From Defense to Reconstruction: The Hostility-Meaning Dual-Path Model of How Observing Others' Adversity Influences Self-Negative Disclosure

Authors: Zhang, Xiaoying, Huang,Tian, Wang,Yuting, Hou,Zhijun

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Abstract

Objective: This study explored the mechanism by which observing peers' adverse experiences influences distress disclosure of negative information through two progressive studies. Methods: Study 1 (N=218) constructed a moderated mediation model to analyze the relationships among stress, self-esteem, hostility traits, and disclosure. Study 2 (N=536) employed a situational experiment to test a chain mediation effect of "stress→meaning in life→distress disclosure," supplemented by multigroup analysis of path coefficient differences. Results: Study 1 showed stress directly inhibited disclosure (β=-0.37, p<0.001) but indirectly promoted it via reduced self-esteem, with hostility traits significantly moderating stress's negative effect on self-esteem (β=0.12, p<0.05). Study 2 confirmed the chain mediation effect under adverse circumstance perception, with significant path coefficient variations across groups. Limitations: The moderating effects of cultural values on the mechanism of adverse circumstance perception were not examined in this study. Conclusions: This research first uncovered the adaptive function of downward comparison and the mediating boundary of meaning reconstruction, expanding social comparison theory's application scenarios. It provides a dual-path model for psychological interventions in failure education, based on stress transformation and meaning construction. Future studies are recommended to investigate cultural value moderations.

Full Text

Preamble

From Defense to Reconstruction: The Hostility-Meaning Dual-Path Model of How Observing Others' Adversity Influences Self-Negative Disclosure

Xiaoying Zhang[1]†, Tian Huang[2]†, Yuting Wang[3], *& Zhijun Hou*[2]

[1] Institute of Education, China University of Geosciences (Wuhan), Wuhan 430074, China
[2] Institute of Education, China University of Geosciences (Wuhan), Wuhan 430074, China
[3] Mental Health Education and Counseling Center, China University of Petroleum-Beijing at Karamay, Karamay City 834000, China

Author Contributions:
Zhang Xiaoying: Contributed research concepts and designed the overall research protocol; selected key variables and oversaw the overall direction of the study.
Tian Huang: Determined research variables and analytical models; conducted data analysis; drafted the initial manuscript and performed final revisions.
Yu-Ting Wang: Contributed research concepts and designed the research protocol; supervised data collection processes.
Zhi-Jun Hou: Provided critical revisions and constructive suggestions for improving the manuscript.

†These authors contributed equally to this work.
*These authors also contributed equally to this work.

Corresponding authors: Yuting Wang (E-mail: wangyutingpsy@cug.edu.cn); Zhijun Hou (E-mail: zjhou@cug.edu.cn)

Abstract

Objective: This study explored the mechanism by which observing peers' adverse experiences influences distress disclosure of negative information through two progressive studies. **Methods:** Study 1 (N=218) constructed a moderated mediation model to analyze the relationships among stress, self-esteem, hostility traits, and disclosure. Study 2 (N=536) employed a situational experiment to test a chain mediation effect of "stress→meaning in life→distress disclosure," supplemented by multigroup analysis of path coefficient differences. **Results:** Study 1 showed stress directly inhibited disclosure (β=-0.37, p<0.001) but indirectly promoted it via reduced self-esteem, with hostility traits significantly moderating stress's negative effect on self-esteem (β=0.12, p<0.05). Study 2 confirmed the chain mediation effect under adverse circumstance perception, with significant path coefficient variations across groups. **Limitations:** The moderating effects of cultural values on the mechanism of adverse circumstance perception were not examined in this study. **Conclusions:** This research first uncovered the adaptive function of downward comparison and the mediating boundary of meaning reconstruction, expanding social comparison theory's application scenarios. It provides a dual-path model for psychological interventions in failure education, based on stress transformation and meaning construction. Future studies are recommended to investigate cultural value moderations.

Keywords: Stress; Hostility; Distress disclosure; Downward comparison; Meaning reconstruction

1 Introduction

In an era marked by rapid societal changes and escalating uncertainties, young adults navigating life's exploratory phase frequently encounter setbacks and failures, which often serve as catalysts for negative emotions such as frustration, stress, anxiety, and depression [**?**]. While disclosing failure experiences to others can facilitate recovery from adversity [**?**], such disclosures are often accompanied by potential risks [**?**], leading many to remain silent and intensifying the detrimental impact of these experiences [**?**]. Consequently, understanding how to encourage young people to articulate their painful experiences and seek support has become a critical issue in psychological research and practice.

Existing literature suggests that self-concealment may stem from self-esteem threats triggered by failure or heightened pressure from traditional social comparisons. However, self-affirmation theory posits that individuals have an intrinsic motivation to proactively maintain self-integrity by accessing psychological resources [**?**]. Social comparison theory further highlights its dual functions: evaluating self-worth and adapting to the environment [**?**], while also providing informational benefits that foster empathy through shared emotional experiences [**?**]. Notably, previous studies have insufficiently incorporated self-restoration motivations, resulting in an unresolved gap in understanding how such mechanisms promote resilience in adversity.

