

The Effect of Facial Trustworthiness on Helping Behavior: The Moderating Role of Attachment Security (Postprint)

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Abstract

This study examined the moderating effect of helpers' attachment security on the relationship between help-seekers' facial trustworthiness and helping behavior from both trait attachment and state attachment perspectives. The results revealed: (1) Help-seekers' facial trustworthiness influenced helping behavior; help-seekers with high facial trustworthiness received significantly more helping behavior than those with low facial trustworthiness; (2) Helpers' attachment security moderated the relationship between help-seekers' facial trustworthiness and helping behavior; secure attachment could effectively buffer the declining trend in helping behavior caused by low facial trustworthiness. These findings indicate that attachment security helps enhance sense of social security and promote prosocial behavior; therefore, attention should be paid to the cultivation of attachment security.

Full Text

The Influence of Facial Trustworthiness on Helping Behavior: The Moderating Role of Attachment Security

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Abstract

This study examined the moderating role of helpers' attachment security in the relationship between seekers' facial trustworthiness and helping behavior, from

both trait and state attachment perspectives. The results revealed: (1) Seekers' facial trustworthiness significantly influenced helping behavior, with high-trustworthiness faces receiving substantially more help than low-trustworthiness faces; (2) Helpers' attachment security moderated the relationship between seekers' facial trustworthiness and helping behavior, with secure attachment effectively buffering the decline in helping behavior associated with low facial trustworthiness. These findings demonstrate that attachment security enhances social safety perceptions and promotes prosocial behavior, underscoring the importance of cultivating attachment security.

Keywords: helping behavior; helping willingness; facial trustworthiness; attachment security

Classification: B849:C91

China has long championed the virtue of helping others as a nation of etiquette. However, recent reports of negative incidents—such as Good Samaritans being extorted—have seemingly transformed helping behavior into a risky endeavor, sparking widespread public concern and debate. At the individual level, helping behavior as a form of prosocial conduct promotes social development and positively influences academic performance and interpersonal relationships (Wang et al., 2017). At the societal level, helping behavior reflects social responsibility and fosters harmonious social development (Park & Shin, 2017). Previous research has primarily examined helping behavior through the lens of helpers' personal characteristics and situational features, yet studies on risky helping behavior remain scarce. This study comprehensively investigates the mechanisms underlying helping behavior under potential risk conditions by examining both risk cues and helpers' personal characteristics.

Prior research demonstrates that situational factors affect helping behavior. For instance, the presence of bystanders reduces individual helping in emergencies (Hortensius, Schutter, & Gelder, 2016), and higher situational risk—requiring greater personal cost—leads to less helping behavior (Fischer et al., 2011). Risk refers to variability and uncertainty in outcomes, particularly losses (Kahneman & Tversky, 1979), with risky situations characterized by the presence of risk features. Notably, while numerous studies have examined how risky situations influence helping behavior, these situations typically involve explicit risk features such as physical assault (Xia & Wang, 2015) or armed robbery (Shentu, Ma, & Guo, 2018), where informational risk is clearly defined. In contrast, research on helping behavior under potential risk conditions remains limited. Therefore, this study investigates helping behavior in potentially risky situations using faces varying in trustworthiness. Recent findings indicate that facial appearance serves as an external cue for inferring seekers' trustworthiness and plays a crucial role in helping behavior. For example, individuals are more inclined to help seekers who resemble them physically, with this effect being more pronounced among males (Emswiller, Deaux, & Willits, 1971), and physically attractive individuals receive more help (Michniewicz & Vandello,

2014). As an information source in social interaction, faces enable individuals to obtain social category information (e.g., gender, ethnicity) and rapidly infer personality traits (Ritchie, Palermo, & Rhodes, 2017). In the absence of other information, individuals primarily rely on facial appearance to infer others' traits (Oosterhof & Todorov, 2008). Among various facial dimensions, trustworthiness carries the greatest informational weight. Facial trustworthiness refers to the degree to which an individual appears trustworthy based on physical features. When encountering strangers, individuals instinctively seek to understand their behavioral intentions and capabilities, which determines approach or avoidance behaviors (Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015) and subsequently influences behavioral decisions such as helping and mate selection (Zhang et al., 2016). High-trustworthiness faces in political candidates garner more support (Chen & Jing, 2014) and elicit greater trust in children (Ewing, Caulfield, & Rhodes, 2015), whereas low-trustworthiness faces trigger more negative judgments, such as criminal stereotypes (Funk & Todorov, 2013) and harsher courtroom sentencing (Wilson & Rule, 2015). Given that trustworthiness is paramount in forming first impressions of strangers (Oosterhof & Todorov, 2008), this study posits that in unfamiliar situations, seekers' varying facial trustworthiness serves as a representation of potential risk, substantially influencing helpers' judgments of seekers' credibility and consequently affecting helping decisions (Jessen & Grossmann, 2017). Accordingly, we propose **Hypothesis 1:** Seekers' facial trustworthiness influences helpers' helping behavior, such that helpers are more likely to assist seekers with higher facial trustworthiness.

