographic Variables. Finally, participants answered necessary demographic questions.

4.2.2 Results (1) Subjective SES Manipulation Check. Independent samples t-tests compared subjective SES scores between conditions. Higher-SES participants ($M = 5.61$, $SD = 1.53$) reported higher subjective SES than lower-SES participants ($M = 3.60$, $SD = 1.84$), $t(175) = 7.91$, $p < .001$, Cohen's $d = 1.19$.

(2) Awe Manipulation Check. One-way ANOVA tested awe manipulation effectiveness. As shown in Table 6, both awe recall conditions induced similar awe levels (aesthetic awe: $M = 5.65$, $SD = .99$; ability awe: $M = 5.35$, $SD = 1.17$), both significantly higher than the joy recall condition ($M = 2.61$, $SD = 1.70$), $F(2, 174) = 91.21$, $p < .001$, $p^2 = .51$. Additionally, aesthetic awe condition produced stronger aesthetic enjoyment ($M = 5.98$, $SD = .97$) than ability awe ($M = 3.94$, $SD = 1.80$), while ability awe condition produced stronger admiration ($M = 5.82$, $SD = 1.12$) than aesthetic awe ($M = 3.65$, $SD = 2.16$). These results indicate successful awe type manipulation.

Table 6 Emotional Experiences Across Different Emotion Manipulation Conditions (Study 3b)

[Table showing means and standard deviations for awe, aesthetic enjoyment, and admiration across conditions]

Note: *** indicates all F-values significant at $p < .001$; numerator $dfs = 2$, denominator $dfs = 174$; a indicates mean significantly differs from aesthetic awe condition; b indicates mean significantly differs from ability awe condition; c indicates mean significantly differs from joy condition.

(3) Moderating Effect of Aesthetic Awe on Authentic Self in Higher-SES Individuals. Next, a 2 (subjective SES: higher vs. lower) \times 3 (emotion: aesthetic awe vs. ability awe vs. joy) ANOVA tested effects on authentic self.

Main effects showed a significant emotion effect, $F(2, 171) = 3.94$, $p = .021$, $p^2 = .04$, with aesthetic awe recall ($M = 7.01$, $SD = .95$) significantly promoting authentic self compared to ability awe ($M = 6.60$, $SD = 1.11$) and joy ($M = 6.58$, $SD = 1.00$), which did not differ. The SES main effect was significant, $F(1, 171) = 3.94$, $p = .049$, with the higher SES group ($M = 6.87$, $SD = 1.04$) more likely to pursue authentic self than the lower SES group ($M = 6.59$, $SD = 1.02$).

The interaction effect was significant, $F(2, 171) = 3.67$, $p = .028$, $p^2 = .04$ (see Figure 7 [Figure 7: see original paper]). Simple effects analysis revealed that for

the higher SES group, awe type significantly affected authentic self, $F(2, 171) = 7.28$, $p = .001$, $p^2 = .08$, with aesthetic awe ($M = 7.46$, $SD = .73$) significantly promoting authentic self compared to ability awe ($M = 6.57$, $SD = 1.02$) and joy ($M = 6.63$, $SD = 1.11$), which did not differ. For the lower SES group, awe type did not significantly affect authentic self, $F(2, 171) = .09$, $p = .914$. These results support H3b: For higher-SES individuals, aesthetic awe better activates authentic self.

Figure 7 Interaction Between Socioeconomic Status and Awe Type on Authentic Self

Note: ** $p < .01$

(4) Moderated Mediation Analysis. Following Fang et al.'s (2022) method for categorical variables, we tested whether aesthetic awe promotes prosociality in higher-SES individuals through authentic self.

Emotion manipulation served as the independent variable (categorical: aesthetic awe, ability awe, joy), dummy-coded with joy as reference ($D1 = 0$, $D2 = 0$); aesthetic awe coded as $D1 = 1$, $D2 = 0$; ability awe coded as $D1 = 0$, $D2 = 1$. Authentic self was the mediator, prosociality the dependent variable, and SES (1 = higher, 0 = lower) the moderator. We used Mplus to fit a first-stage moderated mediation model (5,000 iterations). Model fit indices were: $\chi^2 = 3.56$, $df = 3$, $CFI = .97$, $TLI = .90$, $RMSEA = .03$, $SRMR = .04$, indicating good model fit.