To address this gap, this study integrates Social Comparison Theory (SCT) with Self-Determination Theory (SDT), Narcissism Theory (NT), and Meaning Maintenance Model (MMM). Through two sequential studies, we examine how "imperfect role models" exert positive effects by normalizing failure experiences [**?**]. Study 1 employs a moderated mediation model to investigate how exposure to "imperfect role models" (peers' adversity narratives) influences distress disclosure via the mediating role of self-esteem and the moderating role of hostility, thereby breaking defensive silence rooted in shame. Study 2 contrasts "perfect role models" and "imperfect role models" to explore the serial mediation effects of stress and meaning in life on distress disclosure through narrative reconstruction.

2 Literature Review

2.1 "Perfect Role Models" vs. "Imperfect Role Models"

Social role models represent psychological alignment between observers and observed individuals, where people tend to focus on and emulate those who exhibit similar cognitive abilities, behavioral patterns, or social recognition [**?**]. Models exert both psychological and social influences [**?**]. Psychologically, they shape self-identity by reflecting discrepancies between individuals' actual selves and

their ideal or "ought" selves. Socially, models disseminate and reinforce norms, encouraging others to modify perceived social standards and imitate their behaviors [?]. For example, peer models can reduce unhealthy behaviors like substance abuse among adolescents [?] or reshape body image expectations [?].

Within social learning frameworks, individuals typically prefer to emulate successful models, which often serve motivational roles in self-improvement [?]. However, contemporary digital spaces are saturated with "perfect role models"—individuals showcasing curated highlight reels of achievements. These positively biased self-presentations amplify upward social comparisons [?], exacerbating feelings of inadequacy, low self-esteem, anxiety, and depression among observers [?, ?], thereby constituting a significant psychological stressor.

Social comparison theory distinguishes between two orientations: (1) traditional social comparisons, which evaluate superiority or inferiority [?], and (2) emotional comparisons, driven by uncertainty about one's emotional responses [?]. While "perfect role models" trigger traditional comparisons that foster self-evaluation, self-enhancement, or self-improvement [?, ?], emotional comparisons involve horizontal evaluations of emotional states with others in similar situations [?]. The latter reduces uncertainty through shared experiences [?], provides emotional validation [?], and facilitates mutual self-disclosure [?]. Thus, this study argues that "imperfect role models"—those whose narratives resonate with ordinary struggles—better equip young adults to confront and accept failures [?, ?], ultimately encouraging them to share their stories.

2.2 The Impact of Stress on Distress Disclosure

Stress arises from the interaction between individuals and their environments, representing a subjective response to life challenges after cognitive appraisal. As a major risk factor for mental health, mitigating stress's adverse effects remains central to contemporary psychological interventions [?]. Intensified competitive pressures (e.g., academic and employment-related "involution") have heightened stress levels among university students [?, ?]. Social comparison theory posits that competitive failures trigger anxiety and stress [?, ?], reduce self-esteem [?], and provoke defensive withdrawal behaviors [?, ?].

Distress disclosure refers to the willingness to express unpleasant emotions to others [?]. It alleviates negative affect by enabling emotional catharsis [?], enhances psychological adaptation and social relationships [?], fulfills belongingness needs [?], strengthens self-awareness, and improves subjective well-being [?]. Disclosure also facilitates social support acquisition [?] and reduces social anxiety [?, ?]. However, under stressful life events, individuals often avoid social interactions and suppress negative self-relevant information. According to conservation of resources theory, threats to self-worth in adverse situations diminish perceived social support and deplete psychological resources [?], leading to social avoidance [?]. For instance, students from disadvantaged backgrounds may withdraw socially to avoid potential negative evaluations and protect self-esteem

[?]. Suppression theory further indicates that habitual emotional inhibition consumes significant physiological and psychological energy, exacerbating mental health issues like depression [?] and loneliness [?].

In summary, stress inhibits distress disclosure among university students facing failures, thereby worsening mental health outcomes. Since disclosure counselors in comprehensively understanding clients' issues [?], identifying barriers to disclosure and promoting it remain critical research priorities.

Hypothesis 1: Stress reduces Distress Disclosure.

2.3 The Mediating Role of Self-Esteem in the Stress-Distress Disclosure Relationship

Self-esteem reflects individuals' evaluative attitudes toward themselves, encompassing affective experiences tied to perceived competence and self-worth [?]. It arises from discrepancies between actual and ideal self-states. Self-threats—triggered by gaps between real and ideal selves, unfavorable social comparisons, or social exclusion—are ubiquitous [?]. Examples include underperformance at work, upward comparisons with peers' material success, or workplace ostracism, all of which induce self-threat and psychological distress [?]. The sociometer theory of self-esteem posits that such threats diminish self-esteem [?]. Empirical evidence shows that stress from self-threatening events undermines basic psychological needs (autonomy, competence, relatedness), leading to negative self-evaluations and reduced self-esteem [?]. For instance, heightened stress perception among middle school students erodes positive self-assessment foundations, ultimately lowering self-esteem [?].

As a critical psychological resource, self-esteem shapes social experiences and behaviors [?]. Individuals with low self-esteem lack confidence across life domains, hold negative self-views (e.g., regarding social skills, academic ability, appearance), and experience diminished social enjoyment, fostering avoidance, fear, and shame in interpersonal contexts [?]. For example, upward comparisons in social interactions lower self-esteem, triggering low self-esteem, anxiety, and depressive symptoms, which in turn promote social withdrawal to minimize psychological costs [?].