According to Person-Context Interaction Theory, helping behavior emerges from the interplay of external situational factors and individual characteristics (Jiang, 2013). Research indicates that individuals' attachment styles constitute an important factor influencing helping behavior (Oldfield, Humphrey, & Hebron, 2016; Wang et al., 2017). Attachment refers to the psychological closeness and bonding between infants and caregivers, providing subjective support and protection that engenders psychological security (Bowlby, 1973). As individuals mature, internal working models of parent-child attachment influence later adult attachment, rendering attachment styles relatively stable across the lifespan (Zhang & Labouvie-Vief, 2004). Specifically, securely attached individuals can direct attentional resources toward others, accurately empathize, and respond promptly to provide support, whereas insecurely attached individuals, preoccupied with themselves and emotionally vulnerable, cannot focus on others and lack sufficient psychological resources to offer help (Mikulincer & Shaver, 2015). Although both anxious and avoidant individuals are insecurely attached, they respond differently to others' distress: anxious individuals fear rejection and abandonment, dreading intimate relationships, while avoidant individuals are insensitive to others' intimacy needs, uncomfortable with emotional dependence, and thus more likely to escape (Collins & Gillath, 2012). Empirical evidence supports these theoretical propositions. Securely attached individuals are more inclined to help potential victims than their insecure counterparts

(Kogut & Kogut, 2013), peer attachment significantly predicts prosocial behavior (Oldfield et al., 2016), and parent-child attachment positively predicts prosocial behavior even after controlling for age, gender, and socioeconomic status (Wang et al., 2017).

Furthermore, research demonstrates that secure attachment significantly influences evaluations of relationship partners' trustworthiness, exerting positive effects on interpersonal trust (Li, Sun, Tuo, & Liu, 2016). Securely attached individuals exhibit greater trust in social situations (Chen et al., 2013), whereas avoidantly attached individuals display low levels of interpersonal trust and interaction (Mikulincer, 1998). This suggests that individuals with different attachment styles may make different judgments about others' trustworthiness and exhibit distinct interaction patterns. Attachment style not only influences helping behavior but also affects assessments of others' trustworthiness. Consequently, attachment security may moderate the effect of seekers' facial trustworthiness on helpers' helping behavior. Securely attached individuals tend to perceive seekers as trustworthy and exhibit higher helping behavior, whereas insecurely attached individuals may base their helping decisions on evaluations of seekers' trustworthiness. Based on this analysis, we propose **Hypothesis 2**: Attachment type moderates the relationship between facial trustworthiness and helping behavior. For securely attached individuals, helping willingness remains high regardless of seekers' facial trustworthiness; for insecurely attached individuals, helping willingness is high for high-trustworthiness faces but low for low-trustworthiness faces.

Although the attachment system remains relatively stable throughout life, it is not immutable. Attachment-related events in later life (e.g., marriage, divorce) can alter original attachment patterns, enabling shifts in attachment states (Mikulincer & Shaver, 2003), which makes it possible to manipulate state attachment in natural or laboratory settings. The dynamic processing model of the attachment system posits that secure attachment is a positive state that mitigates threat. Providing insecurely attached individuals with accessible attachment figures or their representations can effectively enhance attachment security and temporarily activate secure attachment—termed “secure attachment priming” (Mikulincer & Shaver, 2007). In recent years, scholars have increasingly examined how priming state secure attachment influences behavior and cognition. Research shows that secure attachment can be primed through supraliminal or subliminal methods in laboratory settings (Carnelley & Rowe, 2010), with primed state secure attachment significantly reducing negative evaluations and emotional experiences (Collins & Gillath, 2012), thereby affecting cognition (Dykas & Cassidy, 2011), emotion, and behavior (Benoit et al., 2010), leading individuals to adopt more positive strategies when confronting negative events. For instance, priming state secure attachment enhances perspective-taking ability, empathic concern (Boag & Carnelley, 2016), perception of others' pain (Pan et al., 2016), helping willingness (Gaesser & Schacter, 2014), and cognitive flexibility (Jarvinen & Paulus, 2017). State secure attachment functions similarly to trait secure attachment yet operates independently of trait attachment style and