In the lower SES condition, the relative indirect effect of aesthetic awe vs. joy through authentic self was non-significant, $b = .02$, $SE = .05$, 95% CI $[-.084, .125]$. In the higher SES condition, this relative indirect effect was significant, $b = .16$, $SE = .08$, 95% CI $[.030, .335]$. Moreover, the difference in indirect effects between higher and lower SES groups was significant, $b = .15$, $SE = .09$, 95% CI $[.002, .358]$. These results indicate that the relative indirect effect of aesthetic awe through authentic self is moderated by SES, being more pronounced in the higher SES condition (see Table 7). In both higher and lower SES conditions, the relative indirect effect of ability awe vs. joy through authentic self was non-significant, and the difference between groups was non-significant, $b = -.03$, $SE = .09$, 95% CI $[-.220, .129]$. These results support H3b.

Table 7 Moderated Mediation Model Analysis Results (Study 3b)

[Table showing coefficients for authentic self mediation paths]

Note: * $p < .05$, ** $p < .01$; D1 and D2 are dummy variables.

4.2.3 Discussion This study shows that when higher-SES individuals experience aesthetic awe, their “authentic self” mechanism is significantly activated, thereby enhancing prosociality. This finding validates H3b, indicating that higher-SES individuals in resource-abundant and status-secure environments are more likely to transform aesthetic awe-induced authentic self pursuit into

prosocial behavior. According to Konecni (2005), sublime experiences require spectacular, rare, and beautiful stimuli that higher-SES individuals have more material resources to obtain. This not only satisfies their need to signal elite status but also promotes group welfare through authentic self enhancement. Therefore, for the authentic self mechanism, inducing aesthetic awe in higher-SES individuals may be an effective strategy to further promote their prosocial effects.

5. General Discussion

Consistent with existing literature [?, ?, ?] that generally supports awe' s main prosocial effect, this research first confirmed through correlational studies that awe significantly and positively predicts prosociality. However, it should be noted that some previous studies have yielded inconsistent results [?, ?, ?]. Therefore, expanding examination of boundary conditions and mechanisms with targeted result analysis is necessary. This research focused on the parallel mediating roles of small self and authentic self in awe' s prosocial effect and SES' s moderating role on these two mediating effects. The series of studies revealed: Awe enhances prosocial tendencies through parallel mediation of small self and authentic self; SES moderates awe' s positive effects on small self and authentic self, with the small self effect more pronounced among lower-SES individuals and the authentic self effect more pronounced among higher-SES individuals; furthermore, SES moderates the mediating effect of awe on prosociality through authentic self pursuit, which is more significant among higher-SES individuals; finally, SES moderates the positive effects of different awe types on small self and authentic self, with ability awe' s positive effect on small self more significant among lower-SES individuals (though its impact on prosocial variables was not significant), while aesthetic awe' s positive effect on authentic self more pronounced among higher-SES individuals, thereby positively influencing their prosociality. These findings not only deepen theoretical understanding of awe science but also provide important scientific evidence for promoting social equity and prosocial behavior practices.

5.1 Parallel Mediation of Small Self and Authentic Self in Awe' s Prosocial Effect

Through large-scale questionnaire surveys and parallel mediation model analysis, this research not only validated the existence of small self and authentic self as parallel mediators but also provided a novel perspective for understanding awe' s prosocial effect within the “Big Two” framework (agency and communion).

First, parallel mediation results show that both small self and authentic self play significant mediating roles in awe' s positive prediction of prosociality; the two are minimally correlated and, consistent with previous research [?, ?], small self cannot substitute for or explain authentic self' s effect, confirming the independence of the two pathways and ruling out serial mediation (see appendix).

This model indicates that the small self mechanism corresponds to the communal self, reflecting awe' s function of enhancing group integration by reducing self-size, while the authentic self mechanism corresponds to the agentic self, reflecting awe' s function of driving values-based prosocial behavior by motivating authentic self pursuit. The importance of this dual-dimension mechanism lies not only in revealing awe' s multi-level effects on prosociality but also in providing theoretical support for understanding how complex emotions influence self-representation and behavior [?]. This finding breaks through previous research' s limitation of single mediation mechanisms and expands application of the “agency-communion” framework in emotion' s social function research.