In summary, stress undermines core self-evaluations of competence and worth, reduces self-esteem, and exacerbates negative self-perceptions and social avoidance, ultimately suppressing distress disclosure.

Hypothesis 2: Self-esteem mediates the relationship between Stress and Distress Disclosure.

2.4 Defense Against Threat: The Moderating Role of Hostility in the Stress-Self-Esteem Relationship

Not all social comparison-induced stress reduces self-esteem. Substantial evidence highlights the protective role of self-affirmation mechanisms: when facing

self-threats, individuals may engage in compensatory self-enhancement or affirmations of global self-competence to mitigate negative impacts [**?**, **?**]. Maintaining positive self-evaluations and coherent self-concepts constitutes a fundamental human motive, driving threat-resolution behaviors [**?**]. Hostility represents one such defensive strategy to minimize self-threats. For example, middle school students facing self-esteem threats from stress may engage in destructive aggression to assert self-worth [**?**]. Conversely, self-threats can also heighten interdependence needs, fostering cooperative strategies [**?**].

Narcissism theory frames hostility as a dynamic self-regulatory process [**?**]. Because narcissists rely on external validation to maintain self-image, they disproportionately attribute hostility to threat sources (e.g., devaluing critical evaluators) to neutralize self-threats [**?**]. Workplace studies corroborate this: employees making upward comparisons often derogate targets (e.g., criticizing or belittling peers) to alleviate self-threats [**?**]. In summary, narcissistic individuals leverage hostility to buffer self-esteem against stress-induced threats, thereby attenuating the detrimental effects of social comparisons [**?**].

Hypothesis 3: High-hostility weakens the negative impact of Stress on Self-esteem, thereby reducing the mediating effect of Self-esteem on Distress Disclosure. Conversely, Low-hostility strengthens this mediation.

2.5 Threat Reconstruction: The Mediating Role of Meaning in Life

When direct resolution of self-threats is unfeasible, cognitive reconstruction offers an alternative pathway. For instance, Wan et al. (2014) found that individuals facing prolonged social exclusion may reinterpret rejection as evidence of their uniqueness, thereby preserving self-integrity [**?**]. Exposure to imperfect role models necessitates confronting personal failures and their parallels with others' experiences, which activates stress responses. Stress further erodes meaning in life by undermining basic psychological needs (autonomy, competence, relatedness) [**?**].

Meaning in life denotes the extent to which individuals comprehend or perceive purpose, missions, and overarching goals in their existence [**?**]. The meaning maintenance model (MMM) posits that events violating preexisting beliefs (e.g., failures, contradictory information) trigger meaning violations, eliciting stress responses (e.g., anxiety, cognitive dissonance). To alleviate this distress, individuals engage in meaning-making efforts to restore coherence—for example, downplaying failure significance or reorienting toward familial goals [**?**]. Meaning in life reframes painful experiences into "coherent growth narratives." Individuals with high meaning in life view disclosure as a therapeutic and relational act rather than a risk. By reconstructing failure (e.g., "setbacks build resilience"), they legitimize emotional expression, overcome shame, and initiate disclosure. Enhanced meaning in life promotes distress disclosure by providing psychological resources and interpretive frameworks that encourage confronting rather than avoiding adversity [**?**].

Hypothesis 4: Stress and Meaning in Life sequentially mediate the relationship between Participation Willingness and Distress Disclosure. This mediation is significant only in the adversity perception group, indicating that stress-driven meaning reconstruction dominates when individuals perceive others' experiences as adversities. In contrast, stress merely reflects pure threat in prosperity perception contexts, suppressing meaning and disclosure.

Hypothesis 5: When individuals perceive role models as "imperfect role models" (vs. "perfect role models"), their willingness to engage with such models significantly enhances Distress Disclosure.

3.1 Study 1

3.1.1 Participants and Procedure

This study was approved by the Ethics Committee of Changjiang College. Informed consent was obtained from the respondents before they filled out the questionnaire. A failure-sharing session was convened where students shared their own failure experiences. Data were collected through an online questionnaire distributed at the session. A total of 218 undergraduate students who viewed the role models as "Imperfect Models" were recruited, including 51 (23.4%) males and 167 (76.6%) females (Mean age = 19.59 years, SD = 1.16 years).

3.1.2 Research Tools

When selecting scales, this study prioritized those published in high-level domestic and international journals with good reliability and validity. Foreign language scales were translated through a strict bidirectional translation process, and participants gave written informed consent.

Distress Disclosure Index (DDI). Distress Disclosure was measured using the Distress Disclosure Index (DDI). The Distress Disclosure Scale developed by Kahn and Hessling was used to measure the degree to which individuals disclose their pain, worries, and other private matters to others [**?**]. It consists of 12 items using a 5-point Likert scale (from 1 = "completely inconsistent" to 5 = "completely consistent"). The average score was calculated after summing the item scores, with higher scores indicating weaker distress disclosure ability. In this study, the Cronbach's α coefficient for this scale was 0.91.

Narcissistic Admiration and Rivalry Questionnaire (NARQ). The measurement scale for the hostility variable was derived from the hostility subscale of the Narcissistic Admiration and Rivalry Questionnaire (NARQ) [**?**]. This questionnaire consists of 18 items. Items 1-9 measure admiration, while items 10-18 measure rivalry. The scale uses a 6-point Likert scale (1 = "completely inconsistent" to 6 = "completely consistent"), and the total score is the sum of the scores for each item. Higher scores indicate higher levels of admiration

and rivalry. Only the hostility subscale was selected in this study, and the Cronbach's α coefficient of the overall scale was 0.83.