positive mood effects (Luke, Sedikides, & Carnelley, 2012). Based on this literature, this study employs laboratory methods to prime helpers' state attachment security to further examine whether primed state secure attachment moderates the effect of different facial trustworthiness levels on helping behavior.

In summary, this study uses facial trustworthiness as a representation of risk cues to investigate how seekers' facial trustworthiness influences helpers' helping behavior and further explores the moderating role of helpers' attachment security. The research comprises two parallel experiments examining the moderating effects of trait attachment security and state attachment security on the relationship between seekers' facial trustworthiness and helping behavior, thereby systematically investigating the mechanism through which attachment security influences helping behavior and the stability of these effects.

Experiment 1: The Moderating Role of Trait Attachment Security

2.1 Purpose and Hypotheses

Experiment 1 primarily investigated the effect of seekers' facial trustworthiness on helping behavior and the moderating role of helpers' trait attachment. The study tested two hypotheses: (1) Seekers' facial trustworthiness affects individuals' helping behavior, such that individuals are more inclined to help seekers with higher facial trustworthiness; (2) Trait attachment moderates the relationship between facial trustworthiness and helping behavior, such that securely attached helpers exhibit high helping behavior across both facial trustworthiness conditions, whereas anxiously or avoidantly attached helpers show high helping behavior for high-trustworthiness faces but low helping behavior for low-trustworthiness faces.

2.2 Method

2.2.1 Participants We administered the Chinese version of the Experiences in Close Relationships Inventory (ECR), revised by Li and Kato (2006), to 332 university students. This 36-item scale includes two dimensions: avoidant attachment and anxious attachment, with higher scores indicating greater anxiety or avoidance. In this study, the internal consistency coefficients were 0.81 for avoidant attachment and 0.78 for anxious attachment. We selected participants by ranking anxiety and avoidance scores from low to high: 27 participants with scores below one standard deviation of the mean on both dimensions constituted the secure attachment group; 25 participants with anxiety scores above one standard deviation and avoidance scores below one standard deviation formed the anxious attachment group; and 20 participants with avoidance scores above one standard deviation and anxiety scores below one standard deviation comprised the avoidant attachment group.

A total of 72 eligible participants were selected (27 males, 45 females), aged 18–

23 years ($M = 20.2$, $SD = 2.17$). All participants had normal or corrected-to-normal vision.

2.2.2 Materials (1) Facial Trustworthiness Images

We used FaceGen Modeller 3.0 software to randomly generate 100 neutral-expression East Asian male faces (Ma et al., 2014). Thirty university students rated each face on a 9-point trustworthiness scale (1 = very untrustworthy, 9 = very trustworthy). Based on these ratings, we selected five high-trustworthiness faces ($M = 5.12$, $SD = 0.06$) and five low-trustworthiness faces ($M = 2.70$, $SD = 0.27$) as stimulus faces. The difference between groups was significant ($t(8) = 19.32$, $p < 0.001$, $d = 2.00$; examples shown in Figure 1 [Figure 1: see original paper]).

(2) Marlowe-Crowne Social Desirability Scale

This 33-item scale uses “yes” (scored 1) and “no” (scored 0) response options, with higher scores indicating stronger social desirability. The internal consistency coefficient in this study was 0.75.

2.2.3 Design We employed a 3 (attachment type: secure, anxious, avoidant) \times 2 (facial trustworthiness: high, low) mixed design, with attachment type as a between-subjects factor and facial trustworthiness as a within-subjects factor. The dependent variables were helping willingness and donation amount.

2.2.4 Procedure First, participants completed the Marlowe-Crowne Social Desirability Scale. Next, they were presented with a helping scenario: the National College Student Financial Aid Management Center had initiated a donation campaign for impoverished college students, and the facial images on screen represented those in need of assistance. Participants rated their willingness to help each seeker on a 7-point scale (1 = very unwilling, 7 = very willing; Zhong, Yang, & Fan, 2016) and indicated how much they would donate from a hypothetical 100 yuan allowance. All responses were entered via keyboard. Upon completion, participants received a gift and compensation.

