Faces of Forgiveness: The Impact of Emotional Facial Expressions on the Willingness to Forgive

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ABSTRACT

This study explored how facial emotional expressions influence the willingness to forgive, focusing on the role of sadness and attentional orientation under neutral and stress-induced conditions. An online survey was administered through Qualtrics to a U.S. sample (N = 246), employing scales to measure trait forgiveness, compassion, and willingness to forgive. Visual stimuli from the OASIS database were used to induce stress and present facial expressions, with a prior validation study (N = 215) selecting appropriate images displaying happy, neutral, and sad faces. The findings show that sad expressions significantly increased the willingness to forgive compared to neutral or happy expressions, supporting the empathy-altruism hypothesis. Trait forgiveness and compassion enhanced the willingness to forgive, highlighting the interplay between dispositional traits and situational factors. Attentional orientation towards emotional expressions varied with trait forgiveness under stress: those higher in trait forgiveness preferred happy faces. In contrast, those lower in trait forgiveness were more attentive to sad faces. These results suggest that recognizing emotional expressions has the potential to facilitate forgiveness, offering practical implications for conflict resolution strategies. Future research should address limitations such as cultural representation and the complexity of real-life emotional interactions using diverse samples and advanced techniques like eye-tracking.

KEYWORDS

facial emotional expressions
attentional orientation
forgiveness
compassion

Forgiveness offers significant social benefits, such as fostering reconciliation (Mullet et al., 2021) and improving relationships (Wu et al., 2022), making it an important focus of study. It has also been widely demonstrated to have health-promoting effects and is a crucial element of well-being (Rasmussen et al., 2019; Skalski-Bednarz, 2024; Toussaint et al., 2023; Webb & Toussaint, 2020), leading to extensive interest in understanding when and why people decide to forgive. The human ability to forgive is a complex psychological process influenced by various factors, including emotions, cognitive control, intentions, and social cues (Kluwer et al., 2020; Lindsey, 2013; Maier et al., 2018; Maltby et al., 2008). One particularly intriguing aspect of this process is the role that facial expressions play in the decision to forgive. Previous studies have suggested that facial expressions can significantly affect interpersonal judgments and behaviors (Falconer et al., 2019; Lange et al., 2022; McEwan et al., 2014; Niedenthal & Showers, 2020). The current study explored the interplay between facial emotional expressions, state forgiveness, and dispositional traits like forgiveness and compassion within experimental psychology.

Facial expressions serve as powerful nonverbal communication tools that convey a wide range of emotions and intentions. Ekman (1992) and Ekman and Friesen (1971) laid the foundation for understanding how basic emotions are conveyed across different cultures, demonstrating that specific expressions such as sadness, anger, and happiness are universally recognized and can significantly influence social interactions. Additionally, the facial feedback hypothesis posits that facial movements can influence emotional experiences, suggesting a bidirectional relationship between emotional expressions and internal emotional states (Phaf & Rotteveel, 2023; Strack et al., 1988). However, research has scrutinized the facial feedback hypothesis, finding that its effects may not be consistent across all experimental manipulations (Coles et al., 2022).

Marsh et al. (2007) highlighted the role of fear expressions in predicting prosocial behavior. Their research demonstrated that individuals who accurately recognize fear in others are more likely to engage in prosocial behaviors like donating time or money. This suggests a significant link between emotional recognition and behavioral tendencies, particularly in the context of distress signals. Studies supporting

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this notion have indicated that sad and suffering faces can trigger compassionate and empathetic responses, leading to increased tendencies to offer help or show leniency (Hareli & Hess, 2010; Scarantino et al., 2022; Stellar et al., 2020). For instance, Giner-Sorolla et al. (2010) found that individuals displaying shameful expressions were more likely to be forgiven than compared to those showing neutral or angry expressions. However, it is important to note that empathy was not directly measured in the current study, and therefore this interpretation remains speculative. An alternative explanation worth considering is the negative-state relief model (Cialdini et al., 1973), which posits that participants might have forgiven sad transgressors not out of empathic concern but to reduce their own emotional discomfort evoked by the suffering of others.