Depression Anxiety and Stress Scale-21. The measurement of the stress variable was selected from the abbreviated version of the Depression Anxiety and Stress Scale-21 (DASS-21). The simplified Chinese version of the DASS-21 revised by Gong Xu et al. [**?**] was used in this study. The scale consists of 21 items, with each of the three subscales—Depression (DASS-D), Anxiety (DASS-A), and Stress (DASS-S)—containing 7 items. A 4-point Likert scale is employed (ranging from 1 = "completely inconsistent" to 4 = "completely consistent"), where higher scores indicate stronger levels of the corresponding emotion. Only the stress subscale was used in this study, and the Cronbach's α coefficient for the overall scale was 0.93.

Rosenberg's Self-Esteem Scale. The measurement of state self-esteem adopted the Chinese version of the Rosenberg Self-Esteem Scale [**?**]. It consists of 10 items rated on a 4-point Likert scale (1 = "completely inconsistent" to 4 = "completely consistent"), where a higher total score indicates a higher level of self-esteem among participants. The Cronbach's α coefficient of this scale was 0.85.

3.1.3 Statistical Analysis

Data analysis was conducted using SPSS 21.0. Data are presented as mean and standard deviation (Mean $\pm$ SD). Pearson's correlation analysis was used to explore correlations between variables at the 0.05 significance level. Harman's single-factor test was employed to determine whether common method bias existed in the study. The PROCESS macro by Hayes (2022) was used for confirmatory factor analysis to evaluate variable validity, where Model 4 was used for mediation analysis and Model 7 for moderated mediation analysis.

3.2 Study 2

3.2.1 Participants and Procedure

Study 2 was a situational experiment involving undergraduate students. The experiment was approved by the Ethics Committee of Yangtze College. Informed consent was obtained from the respondents before they filled out the questionnaire. Based on the effect size (Cohen's d=0.4) and expected power (Power=0.8), G*Power 3.1 was used to calculate the planned sample size of 200. After screening, 536 valid responses were obtained in Study 2, including 119 males (22.2%) and 417 females (77.8%), with an average age of 19.60 years (SD =1.27).

3.2.2 Experimental Design and Procedure

Study 2 employed a single-factor between-subjects experimental design. Participants were randomly assigned to either the "success" condition (N=268) or

the "failure" condition (N=268) using the "random scenario" function of Wenjuanxing to activate subsequent psychological responses. Among them, 303 participants (56.5%) perceived the scenario as a prosperity, 233 (43.5%) regarded the story in the sharing session as an "imperfect role model," and 459 (85.6%) expressed willingness to participate in the success/failure experience sharing session (0=willing to participate), while 77 (14.4%) were unwilling (1=unwilling to participate). There were no significant demographic differences between the two groups ($p>0.05$).

After the experiment began, participants first completed demographic information. They then read a passage about a student's successes and struggles in school (see below) and were instructed to imagine the experience as real. After reading, participants recalled and described the content, then sequentially answered manipulation check items, the Participation Willingness, the abbreviated Depression Anxiety and Stress Scale-21 (DASS-21), Self-Esteem Scale, Distress Disclosure Index, Narcissistic Admiration and Rivalry Questionnaire, and Meaning in Life Scale.

Scenario Materials. The experimental materials were developed by the researchers based on personal experiences and real-world conditions.

Success Scenario Group: Participants read the following: "Student A achieved excellent academic performance at university, winning the first prize in the National College Student Mathematical Modeling Competition. Student A actively engaged in student leadership roles, serving as Vice President of the Student Union, organizing and planning multiple campus cultural activities, and was highly praised by teachers and students. Additionally, Student A participated in research projects under a supervisor, gained extensive research experience, and published an academic paper. Near graduation, Student A pursued both postgraduate entrance exams and job applications simultaneously and succeeded in both. Student A will share successful college life experiences at a graduate experience-sharing session."

Failure Scenario Group: Participants read the following: "Student A had outstanding academic performance at university. Although they failed in the first National College Student Mathematical Modeling Competition, they summarized their failures and won first prize in the second competition. As Vice President of the Student Union, Student A organized multiple campus cultural activities, enduring many hardships in the process. Student A also participated in research projects under a supervisor, and after multiple attempts and failures, finally published an academic paper. Near graduation, Student A sought both postgraduate studies and employment but unfortunately failed in both. Student A will share the pitfalls and failure experiences of college life at a graduate experience-sharing session."

3.2.3 Measurement Tools

Data analysis was performed using SPSS 21.0 and AMOS 24.0. When selecting scales, this study prioritized instruments published in high-quality domestic and international journals with established reliability and validity. Foreign language scales were translated through a rigorous bidirectional translation process.

Participation Willingness. Participation Willingness was measured using a two-point scale item: "Based on your personal feelings, if time permits, would you be willing to participate in Student A's experience-sharing session?" (0 = willing to participate, 1 = unwilling to participate).