2.3 Results

Participants’ helping willingness and donation amounts are presented in Table 1.

Table 1 Helping Willingness and Donation Amounts by Attachment Type ($M \pm SD$)

Attachment Type	High Facial Trustworthiness	Low Facial Trustworthiness
Secure	5.38 \pm 0.54	4.41 \pm 0.39
Anxious	4.50 \pm 0.38	2.30 \pm 0.33
Avoidant	3.96 \pm 0.49	2.44 \pm 0.30

Attachment Type	High Facial Trustworthiness	Low Facial Trustworthiness
Secure	68.37 ± 5.99	61.67 ± 3.57
Anxious	53.44 ± 3.37	37.81 ± 4.09
Avoidant	41.32 ± 5.26	27.95 ± 4.85

Note: Top half shows helping willingness; bottom half shows donation amounts.

To examine the effects of facial trustworthiness and attachment type on helping behavior, we conducted repeated-measures ANOVAs on helping willingness and donation amount, with social desirability scores as a covariate.

For helping willingness, the main effect of facial trustworthiness was significant ($F(1, 68) = 10.59, p < 0.01, \eta^2 = 0.14$), with higher willingness for high-trustworthiness faces. The main effect of attachment type was significant ($F(2, 68) = 5.92, p < 0.01, \eta^2 = 0.15$), indicating significant differences across attachment types. The interaction was significant, $F(2, 138) = 5.96, p < 0.01, \eta^2 = 0.15$. Simple effects analysis revealed that securely attached individuals showed significantly different helping willingness between the two facial trustworthiness conditions ($p < 0.001$), with lower willingness for low-trustworthiness faces. Both anxious and avoidant individuals also exhibited significant differences ($ps < 0.001$), showing lower willingness for low-trustworthiness faces.

For donation amount, the main effect of facial trustworthiness was significant ($F(1, 68) = 24.50, p < 0.01, \eta^2 = 0.27$), with higher donations for high-trustworthiness faces. The main effect of attachment type was significant ($F(2, 68) = 14.43, p < 0.01, \eta^2 = 0.30$), and the interaction was significant, $F(2, 138) = 14.43, p < 0.001, \eta^2 = 0.30$. Simple effects analysis showed that securely attached individuals donated significantly differently between conditions ($p < 0.001$), giving less to low-trustworthiness faces. Anxious and avoidant individuals also donated significantly less to low-trustworthiness faces ($ps < 0.001$).

To explore the moderating effect of attachment security, we calculated difference scores by subtracting responses to low-trustworthiness faces from those to high-trustworthiness faces, then conducted one-way ANOVAs on these difference scores (following He, Yang, & Jiang, 2017; Mi et al., 2013).

For helping willingness difference scores, the main effect of attachment type was significant ($F(2, 68) = 5.916, p < 0.01, \eta^2 = 0.148$). Securely attached individuals' difference scores ($M = 1.01, SD = 0.11$) were significantly smaller than those of anxiously attached ($M = 1.49, SD = 0.12$) and avoidantly attached individuals ($M = 1.51, SD = 0.13; ps < 0.05$), with no significant difference between anxious and avoidant groups ($p = 1.00$). See Figure 2 [Figure 2: see original paper].

For donation amount difference scores, the main effect of attachment type was significant ($F(2, 68) = 14.431, p < 0.001, \eta^2 = 0.298$). Securely attached indi-

viduals' difference scores ($M = 6.552$, $SD = 1.22$) were significantly smaller than those of anxiously attached ($M = 15.74$, $SD = 1.26$) and avoidantly attached individuals ($M = 13.43$, $SD = 1.40$; $ps < 0.001$), with no significant difference between anxious and avoidant groups ($p = 0.232$). See Figure 3 [Figure 3: see original paper].

2.4 Discussion

Experiment 1 demonstrated that attachment type moderates the effect of facial trustworthiness on helping behavior, with attachment security effectively buffering the decline in helping behavior caused by low facial trustworthiness. Securely attached individuals exhibited the highest helping tendency, confirming their greater availability for intimate relationships. Trait-anxious individuals, when facing risk, may doubt their abilities due to negative self-evaluations while simultaneously desiring to help others, resulting in moderate helping behavior. Trait-avoidant individuals, with low availability for intimate relationships and distrust of the environment, cannot actively respond to others' pleas and remain indifferent to others' situations (Mikulincer, Shaver, Gillath, & Nitzberg, 2005), thus showing the lowest helping behavior.