Moreover, the parallel mediation model of small self and authentic self reconciles divergences between the small self and authentic self hypotheses. Although previous research has examined awe' s mediation of prosocial behavior through small self or authentic self separately, no empirical studies have simultaneously investigated both mechanisms and their interrelationships from an integrated perspective. Given their stark theoretical contrast and behavioral predictions, a unified model is urgently needed for coordination. Theoretically, awe can make individuals feel small and reduce self-focus (small self effect), thereby inhibiting self-centered needs and motivations [?, ?]; simultaneously, awe can motivate authentic self cognition and pursuit, enhancing insight and autonomy [?, ?]. In behavioral outcomes, the two hypotheses make opposite predictions for specific types of prosocial behavior: For “non-spontaneous” helping behaviors driven by authority or external pressure, the authentic self hypothesis suggests awe inhibits such inauthentic prosocial behavior [?], while the small self hypothesis suggests awe promotes them. Based on this, this research proposes and empirically tests a comprehensive self-framework containing two relatively independent but complementary pathways: Awe promotes prosocial behavior through dual mechanisms of reducing self-size and motivating authentic self pursuit. This model theoretically integrates awe' s effects on both communal and agentic dimensions of self, reconciling potential conflicts between the small self and authentic self hypotheses; at the empirical level, it validates the relative independence and synergistic action of the two mediating mechanisms in path effects.

5.2 Socioeconomic Status' s Moderating Role on Small Self and Authentic Self Mediation Effects

This series of experiments reveals SES' s crucial moderating role in the process through which awe influences prosocial behavior. Specifically, awe' s effect on small self is more significant among lower-SES individuals, while its effect on authentic self is more significant among higher-SES individuals, subsequently producing more significant positive effects on prosociality. This finding not only validates the SES-specificity of emotional response patterns but also deepens cultural construction theory' s explanation of emotion function dynamics [?]. Experimental studies further reveal that lower-SES individuals show stronger small self growth in response to ability awe, while higher-SES individuals show

significantly enhanced authentic self when exposed to aesthetic awe, thereby strengthening prosociality. This discovery provides empirical evidence for optimizing awe's prosocial effects across different SES groups.

This research advances existing theoretical systems in three dimensions. First, it successfully integrates the long-separated small self and authentic self explanatory pathways. Previous research focused on single mechanisms [?, ?]; this study, through cross-SES comparison, first confirmed that these seemingly contradictory mechanisms constitute a parallel system, with the authentic self mechanism meeting higher-SES individuals' autonomy needs [?] and the small self mechanism fitting lower-SES individuals' environmental adaptation needs [?]. This finding perfectly reconciles the controversial conclusions of Lin et al. (2021) and Cui (2021), demonstrating that SES shapes dominant psychological needs that strengthen specific pathways. Second, it breaks through traditional analytical frameworks of cultural differences. After Bai et al. (2017) revealed East-West cultural differences in awe responses, this research first refined the cultural analysis unit to the SES dimension. Our findings support emotion cultural adaptation theory [?], demonstrating that even within the same macro-cultural background, SES subcultures still shape differentiated emotional response patterns through cultural tasks. Finally, it innovatively proposes an SES-adapted theory of awe types. Unlike previous research treating awe as homogeneous [?], this study confirms that the nature of awe-eliciting stimuli significantly moderates psychological mechanism activation, with ability awe showing stronger effects on lower-SES individuals' small self and aesthetic awe showing stronger effects on higher-SES individuals' authentic self. This finding provides empirical support for Keltner and Haidt's (2003) prototype theory and expands on Bai et al.'s (2017) suggestions, indicating that culture-specific awe prototypes may exist that help individuals across cultures fulfill different social identities.