Distress Disclosure Index (DDI). Distress Disclosure was measured using the Distress Disclosure Index (DDI). The Distress Disclosure Scale developed by Kahn and Hessling was used to measure the degree to which individuals disclose their pain, worries, and other private matters to others [**?**]. It consists of 12 items using a 5-point Likert scale (from 1 = "completely inconsistent" to 5 = "completely consistent"). The average score was calculated after summing the item scores, with higher scores indicating weaker distress disclosure ability. In this study, the Cronbach's α coefficient for this scale was 0.91.

Depression Anxiety and Stress Scale-21. The measurement of the stress variable was selected from the abbreviated version of the Depression Anxiety and Stress Scale-21 (DASS-21). The simplified Chinese version of the DASS-21 revised by Gong Xu et al. [**?**] was used in this study. The scale consists of 21 items, with each of the three subscales—Depression (DASS-D), Anxiety (DASS-A), and Stress (DASS-S)—containing 7 items. A 4-point Likert scale is employed (ranging from 1 = "completely inconsistent" to 4 = "completely consistent"), where higher scores indicate stronger levels of the corresponding emotion. Only the stress subscale was used in this study, and the Cronbach's α coefficient for the overall scale was 0.93.

Meaning in Life Questionnaire (MLQ). Meaning in Life was assessed using the Meaning in Life Questionnaire (MLQ) developed by Steger et al. and revised by Wang Xinqiang [**?**]. The scale includes 10 items across two subscales: Presence of Meaning and Search for Meaning. Using a 7-point Likert scale (1 = "completely inconsistent" to 7 = "completely consistent"), higher scores indicate stronger meaning in life. The overall scale had a Cronbach's α coefficient of 0.77.

4.1.1 Common Method Bias Test

Harman's single-factor test was used to examine common method bias. Results showed 7 factors with eigenvalues >1, with the first factor explaining 26.69% of variance (below the 40% threshold), indicating no severe common method bias.

4.1.2 Correlation Analysis

Descriptive statistical analyses of the means, standard deviations, and correlations among the main variables in this study were conducted using SPSS 21.0 software. The average scores and correlation results for each variable are presented in Table 1 . The mean scores for Stress (M=0.04, SD=0.83), State Self-Esteem (M=0.15, SD=0.93), and Distress Disclosure (M=0.11, SD=1.10) were all above the theoretical median of 0, indicating that the participant group exhibited higher levels of stress, self-esteem, and distress disclosure. In contrast, the mean score for Hostility (M=-0.13, SD=0.91) was below the theoretical median of 0, suggesting lower hostility levels among participants. Additionally, Stress was negatively correlated with State Self-Esteem and Distress Disclosure; Hostility was negatively correlated with both State Self-Esteem and Distress Disclosure; and Hostility was positively correlated with Stress, while State Self-Esteem was positively correlated with Distress Disclosure.

4 Hostility

Table 1. Descriptive statistics of the latent constructs

Variable	Mean±SD	1	2	3	4
1. Stress	$0.04\$\pm0.83\vert-\vert-0.56**\vert-0.28**\vert0.37**\vert\vert2.StateSelf-Esteem\vert0.15\pm0.93\vert-\vert-0.34**\vert0.32**\vert\vert\vert3.DistressDisclosure\vert0.11\pm1.10\vert-\vert-0.15**\vert\vert\vert\vert4.Hostility\vert-0.13\pm\$0.91$	-			

Note: n=218; values in the table are calculated as Z-scores, **: p<0.01

4.1.3 Moderated Mediation Analysis

First, the mechanism of how Stress affects Distress Disclosure was tested with State Self-Esteem as the mediator variable (results in Table 2). Mediation effect analysis was conducted using Model 4 in the PROCESS program of SPSS 21.0. The bias-corrected percentile Bootstrap method was used to test the confidence interval (CI) estimation, with 5,000 resampling iterations to calculate the 95% CI. The results showed that Stress had a direct predictive effect on Distress Disclosure (β =-0.37, t=-4.31, p<0.001), supporting H1. Additionally, Bootstrap test results indicated that the 95% CIs of both the direct and indirect effects of State Self-Esteem did not include 0 (Table 3), suggesting that State

Self-Esteem played a partial mediating role in the relationship between Stress and Distress Disclosure. The partial mediation effect was -0.17, accounting for 45.95% of the total effect, supporting H2.

Table 2. Mediation Model Test of Self-Esteem

Regression Equation	Fitting indices	Coefficient significance
Outcome Predictor	Distress Disclosure	State Self-Esteem
Stress	18.59***	96.09***
Stress State Self-Esteem	-	-

Note: n=218; all variables in the model were standardized; ***: p<0.001.

Table 3. Total, Direct, and Indirect Effects of Self-Esteem Between Stress and Distress Disclosure

Effect Type	Effect Value	BootSE	95%CI
Total Effect	-0.54	0.07	[-0.54,-0.20]
Direct Effect	-0.37	0.09	[-0.40,-0.00]
Indirect Effect	-0.17	0.06	[-0.31,-0.04]

Moderated mediation analysis was conducted using Model 7 in the PROCESS program of SPSS 21.0, with standardized path coefficients shown in Figure 3 [Figure 3: see original paper]. This model assumes that the moderator variable can moderate the front pathway of the mediation model, consistent with the study's hypothesis. Results (Tables 4, 5) showed that the interaction term of Stress and Hostility had a statistically significant effect on State Self-Esteem (β=0.12, p<0.05).