In contrast, some research suggests that smile expressions can be perceived as aversive and processed as threats by certain individuals (Schultheiss & Hale, 2007). These broad smiles may communicate social dominance, eliciting responses of submissiveness and feelings of inferiority (Duijndam et al., 2020; Heuer et al., 2007). While smiles often signal affiliation and social approach, individuals with social anxiety or high self-criticism may perceive them as threatening (Campbell & Stanley, 2015; Vrtička et al., 2008). Additionally, smiles can be misinterpreted as mocking (Yoon & Zinbarg, 2008), which aligns with Ekman's (1992) assertion that not all smiles convey positive emotions. Consequently, happy faces do not always convey kindness or feelings of affiliation and safety.

In the realm of forgiveness, the perception of an offender's facial expression can markedly influence the likelihood of forgiveness (Wohl et al., 2012; Yu et al., 2022). Forgiveness is a multifaceted process encompassing emotional, cognitive, and social dimensions often moderated by individual differences in dispositional traits (Berry et al., 2005; Hook et al., 2012; Worthington et al., 2007). It is essential to differentiate between state forgiveness and dispositional forgiveness. State forgiveness refers to the temporary and context-specific forgiveness one might experience in response to a particular incident. Dispositional forgiveness reflects a general propensity to forgive across various situations and over time (Worthington, 2019). Given that dispositional forgiveness is considered a general trait, the effects of facial expressions are likely more pronounced in contexts of state forgiveness.

Hess (2021) explored the social nature of emotional mimicry, emphasizing that mimicry is not merely an automatic response but is influenced by social contexts and goals. Therefore, in situations requiring forgiveness, individuals may expect specific facial expressions, particularly those conveying guilt or shame, to deem forgiveness as morally appropriate. The impact of emotional expressions on forgiveness can also be explained through the empathy-altruism hypothesis, which posits that empathic concern for others' emotional states can drive altruistic behavior, including forgiveness (Batson, 2022). This theoretical framework aligns with predictions that sad facial expressions, by evoking prosocial emotions and attitudes, can facilitate forgiveness as an altruistic act.

In assessing the impact of facial expressions on forgiveness, controlling for dispositional compassion is worthwhile. This control ensures that the observed effects are due to facial expressions themselves rather than individual differences in baseline compassion. Compassion, the emotional response to another's suffering and a desire to alleviate it, significantly impacts social interactions (Quaglia et al., 2021). Previous research suggests that higher levels of compassion are associated with more frequent prosocial behavior and emotional resilience (Lim & DeSteno, 2016; Roche et al., 2022). Moreover, existing literature reports a positive correlation between forgiveness and compassion for others, indicating that more compassionate individuals are more likely to forgive (Roxas et al., 2019). This relationship underscores the importance of considering both traits when examining the dynamics of social interactions and emotional responses to facial expressions.

Effects of Stress on Facial Expression and Forgiveness

There is little doubt that stress significantly impacts cognitive and emotional processing, often heightening individuals' sensitivity to social cues. Consequently, under stress-induced conditions, the preference for sad facial expressions in the context of forgiveness may be even more pronounced (Amir et al., 2009; Maratos, 2011; McEwan et al., 2014). When stressed, people may seek more emotional support and understanding, making them more receptive to sad expressions that convey vulnerability and a need for compassion (Stellar et al., 2020). This increased sensitivity can intensify the empathetic response towards those displaying sadness, thereby increasing the likelihood of forgiveness. Research indicates that stress can enhance empathic accuracy, particularly towards negative emotions like unforgiveness, and forgiveness can be a response to this stress (Crenshaw et al., 2019; Tomova et al., 2017). Thus, stressed individuals may be more attuned to and affected by sad expressions, which can influence their experience of forgiveness.

Additionally, stress often results from negative cognitive appraisal, which triggers coping mechanisms to manage stress (K. Maier et al., 2022; Ysseldyk et al., 2009). Forgiveness of others can serve as an emotion-focused coping strategy, helping individuals deal with stress by alleviating emotional burdens and promoting psychological well-being (Gall & Bilodeau, 2021). The stress and coping model of forgiveness posits that forgiveness functions to reduce stress by addressing the emotional turmoil associated with interpersonal transgressions (Strelan, 2020; Worthington & Scherer, 2007). While the model does not explicitly address the relationship between stress and sad facial expressions, it suggests that stressed individuals may be more inclined to forgive as a way to achieve emotional relief and support. A sad facial expression may also be perceived as an indication that the perpetrator is seeking forgiveness, which can make forgiveness a more viable coping strategy for the stressed individual, further reinforcing the preference for forgiving those who display sadness.