All three attachment types showed greater willingness to help high-trustworthiness faces, indicating that individuals' assessment of external risk indeed affects helping behavior. Further difference score analysis revealed that securely attached individuals' differences in helping behavior between high- and low-trustworthiness faces were significantly smaller than those of anxious and avoidant individuals, suggesting that trait attachment security can effectively buffer the decline in helping behavior associated with low facial trustworthiness.

Experiment 2: The Moderating Role of State Attachment Security

3.1 Purpose and Hypotheses

Experiment 2 further examined the role of state attachment security in the effect of seekers' facial trustworthiness on helping behavior. The hypotheses were: (1) Seekers' facial trustworthiness affects individuals' helping behavior, with greater helping toward high-trustworthiness faces; (2) State attachment security moderates the relationship between facial trustworthiness and helping behavior, such that securely attached helpers show high helping behavior across both conditions, while insecurely attached helpers show high helping for high-trustworthiness faces but low helping for low-trustworthiness faces.

3.2 Method

3.2.1 Participants Seventy-three university students were randomly recruited (31 males, 42 females), aged 18-23 years ($M = 21.5$, $SD = 1.93$). The

priming group included 36 participants (17 males, 19 females), and the control group included 35 participants (14 males, 21 females).

3.2.2 Materials (1) High- and Low-Trustworthiness Faces and Marlowe-Crowne Social Desirability Scale

These were identical to those used in Experiment 1.

(2) Secure Attachment Priming Materials

Following previous research (Li et al., 2016), participants were asked to recall an attachment figure, list five words describing that person's qualities, and complete a written recall task describing a time when that person provided support during distress and their feelings at that moment.

(3) Priming Effectiveness Check

We used the priming effectiveness scale developed by Mikulincer et al. (2005) to measure participants' sense of security and caring generated by the priming task. The eight-item scale (first four measuring attachment security, last four measuring caring) used a 7-point scale (1 = not at all, 7 = very strongly). The internal consistency coefficient was 0.78. If security differed significantly between groups while caring did not, the priming was considered effective, indicating that secure attachment priming enhanced attachment security rather than caring.

3.2.3 Design We employed a 2 (facial trustworthiness: high, low) \times 2 (priming condition: priming, control) mixed design, with facial trustworthiness as a within-subjects factor and priming condition as a between-subjects factor. The dependent variables were helping willingness and donation amount.

3.2.4 Procedure Participants were randomly assigned to priming or control groups and completed the written recall task. The priming group recalled someone who had helped them when they felt upset or anxious, listed five core qualities of that person, and described the event and their feelings. The control group recalled someone they knew but were not close to, listed five qualities, and described how they met and their feelings. Afterward, participants completed the priming effectiveness check, followed by the same procedure as Experiment 1. Participants received compensation upon completion.

3.3 Results

To verify the effectiveness of the priming manipulation, independent samples t-tests revealed significant differences in sense of security between priming and control groups ($t(71) = -3.54$, $p < 0.001$, $d = 0.87$), but no significant differences in caring ($t(71) = 0.22$, $p = 0.824$, $d = 0.05$), confirming that the recall task successfully primed attachment security.

Participants' helping willingness and behavior scores are presented in Table 2.

Table 2 Helping Willingness and Donation Amounts by Priming Condition (M \pm SD)

Priming Condition	High Facial Trustworthiness	Low Facial Trustworthiness
Priming	4.54 ± 0.58	4.52 ± 0.37
Control	3.69 ± 0.42	3.34 ± 0.49
Priming	63.40 ± 6.99	60.23 ± 6.50
Control	50.16 ± 7.08	40.71 ± 6.10

Note: Top half shows helping willingness; bottom half shows donation amounts.

Repeated-measures ANOVAs with social desirability as a covariate were conducted on helping willingness and donation amount.