Table 4. Moderated Mediation Model Test

Predictors	Model1(State Self-Esteem)	Model2(Distress Disclosure)
Stress	-8.13***	-2.64**
State Self-Esteem	-	2.01*
Stress × Hostility	0.12*	-
Hostility	-1.99*	3.00***
95%CI	[-0.68,-0.41]	[-0.28,-0.04]
	[0.19,0.23]	[-0.40,-0.00]
		[0.09,0.45]

Note: n=218; all variables in the model were standardized; *: *p<0.05;* **: ***p<0.01;*** : p<0.001.

Table 5. Mediation Effects of Self-Esteem at Different Levels of Hostility

Moderator	Standardized Mediation Effect	95%CI
Low (M-1SD)	-0.34	[-0.34,-0.05]
Medium (M)	-0.28	[-0.28,-0.04]
High (M+1SD)	-0.24	[-0.24,-0.03]
Moderated Mediation Effect	0.09	[0.00,0.09]

Figure 2 [Figure 2: see original paper]. Moderated Mediation Effect of Self-Esteem and Hostility in the Influence of Stress on Distress Disclosure

To further reveal the nature of the interaction effect between Stress and Hostility, a simple effects plot was used to analyze the moderating role of Hostility. Hostility was divided into high (M+1SD) and low (M-1SD) groups for simple slope analysis. The results showed that in both high Hostility (β=-0.45, t=-5.43, p<0.001) and low Hostility (β=-0.66, t=-7.68, p<0.001) conditions, State Self-Esteem showed a significant downward trend as Stress increased (Figure 2), and this trend was mitigated (with a smaller slope) at higher Hostility levels, supporting H3.

4.2.1 Common Method Bias Test

To assess common method bias, a Harman single-factor test was conducted. The results revealed that no single factor accounted for more than 40% of the variance (the first factor explained 26.37% of the variance), indicating that common method bias was not a significant concern in this study.

4.2.2 Descriptive Statistics

The mean scores of participants on each variable in this study and the results of correlation analysis are shown in Table 6 . The mean scores of Stress (M=0.11, SD=0.81), Sense of Life Meaning (M=0.09, SD=0.88), and Distress Disclosure (M=0.11, SD=1.07) were all higher than the theoretical median of 0, indicating that the participant group had higher levels of stress, sense of life meaning, and distress disclosure. In addition, stress was negatively correlated with both sense of life meaning and distress disclosure, while sense of life meaning was positively correlated with distress disclosure.

Table 6. Standardized Descriptive Statistics and Pearson Correlation Analysis Results

<table>
<tr><th>Variable</th><th>Mean±SD</th><th>1</th><th>2</th><th>3</th></tr>
<tr><td>1. Stress</td><td>0.11$±0.81| −
|−0.27∗∗∗|−0.25∗∗∗
||2.MeaninginLife|0.09±0.88|−
|0.28∗∗∗
|||3.DistressDisclosure|0.11±$1.07</td><td>-</td><td></td><td></td></tr>
</table>

Note: n=536; *: p<0.05;* ***: p<0.01;*** : p<0.001.

4.2.3 Chain Mediation Model Test

First, to examine the mechanism of how stress influences distress disclosure, self-esteem was tested as a mediator (see Table 7). Chain mediation analysis was conducted using Model 6 in the PROCESS program. The bias-corrected percentile Bootstrap method (5,000 resampling iterations) was used to estimate 95% confidence intervals (CIs). Bootstrap results showed that the 95% CIs of both direct and indirect effects of stress and meaning in life did not include 0 (Table 8), indicating that stress and meaning in life fully mediated the relationship between Participation Willingness and distress disclosure. The total mediation effect was -0.20, accounting for 54.05% of the total effect, supporting the hypothesis.

Table 7. Chain Mediation Model Test

Regression Equation	Fitting indices	Coefficient significance
Outcome Predictor 2.33*	PW→S -4.4***	MIL→DD -6.07***

Note: n=536; all variables were standardized; *: p<0.05;* ***: p<0.01;*** : p<0.001; PW(Participation Willingness), S(Stress), MIL(Meaning in Life), DD(Distress Disclosure).

Table 8. Total, Direct, and Mediation Effects of Chain Mediation

Effect	Trials	Effect Value	Boot SE	95%CI
PW→S→DD	ind1	-0.33	0.07	[-0.33,-0.09]
PW→MIL→DD	ind2	-0.22	0.05	[-0.22,-0.05]
PW→S→MIL→DD	ind3	-0.04	0.01	[-0.04,-0.00]
Total Mediation	totind = ind1+ind2+ind3	-0.33	0.09	[-0.33,-0.09]
Direct Effect	PW→DD	-0.42	0.08	[-0.42,0.08]
Total Effect	totind+c	-0.62	0.11	[-0.62,-0.11]
Proportion of Effect Size	-16.22%	32.43%	5.41%	54.05%

Effect	Trials	Effect Value	Boot SE	95%CI
Proportion in Total	45.95%			

Note: PW(Participation Willingness), S(Stress), MIL(Meaning in Life), DD(Distress Disclosure).

4.2.4 Cross-Group Comparison of Moderated Mediation Effects

To test whether the chain mediation model differed between the two experimental contexts, this study conducted multigroup path analysis to examine whether participants' perception of others' experiences as prosperous or adverse circumstances would affect their subsequent distress disclosure, and whether the mediating roles of self-esteem and meaning in life remained valid in this process. Since this model was a saturated model—i.e., all parameters to be estimated exactly equaled the elements in the covariance matrix, with degrees of freedom (df) = 0—fit indices were not estimated, and only path coefficients were focused on [**?**].