Attentional Orientation and Forgiveness

Emotions and moods may influence early, implicit, and preconscious stages of information processing, including the selection and encoding of information (Carver, 2001; Höfling et al., 2020; Siam et al., 2022). For example, Isaacowitz (2005) demonstrated that optimistic participants were less likely to orient their attention toward negative

images, such as pictures of cancer, compared to pessimists, even after controlling for mood. These findings suggest that individuals with positive emotions and attitudes are likely to attend to positive information, whereas those with negative orientations tend to focus on negative information. This aligns with the emotion-congruency perspective of attentional bias, which posits that state or trait characteristics predispose individuals to focus on information congruent with their emotional state or traits (McEwan et al., 2014).

Beall and Herbert (2008) proposed that faces, due to their biological and social importance, are processed more automatically than affective words, leading to quicker processing of negative emotions perceived as potential threats in the general population. Conversely, clinical samples have exhibited increased interference from negative stimuli. Individuals with depressive moods take longer to respond to negative stimuli that match their emotional state. Similarly, Gotlib and McCann (1984) observed depressed participants with delayed responses to negative stimuli but not to positive or neutral words. Bradley et al. (1995) reported that anxiety patients without depression experienced longer reaction times for anxious stimuli compared to neutral ones. Since there is a documented association between depression, anxiety, and unforgiveness (Akhtar & Barlow, 2018; Wade et al., 2014), it appears that unforgiving individuals may show increased attentional orientation toward sad faces. However, similar studies have yet to be conducted.

THE CURRENT STUDY

The current study investigated how emotional cues conveyed through facial expressions influence the willingness to forgive, focusing on the role of sadness in promoting forgiveness. Sadness may facilitate forgiveness due to its association with empathy (Cornish et al., 2020; Toussaint & Webb, 2005) and perceived moral justice (Benard et al., 2022; Lindsey, 2013). Conversely, individuals with a greater disposition to forgive are expected to show a preference for positive facial expressions over sad ones (McEwan et al., 2014). By integrating insights from previous research and theoretical frameworks, the current study aimed to deepen our understanding of the psychological processes underlying forgiveness and the role of nonverbal emotional cues in social interactions. The study addressed the following research questions:

1. Do facial emotional expressions differentially influence individuals' willingness to forgive?

2. Does dispositional forgiveness moderate attentional orientation toward emotional expressions under stress versus neutral conditions?

3. Do trait forgiveness and compassion predict individual differences in immediate willingness to forgive?

The following hypotheses were tested:

1. Individuals are more likely to exhibit a willingness to forgive those displaying sad (negative) facial expressions compared to those displaying happy (positive) or neutral expressions.

2. Individuals with higher levels of dispositional forgiveness are expected to show enhanced attention to faces expressing happiness, while those with lower levels of dispositional forgiveness (i.e., unforgiving individuals) are expected to show increased attention to faces expressing sadness.

3. Individuals with higher levels of trait forgiveness and dispositional compassion are expected to exhibit greater willingness to forgive, beyond the effects of facial expressions.

Given that the current study targeted a general population sample and that attentional biases are typically more prominent in clinical samples experiencing psychopathology or social anxiety (e.g., Sánchez & Vázquez, 2012) unless mood/stress induction techniques are used (Dewitte & De Houwer, 2008; Schwager & Rothermund, 2013), we employed these techniques and therefore anticipated stronger effects for Hypothesis 2 following stress induction. Additionally, considering that stress has been shown to enhance prosocial orientation (Tomova et al., 2017), we posited that exposure to various facial expressions would increase the willingness to forgive following stress induction. While we did not pose specific hypotheses regarding neutral faces, these expressions were included as a control condition to allow inferences specific to happy and sad expressions.

Since we could not find an open-access repository of stimuli containing enough rigorously validated images of faces recognized as happy, neutral, and sad (e.g., the Warsaw Set of Emotional Facial Expression Pictures primarily focuses on emotions such as joy, anger, sadness, fear, surprise, and disgust, excluding the neutral condition; Olszanowski et al., 2015), we decided to use the widely recognized OASIS set (Kurdi et al., 2017). Given that previous studies primarily focused on the OASIS set for valence and arousal, we conducted a validation study to select images specifically associated with happy, neutral, and sad expressions before testing our hypotheses. This approach allowed us to ensure the emotional accuracy and relevance of the images used in our research, leveraging the strengths of the OASIS set while tailoring it to the specific needs of our study.