This research also provides insights for social governance innovation. Results show that SES may influence experiences of specific awe types. In frequency, lower-SES individuals more often experience ability- and threat-related awe, while higher-SES individuals more often experience aesthetic awe. In aftereffects, SES moderates specific awe types' effects on small self and authentic self. This aligns with most social class psychology research emphasizing differential tendencies across SES groups, revealing relative differences in these two awe experiences rather than denying the possibility of lower-SES individuals experiencing aesthetic awe or higher-SES individuals experiencing ability awe. This suggests that ability and aesthetic awe constitute advantageous themes for triggering lower-SES individuals' small self and higher-SES individuals' authentic self, respectively, holding intervention potential. That is, differentiated awe induction strategies can be designed for different SES groups: For higher-SES individuals, aesthetic awe (e.g., nature and art experiences) can stimulate authentic self pursuit, enhancing charitable participation; for lower-SES individuals, emphasizing ability awe (e.g., role model stories) can evoke small self feelings and mutual aid consciousness, promoting grassroots public welfare action. Overall, as a universal emotion, awe can cultivate prosocial behavior across

SES groups through interaction with social structure, providing positive psychology solutions for building harmonious new social communities and promising to promote a “each beauty its own, all beauties together” good.

5.3 Limitations and Future Directions

Despite these contributions, this research has several limitations warranting future attention. First, participants were primarily university students, and subjective SES manipulation was based on a relatively homogeneous educational background, which may limit generalizability. Although classic research emphasizes subjective SES components’ profound impact on psychology and behavior [?], recent trends emphasize combining subjective and objective SES to examine SES’ s complex multi-level effects [?]. In response, Study 2a integrated both indicators to select more representative higher- and lower-SES participants. Future research should further adopt this integrated approach to enhance ecological validity and more accurately reflect the diversity and complexity of SES in real society.

Second, this research did not consistently validate the “small self” mediation effect across all experiments. Specifically, the small self mediation effect was significant in Study 1 but non-significant in Studies 2b and 3a. This primarily resulted from the second half of the mediation path—the uncertain relationship between small self and prosociality. Empirical research shows that small self mediation effects are not always consistent, even showing considerable divergence, including positive, negative, and null relationships (see appendix Table S1; [?, ?, ?]). This divergence may stem from several sources: First, different studies define “small self” differently (e.g., self-size reduction, self-attention shift, self-worth diminishment), and measurement diversity may lead to different effects on prosocial behavior. Even studies using similar methods show considerable inconsistency. For example, Bai et al. (2017) found a positive relationship between small self and collective engagement using the self-size scale, while Tyson et al. (2022) found no significant relationship between small self and moral decision-making using similar measures. Theoretically, this may be because the small self hypothesis does not fully consider the meaning of self [?]. The small self hypothesis equates self with attentional focus, failing to consider that self is a more complex, multi-level concept. Therefore, small self’ s mediation may depend on specific definitions of “self.” If smallness and diminishment refer only to self-attention, then awe would increase prosociality through small self [?, ?]. If self-smallness is perceived as related to personal self-worth or importance, this feeling may be associated with low control, so awe might decrease prosociality by promoting self-smallness [?, ?]. In summary, future research needs to refine small self’ s definition, develop scientific, unified, and multi-dimensional conceptualizations, and systematically test them.

Finally, this research focused on awe’ s short-term effects on self-representation and prosocial behavior across SES groups, but long-term intervention studies on awe remain scarce. One study showed that older adults participating in “awe

walks” experienced more awe and prosocial emotions over time [?]. Additionally, whether other intervention methods can increase awe experiences warrants further exploration. For example, Waller et al. (2021) found that mindfulness meditation guided by 360° panoramic videos significantly enhanced awe; Emons and McCullough (2003) demonstrated that writing tasks are effective for enhancing gratitude and other positive emotions. Future research should examine whether these methods apply to long-term awe intervention and further test their effectiveness in promoting prosocial behavior.

6. Conclusion

The main conclusions of this paper are: (1) Awe enhances prosociality through parallel mediation of small self and authentic self; (2) For lower-SES individuals, awe’ s effect on small self is more pronounced; for higher-SES individuals, awe’ s effect on authentic self is more pronounced; moreover, for higher-SES individuals, awe’ s positive effect on prosociality through authentic self pursuit is more significant; (3) Lower-SES individuals are more likely to activate the small self pathway through ability awe, while higher-SES individuals are more likely to activate the authentic self pathway through aesthetic awe, thereby strengthening their prosocial behavior.

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[All remaining references follow the same preservation format...]

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

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