Further comparisons were made to determine whether differences in structural equation model path coefficients between the two groups were statistically significant. Standardized path coefficients of the mediation models in both groups are shown in Figure 4 [Figure 4: see original paper]. The critical ratio (CR) of parameter differences was used to compare regression coefficients of the structural model paths across groups. Results showed that in the prosperous-circumstance perception group, the 95% confidence intervals (CIs) of the mediation effects of stress and meaning in life, as well as the chain mediation effect, all included 0, indicating nonsignificant mediation effects. In the adverse-circumstance perception group, the 95% CIs of these mediation effects did not include 0, and the main effect of participation willingness on distress disclosure was significant, with all partial mediation effects being significant.

Through CR tests (where an absolute value >1.96 indicates a significant parameter difference), it was found that except for the path coefficient of participation willingness on distress disclosure (β=0.15 in the prosperous group vs. β =-0.56 in the adverse group, CR=-2.80), no significant differences existed in other path coefficients between the two groups, supporting H5. This suggests that when individuals perceive others' shared experiences as adverse circumstances, the process of increased stress followed by decreased meaning in life is more likely to trigger willingness to disclose distress.

Figure 4 [Figure 4: see original paper]. Chain Mediating Effects of Stress and Meaning in Life Between Participation Willingness and Distress Disclosure

Note: Path coefficients outside parentheses are for the prosperous circumstance perception group, and those inside are for the adverse circumstance percep-

tion group; *: p<0.05;* ***: p<0.01;*** : p<0.001; PW(Participation Willingness), S(Stress), MIL(Meaning in Life), DD(Distress Disclosure).

5.1 Dual Pathways of Stress and Self-Disclosure

This study elucidates stress's complex role in distress disclosure. The direct pathway aligns with social comparison theory [**?**]: upward comparisons with "perfect role models" amplify self-threats via relative deprivation, triggering defensive silence (Hypothesis 1). Paradoxically, the indirect pathway reveals that stress indirectly promotes disclosure through reduced self-esteem (Hypothesis 2), supporting self-determination theory's premise that disclosure serves as a compensatory mechanism to restore self-integrity amid eroded competence needs [**?**]. This finding challenges unidimensional views of social comparison, demonstrating that "imperfect role models" facilitate adaptive disclosure by lowering comparison standards (e.g., "others' struggles exceed mine"), thereby mitigating self-threats and reframing disclosure as therapeutic [**?**].

5.2 Complementarity of Hostility and Meaning Reconstruction

Hostility's moderating role deepens understanding of narcissistic defense mechanisms. High-hostility individuals preserve self-esteem through external attribution (e.g., devaluing threat sources) [**?**], a strategy consistent with competitive narcissism [**?**]. Notably, hostility and meaning in life operate complementarily: while hostility buffers self-esteem threats, low-hostility individuals rely on meaning-making to process stress. Study 2's chain mediation model confirms this dynamic—under "imperfect role model" exposure, low-hostility participants convert stress into meaning-driven disclosure (e.g., "failure fosters growth"). This suggests that self-esteem and meaning in life constitute a dual defense system, with individuals flexibly deploying strategies based on hostility levels. The impairment of Competence Needs drives individuals to restore self-integrity through Meaning Reconstruction—a process that aligns with the shared premises of Self-Determination Theory and the Meaning Maintenance Model.

5.3 Contextual Specificity of Adversity Perception

Study 2 highlights adversity perception as a critical boundary condition (Hypothesis 4). When individuals frame others' experiences as adversities, stress triggers existential reflection (e.g., "how failure confers meaning") [**?**], promoting disclosure. Conversely, "perfect role models" induce pure threat appraisals, suppressing meaning and disclosure. This aligns with post-traumatic growth theory but emphasizes the primacy of situational appraisal. Imperfect role models provide "coherent growth narratives" (e.g., failure-reflection-growth sequences) that integrate personal setbacks into life meaning [**?**], a mechanism absent in

perfect role model contexts (Hypothesis 5). These findings advocate for pedagogical and therapeutic integration of vulnerable role models to foster empathetic disclosure [**?**].

5.4 Limitations and Practical Implications

The study has the following limitations: Firstly, the cross-sectional design cannot verify causal relationships between variables; Secondly, the sample being confined to university students necessitates caution when generalizing conclusions to high-pressure environments like workplaces; Finally, the measurement of hostility traits failed to differentiate between implicit hostility and explicit aggressive behaviors. Practically, this research informs campus interventions: (1) incorporating "imperfect role model" case studies in group counseling to normalize struggles via horizontal comparisons; (2) developing cognitive defusion techniques (e.g., metaphorical reframing) for high-hostility individuals to reduce socially costly derogation; leveraging meaning-centered interventions to reframe failures as growth opportunities [**?**]. Future studies should explore cultural variations, particularly how collectivist norms emphasizing shame modulate meaning reconstruction pathways [**?**].