MATERIALS AND METHODS

Participants

We carried out two studies in the summer of 2024, both of which received approval from the ethics committee of the affiliated university. The validation study comprised 215 participants aged 21 to 63 (M = 36.41, SD = 7.12) years. The main study included 246 participants aged 18 to 66 (M = 37.15, SD = 9.72) years. The demographic composition of the samples is presented in Table 1. The categories include sex/gender, marital status, income, religious affiliation, and race/ethnicity.

Procedure

Participants in both the validation and main studies were recruited through Prolific, an online platform that connects researchers with participants. Participants completed Qualtrics surveys on their private electronic devices. The only recruitment conditions were residing in the United States and being of legal age. In both studies, stimuli were

TABLE 1.
Characteristics of Samples

Category	Options	Validation study (%)	Main study (%)
Sex/Gender	Male	47	45
	Female	50	52
	Non-Binary / Third Gender	2	1
	Prefer Not to Say	1	2
Marital Status	Married	42	48
	Widowed	2	1
	Divorced	5	3
	Separated	1	4
	Never Married	50	44
Income	Less Than $20,000	11	16
	$20,000 to $39,999	11	16
	$40,000 to $59,999	15	19
	$60,000 to $79,999	17	14
	$80,000 to $99,999	24	12
	$100,000 or More	22	23
Race/Ethnicity	African American	18	10
	White	61	65
	Asian	12	13
	Hispanic and Latino Americans	7	9
	Other	2	3
Religious Affiliation	Protestant	31	22
	Catholic	22	14
	Jewish	3	3
	None	32	42
	Other	12	19

presented in a pseudo-random order on a display screen, ensuring that the same actor did not appear consecutively. To avoid emotional contexts influencing judgments, each photograph was presented in isolation. Previous literature has introduced various methods for assessing how people recognize emotions in facial expressions (Yik et al., 2013). The first study lasted approximately 6 min, and participants were compensated with $3, while the second study lasted about 10 min, with a compensation of $5.

The stimulus set used for rating in the validation procedure was sourced from the OASIS database (benedekkurdi.com). A panel of four qualified psychologists selected images from a larger pool that appeared to express sadness, neutrality, or happiness. Following this preselection, participants rated the selected photos based on the expression displayed on each face (0 = sadness and 10 = happiness). The chosen images had the lowest average ratings for sadness, the most central average ratings for neutrality, and the highest average ratings for happiness. Therefore, we adopted a detailed quantitative system due to concerns about the validity of free-labeling and forced-choice methodologies (Tottenham et al., 2009). The stimuli selected in this manner were utilized in the subsequent study.

In the main study, participants completed two questionnaires to measure trait forgiveness and compassion toward others. They then participated in a computerized visual probe task, utilizing the stimulus set from the validation study. Initially, participants viewed six facial images depicting three expressions (happy, neutral, sad), with two images for each type. Since earlier reports suggested that viewing negative pictures or clips is associated with a psychophysiological stress response (Schwager & Rothermund, 2013; Wolf et al., 2009), the participants underwent a stress induction procedure by viewing images from the OASIS set. These images were selected based on the study by Kurdi (2017) and were characterized by high negative arousal and low positive valence. The specific images included "Car Crash 1," "Cockroach 2," "Dead Bodies 1," "Destruction 9," "Fire 7," "Rollercoaster 2," and "Snake 2." Participants were required to press the "next" button to proceed. After the stress induction, participants assessed six additional facial images (happy, neutral, sad), again with two images for each type. Throughout the experiment, the participants were presented with the pseudo-random photos and asked how likely they would be to forgive someone who looked like the person in the image. To measure attentional orientation, we recorded the time participants took to press the "next" button on the screen or keyboard after rating each picture, using response latencies as the primary metric. Trials with response latencies less than 200 ms or greater than two standard deviations above each participant's mean response time—accounting for 3% of the trials—were excluded from the analysis to remove outliers. Notably, we did not observe significant differences in response times between surveys conducted on personal computers and those conducted on smartphones, iPads, or other electronic devices.