For helping willingness, the main effect of facial trustworthiness was significant ($F(1, 70) = 5.89, p < 0.05, \eta^2_p = 0.08$), with higher willingness for high-trustworthiness faces. The main effect of priming condition was significant ($F(1, 70) = 5.92, p < 0.001, \eta^2_p = 0.70$), with the priming group showing higher helping behavior than the control group. The interaction was marginally significant, $F(1, 70) = 3.74, p = 0.057, \eta^2_p = 0.05$. Simple effects analysis showed that the priming group exhibited marginally significant differences between facial trustworthiness conditions ($p = 0.073$), with higher willingness for high-trustworthiness faces. The control group showed significant differences ($p < 0.01$), with lower willingness for low-trustworthiness faces. State attachment security thus demonstrated a moderating effect on helping willingness across facial trustworthiness conditions. See Figure 4 [Figure 4: see original paper].

For donation amount, the main effect of facial trustworthiness was significant ($F(1, 70) = 29.89, p < 0.001, \eta^2_p = 0.30$), with high-trustworthiness faces receiving more donations. The main effect of priming condition was significant ($F(1, 70) = 233.22, p < 0.001, \eta^2_p = 0.77$), with the priming group donating significantly more than the control group. The interaction was significant, $F(1, 70) = 7.28, p < 0.01, \eta^2_p = 0.09$. Simple effects analysis revealed that the priming group showed marginally significant differences between conditions ($p = 0.06$), donating more to high-trustworthiness faces, while the control group showed significant differences ($p < 0.001$), donating less to low-trustworthiness faces. State attachment security thus moderated donation amounts across facial trustworthiness conditions. See Figure 5 [Figure 5: see original paper].

Following the same method as Experiment 1, we conducted independent samples t-tests on difference scores.

For helping willingness difference scores, groups differed significantly ($t(71) = -2.05, p < 0.05, d = 0.49$), with state secure individuals' difference scores ($M = 0.03, SD = 0.67$) significantly smaller than state insecure individuals ($M = 0.35, SD = 0.65$).

For donation amount difference scores, groups also differed significantly ($t(71) = -2.74, p < 0.01, d = 0.65$), with state secure individuals' difference scores (M

= 3.17, SD = 8.65) significantly smaller than state insecure individuals (M = 9.45, SD = 10.79).

3.4 Discussion

Experiment 2 demonstrated that state attachment security moderates the effect of facial trustworthiness on helping behavior, buffering the decline in helping behavior associated with low facial trustworthiness. The priming group exhibited significantly higher helping behavior than the control group, indicating that enhanced attachment security promotes prosocial behavior (Gaesser & Schacter, 2014). When attachment security is heightened, individuals evaluate others and the environment more positively, significantly reducing the impact of facial trustworthiness on helping behavior and resulting in increased helping even toward low-trustworthiness faces. The difference score analyses further confirmed that state attachment security buffers the decline in helping behavior caused by low facial trustworthiness.

General Discussion

4.1 Effects of Facial Trustworthiness and Attachment Type on Helping Behavior

This study demonstrates that seekers' facial trustworthiness influences helpers' helping behavior, with individuals more likely to assist high-trustworthiness seekers. This finding can be explained by costly signaling theory, which posits that individuals engaging in costly behaviors expect benefits such as reputation or tangible rewards (Xing, Liu, & Zhang, 2015). When risk is high and potential costs exceed benefits, individuals choose avoidance, making helping behavior essentially an economic decision. Previous research on risk factors in helping behavior has focused on natural and social environments while neglecting seekers themselves as risk assessment targets. In stranger situations, facial appearance serves as the sole evaluation cue and critically influences helpers' decisions.

Moreover, both trait and state attachment security moderate helping behavior. Experiment 1 showed that securely, anxiously, and avoidantly attached individuals' helping behavior decreased sequentially. Securely attached individuals possess positive self-other models; when encountering those in need, their stable secure base script activates, prompting assistance. Insecurely attached individuals hold negative self-other models: anxious individuals maintain negative self-positive other working models, doubting their own worth while vigilantly guarding against others' care, yet fearing rejection and craving closeness (Mikulincer & Shaver, 2007). Avoidant individuals hold negative other models, rejecting trust in others, and thus showed the lowest helping willingness in Experiment 1 (Overall, Fletcher, Simpson, & Fillo, 2015). Experiment 2 revealed that state secure individuals exhibited significantly higher helping behavior than controls. When state attachment security is primed, negative emotional experiences decrease, attachment security increases, and secure attachment representations

activate associated perceptual, memory, and regulatory strategies, weakening self-defensiveness and providing a secure base for prosocial behavior, leading to more positive strategies for coping with negative events (Collins & Gillath, 2012)—manifested in this study as significantly higher helping behavior. Combined with Experiment 1, these results confirm that state secure attachment functions similarly to trait secure attachment, with temporary state priming operating independently of trait attachment (Luke et al., 2012), offering insights for treating attachment-related neuroses and personality disorders.