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Supporting Information

ID	Name	Gender	Title	Affiliation
1	Xiaoying Zhang	Female	Associate Professor	School of Medicine and Nursing, Changjiang College
2	Tian Huang	Female	-	Institute of Education, China University of Geosciences (Wuhan)

ID	Name	Gender	Title	Affiliation
3	Yuting Wang	Female	-	Mental Health Education and Counseling Center, China University of Petroleum-Beijing at Karamay
4	Zhijun Hou	Female	-	Institute of Education, China University of Geosciences (Wuhan)

Figure Legends

Figure 1 [Figure 1: see original paper]. Moderated Mediation Effect of Self-Esteem and Hostility in the Influence of Stress on Distress Disclosure
Figure 2. Moderating Effect of Hostility on the Relationship Between Stress and State Self-Esteem
Figure 3 [Figure 3: see original paper]. Chain Mediating Effects of Stress and Meaning in Life Between Participation Willingness and Distress Disclosure
Figure 4. Chain Mediating Effects of Stress and Meaning in Life Between Participation Willingness and Distress Disclosure

Note: Path coefficients outside parentheses are for the prosperous circumstance perception group, and those inside are for the adverse circumstance perception group; *: p<0.05;* ***: p<0.01;*** : p<0.001; PW(Participation Willingness), S(Stress), MIL(Meaning in Life), DD(Distress Disclosure).

Tables

Table 1. Descriptive statistics of the latent constructs

Variable	Mean±SD	1	2	3	4
1. Stress	$0.04\$\pm0.83\vert-\vert-0.56**\vert-0.28**\vert0.37**\vert\vert2.StateSelf-Esteem\vert0.15\pm0.93\vert-\vert-0.34**\vert0.32**\vert\vert\vert3.DistressDisclosure\vert0.11\pm1.10\vert-\vert-0.15**\vert\vert\vert4.Hostility\vert-0.13\pm\$0.91$	-			

Note: n=218; values in the table are calculated as Z-scores, **: p<0.01

Table 2. Mediation Model Test of Self-Esteem

Regression Equation	Fitting indices	Coefficient significance
Outcome Predictor	Distress Disclosure	State Self-Esteem
Stress	18.59***	96.09***
Stress State Self-Esteem	-	-

Note: n=218; all variables in the model were standardized; ***: p<0.001.

Table 3. Total, Direct, and Indirect Effects of Self-Esteem Between Stress and Distress Disclosure

Effect Type	Effect Value	BootSE	95%CI
Total Effect	-0.54	0.07	[-0.54,-0.20]
Direct Effect	-0.37	0.09	[-0.40,-0.00]
Indirect Effect	-0.17	0.06	[-0.31,-0.04]

Table 4. Moderated Mediation Model Test

Predictors	Model1(State Self-Esteem)	Model2(Distress Disclosure)
Stress	-8.13***	-2.64**
State Self-Esteem	-	2.01*
Stress × Hostility	0.12*	-
Hostility	-1.99*	3.00***
95%CI	[-0.68,-0.41]	[-0.28,-0.04]
	[0.19,0.23]	[-0.40,-0.00]
		[0.09,0.45]

Note: n=218; all variables in the model were standardized; *: *p<0.05;* **: ***p<0.01;*** : p<0.001.

Table 5. Mediation Effects of Self-Esteem at Different Levels of Hostility

Moderator	Standardized Mediation Effect	95%CI
Low (M-1SD)	-0.34	[-0.34,-0.05]
Medium (M)	-0.28	[-0.28,-0.04]
High (M+1SD)	-0.24	[-0.24,-0.03]
Moderated Mediation Effect	0.09	[0.00,0.09]

Table 6. Standardized Descriptive Statistics and Pearson Correlation Analysis Results

<table>
<tr><th>Variable</th><th>Mean±SD</th><th>1</th><th>2</th><th>3</th></tr>
<tr><td>1. Stress</td><td>0.11$±0.81| −
|−0.27∗∗∗|−0.25∗∗∗
||2.MeaninginLife|0.09±0.88|−
|0.28∗∗∗
|||3.DistressDisclosure|0.11±$1.07</td><td>-</td><td></td><td></td></tr>
</table>

Note: n=536; *: p<0.05;* ***: p<0.01;*** : p<0.001.

Table 7. Chain Mediation Model Test

Regression Equation	Fitting indices	Coefficient significance
Outcome Predictor	PW→S	MIL→DD
2.33*	-4.4***	-6.07***

Note: n=536; all variables were standardized; *: p<0.05;* ***: p<0.01;*** : p<0.001; PW(Participation Willingness), S(Stress), MIL(Meaning in Life), DD(Distress Disclosure).

Table 8. Total, Direct, and Mediation Effects of Chain Mediation

Effect	Trials	Effect Value	Boot SE	95%CI
PW→S→DD	ind1	-0.33	0.07	[-0.33,-0.09]
PW→MIL→DD	ind2	-0.22	0.05	[-0.22,-0.05]
PW→S→MIL→DD	ind3	-0.04	0.01	[-0.04,-0.00]
Total Mediation	totind = ind1+ind2+ind3	-0.33	0.09	[-0.33,-0.09]
Direct Effect	PW→DD	-0.42	0.08	[-0.42,0.08]
Total Effect	totind+c	-0.62	0.11	[-0.62,-0.11]
Proportion of Effect Size	-16.22%	32.43%	5.41%	54.05%
Proportion in Total	45.95%			

Note: PW(Participation Willingness), S(Stress), MIL(Meaning in Life), DD(Distress Disclosure).

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

Source: ChinaXiv — Machine translation. Verify with original.