Measures

VALIDATION STUDY

In the validation study, to assess participants' ratings of the emotional expression of exposed faces, we employed the following question: "Rate the expression on the displayed face on a scale from 0 to 10, where 0 represents sadness and 10 represents happiness." This question aimed to capture the participants' perceptions of the emotional content conveyed by the faces in the selected photos. Participants provided their ratings, which were then used to categorize the images into three groups: sad, neutral, and happy. Each group included four photos.

MAIN STUDY

In the main study, to assess participants' willingness to immediately forgive, we utilized the following question: "Consider an incident where someone may have wronged you. If the primary offender responsible for this transgression looked like the person in the photo, how likely would you be to forgive them?" Respondents rated their likelihood of forgiveness on a scale from 0 (*not at all likely*) to 10 (*extremely likely*). This measure was designed to evaluate how the perceived emotional expression of a face potentially influences the participant's propensity to forgive.

Compassion for others as a dispositional tendency was evaluated using the Compassion Subscale of the Dispositional Positive Emotion Scale (DPES; Shiota et al., 2006). This five-item scale employs a 7-point response format, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), to assess how frequently individuals experience compassion in everyday situations. Key items on this scale include statements like "It's important to take care of people who are vulnerable" and "When I see someone hurt or in need, I feel a powerful urge to take care of them." The subscale demonstrated good internal consistency in our main study ($\alpha = .91$).

The Trait Forgiveness Scale (TFS; Berry et al., 2005) was utilized to assess trait forgiveness. This scale consists of 10 items designed to measure trait forgiveness, adapted from a more extensive scale used in earlier studies. Participants respond to each TFS item using five response option, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items from the TFS include "I can usually forgive and forget an insult" and "There are some things for which I could never forgive even a loved one." Higher scores on the TFS indicate a greater tendency towards dispositional forgiveness. The scale demonstrated good reliability, with a coefficient alpha value of .82 in our main study.

Power Analysis

An a priori power analysis using G*Power 3.1.9.8 was conducted for the main experiment. A repeated-measures analysis of covariance (ANCOVA) with a within-between interaction (effect size $f = 0.20$, $\alpha = .05$, power = .80, 3 levels of the within-subjects factor, 2 between-subjects groups) indicated a required minimum of 84 participants. Our final sample of 246 participants thus exceeded this threshold, ensuring sufficient power to detect the expected effects. No power analysis was conducted for the validation study, as its purpose was not statistical hypothesis testing but the empirical selection of stimuli based on mean emotional ratings. However, the sample of 215 participants would be expected to ensure sufficient reliability for identifying images representing happy, neutral, and sad expressions.

Statistical Analysis

All statistical analyses were conducted using Jamovi 2.4.7. The Kolmogorov-Smirnov test was employed to assess the normal distribution of the data, while Levene's test was used to evaluate homoscedasticity. Based on the obtained scores, parametric tests were deemed suitable for analysis. Descriptive statistics were calculated for all demographic variables, and the primary analyses involved repeated-measures analyses of variance (ANOVAs) and multivariate analyses of covariance (MANCOVAs) to examine differences in ratings between the emotional categories, willingness to immediately forgive, and attentional orientation. Partial eta squared (η^2) was used to assess the effect size. Mauchley's test of sphericity was conducted to ensure the assumption of sphericity was met, and Bonferroni-corrected post hoc tests were used to explore significant main effects and interactions. The significance level was set at $p \leq .05$.

RESULTS

Validation Study

A jury of four competent psychologists selected 32 photos from a pool of 884 images from the OASIS database based on the following criteria: The entire face was shown, the subject was an adult, only one person was present in the picture, the person was clothed, and the photos appeared to express sadness, neutrality, or happiness. Subsequently, 215 participants rated these photos on a scale from sadness to happiness. Based on these ratings, we selected four faces that were most assessed as sad (*M*s = 1.21–1.43, *SD*s = 1.07–1.21; names in set: "Sad Face 4," "Bored Face 1," "Depressed Face 1," "Depressed Pose 4"), four as neutral (Ms = 5.26–5.89, SDs = 0.63–0.79; names in set: "Neutral Face 1," "Neutral Face 2," "Neutral Face 4," "Neutral Face 5"), and four as happy (Ms = 8.34–9.11, SDs = 0.76–1.17; names in set: "Excited Face 1," "Excited Face 4," "Eating 2," "Happy Face 2").