4.2 The Moderating Role of Attachment Security in the Relationship Between Facial Trustworthiness and Helping Behavior

Neither experiment directly verified Hypothesis 2; however, difference score analyses revealed that helpers' attachment security moderated the effect of seekers' facial trustworthiness on helping behavior, with attachment security effectively buffering the decline in helping willingness associated with low facial trustworthiness. Both experiments showed that securely attached individuals (trait or state) exhibited significantly more helping behavior than insecurely attached individuals, with difference score analyses confirming that secure attachment buffered the decline in helping behavior caused by low facial trustworthiness. Research indicates that personality traits influence behavior only when corresponding psychological schemas are activated (Aquino et al., 2009). For securely attached individuals, encountering someone in need—regardless of facial trustworthiness—rapidly activates their secure base script, generating other-directed caring and relatively high helping tendencies. For insecurely attached individuals, high-trustworthiness faces elicit higher trust evaluations and lower helping costs, resulting in greater helping behavior. However, low-trustworthiness faces trigger lower trust evaluations, rapidly activating anxiety and fear (Ein-Dor, Mikulincer, & Shaver, 2011), focusing attention on self-preservation, and activating sentinel or flight scripts for self-protection, significantly reducing helping willingness. As facial social perception research advances, its influence on helping and mate selection behaviors will gain increasing attention. Beyond trustworthiness, facial attractiveness and width-to-height ratio also matter. Due to the “beauty is good” effect, highly attractive individuals are more readily inferred to possess positive traits such as friendliness, generosity, and honesty (Zhang, Kong, Zhong, & Kou, 2014) and are more likely to receive help. Notably, individuals make trust judgments based on facial attractiveness (Ma, Evans, Liu, Luo, & Xu, 2015), with highly attractive individuals perceived as more trustworthy. Future research should examine potential interactions between facial attractiveness and trustworthiness on helping behavior.

4.3 Theoretical and Practical Implications

This study's examination of attachment security's moderating role between facial trustworthiness and helping behavior holds both theoretical and practical significance. Theoretically, previous research on risky helping behavior has focused

on explicit risk features while neglecting potential risks. However, both explicit and implicit features influence behavioral decisions (Kong & Qian, 2015), and implicit, potential risks also affect helping decisions. Using facial trustworthiness as a representation of potential risk, this study enriches research on helping behavior mechanisms in risky situations and provides a new perspective. It also demonstrates that helping behavior results from the interplay of helper factors, situational factors, and seeker characteristics. In identical helping situations, individuals exhibit different helping behaviors toward different seekers based on their attachment types, as confirmed by Kogut and Kogut (2013).

Practically, this study reveals that helping behavior emerges from multiple factors—helping situation, seeker characteristics, and helper features—rather than single determinants. This reminds the public to objectively evaluate others' helping behaviors by considering the helping context, avoiding irrational judgments driven by public opinion or erroneous conclusions about human nature and social morality. Moreover, compared to trait attachment style, situational activation of secure attachment is more operational and has more lasting effects (Li, Shi, Huang, & Ma, 2013), making it possible to create more “secure” social contexts—a key practical implication of secure attachment priming research.

4.4 Limitations and Future Directions

Despite revealing secure attachment's moderating role and potential mechanisms, this study has several limitations requiring future improvement. First, because participants needed pre-screening for trait attachment types and insecurely attached individuals are relatively rare, the small sample size may have affected results. Second, Experiment 2 did not assess the validity of participants' written priming materials; future studies should address writing effectiveness to improve experimental procedures. Third, this study did not examine fearful attachment's role in helping behavior; future research should investigate fearful individuals to complete the picture of how different attachment types influence helping behavior. As society rapidly develops, emerging factors such as heavy work pressure may increase the psychological costs of helping, representing another avenue for future investigation.

Conclusions

This study yielded two main conclusions:

- (1) Higher seekers' facial trustworthiness elicits more helpers' helping behavior.
- (2) Helpers' attachment security moderates the relationship between seekers' facial trustworthiness and helping behavior, with secure attachment effectively buffering the decline in helping behavior associated with low facial trustworthiness.

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