Since our question did not refer to assigning specific categories but only to rating the expression on a 1–10 scale, a repeated-measures ANOVA was conducted to verify differences in ratings between the emotional categories created from the results. For the analysis, we created three factors representing the average expression rating scores from the four faces comprising each factor. The within-subjects factor was the created emotion label with three levels (sad, neutral, and happy), while the repeated dependent variable was the rating score on a continuous scale for each factor.

Mauchley's test of sphericity confirmed that the assumption of sphericity was met. The ANOVA results indicated statistically significant differences between the mean ratings of the created categories, $F(2, 398) = 275.76$, $p < .001$, partial $\eta^2 = .58$. The Bonferroni-corrected post hoc simple contrast tests showed that the ratings for the intended emotion label significantly differed from the ratings for all other emo-

tion labels (*p*s < .001). In other words, the face types were rated as having the highest degree of their intended expression of emotion on the continuous scale, significantly different from the ratings given for other emotion labels in the photographs.

To assess test-retest reliability, a random 20% subset of participants (retention = 39 individuals completed the second wave) from the original sample were approached four weeks later and asked to rate the photographs from the stimulus set a second time. Again, participants were asked to rate the strength of each emotion type on the same scale. The correlations between the original mean ratings of the intended emotion and the retest mean ratings were $r = .81$, $p < .001$ for sad, $r = .83$, $p < .001$ for neutral, and $r = .80$, $p < .001$ for happy, suggesting good test-retest reliability.

Main Study

The mean level of trait forgiveness was 3.01 (*SD* = 0.59), and the mean level of compassion for others was 1.96 (*SD* = 0.99). The correlation between these variables was low ($r = .22$, $p < .001$). Sociodemographic variables were not significantly correlated with either trait forgiveness or compassion for others. Estimated marginal means of attentional orientation and willingness to immediately forgive are reported in subsequent sections aligned with the targeted analyses. Mauchly's test confirmed sphericity in repeated-measures ANCOVAs for all variables assessed at more than two levels.

WILLINGNESS TO IMMEDIATELY FORGIVE

A repeated measures 3 × 2 MANCOVA was conducted to examine the effects of the type of exposed face (happy, neutral, sad) and manipulation (neutral [no stress] condition vs. stress-induced condition) on willingness to immediately forgive, while controlling for trait forgiveness, compassion for others, age, gender, marital status, education, income, race/ethnicity, and religious affiliation. The results revealed statistically significant main effects for type of face, $F(2, 472) = 14.11$, $p < .001$, partial $\eta^2 = .06$, and manipulation, $F(1, 236) = 14.96$, $p < .001$, partial $\eta^2 = .06$. Additionally, there was a statistically significant interaction effect between type of face and manipulation, $F(2, 472) = 3.77$, $p = .024$, partial $\eta^2 = .02$ (see Figure 1). Among the potential covariates, only trait forgiveness, $F(1, 236) = 106.05$, $p < .001$, partial $\eta^2 = .31$, and compassion for others, $F(1, 236) = 23.25$, $p < .001$, partial $\eta^2 = .09$, had significant main effects. Higher levels of these variables were associated with an increased willingness to immediately forgive. No other main effects or interactions were significant.

Post hoc comparisons using the Bonferroni correction revealed statistically significant differences in willingness to immediately forgive across different conditions. In both the neutral and stress-induced conditions, exposure to happy faces resulted in a lower willingness to forgive compared to neutral and sad faces (*p*s < .001). Similarly, exposure to neutral faces led to a lower willingness to forgive compared to sad faces (*p*s < .001). Additionally, we observed a statistically significant increase in willingness to forgive after stress-induced conditions compared to before, but only after exposure to happy faces ($p < .001$). The estimated marginal means in the ANCOVA are presented in Table 2 and Figure 1, while detailed post hoc test statistics, including all tested effects, are provided in Table A1 in the Supplementary Material.

ATTENTIONAL ORIENTATION

A repeated-measures 3 × 2 MANCOVA was conducted to investigate the effects of the type of exposed face (happy, neutral, sad) and manipulation (neutral [no stress] condition vs. stress-induced condition) on attentional orientation, while controlling for trait forgiveness, compassion for others, age, gender, marital status, education, income, race/ethnicity, and religious affiliation. The analysis revealed statistically significant interaction effects between type of face and trait forgiveness, $F(2, 462) = 3.72$, $p = .025$, partial $\eta^2 = .02$; between manipulation and trait forgiveness, $F(1, 231) = 4.09$, $p = .044$, partial $\eta^2 = .02$; and among type of face, manipulation, and trait forgiveness, $F(2, 462) = 4.28$, $p = .014$, partial $\eta^2 = .02$. No other effects were significant. Since statistically significant interaction effects were found with the covariate (trait forgiveness), which was measured on a continuous scale. The variable was transformed into a nominal scale for further comparisons to clarify these interactions. The results were divided at the median (Mdn = 3) into two subsets: individuals with low trait forgiveness and individuals with high trait forgiveness.

Post hoc comparisons with the Bonferroni correction showed statistically significant variations in attentional orientation across the various conditions. In the neutral condition, individuals with both low and high trait forgiveness exposed to happy faces showed higher attentional orientation compared to those exposed to neutral (*p*s < .001) and sad faces (*p*s < .001). In the stress-induced condition, individuals with high trait forgiveness exhibited higher attentional orientation to happy faces than neutral and sad faces (*p*s < .001). For individuals with low

TABLE 2.
Estimated Marginal Means of Willingness to Immediately Forgive for Happy, Neutral, and Sad Faces Across Neutral and Stress-Induced Conditions (*N* = 246)

Manipulation	Type of Face	*M*	*SE*	95% CI	
				Lower	Upper
Neutral condition	Happy	1.58	0.03	1.51	1.65
	Neutral	5.01	0.12	4.78	5.24
	Sad	5.51	0.13	5.25	5.77
Stress-induced condition	Happy	4.78	0.12	4.54	5.03
	Neutral	5.39	0.15	5.10	5.68
	Sad	5.92	0.13	5.66	6.18

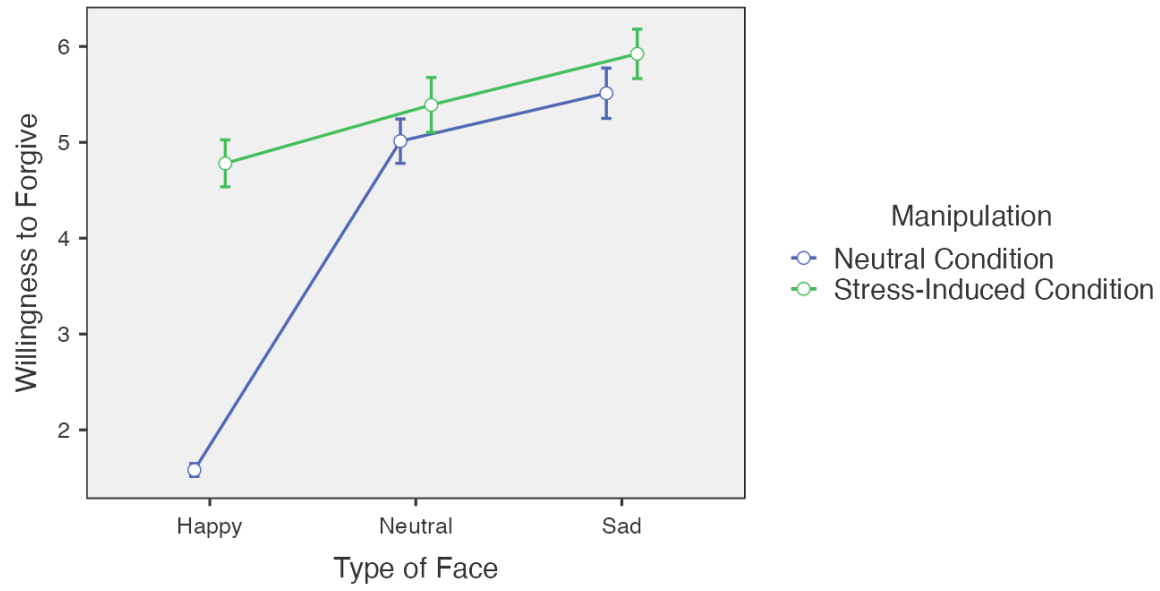

FIGURE 1.
Interaction of type of face and stress-induction on willingness to immediately forgive ($N = 246$).

trait forgiveness, exposure to sad faces after the manipulation resulted in higher attentional orientation than neutral and happy faces (*ps* < .001). Additionally, after the manipulation, neutral faces led to lower attentional orientation than sad faces in low trait forgiveness individuals ($p < .05$). Table 3 and Figure 2 display the estimated marginal means from the ANCOVA, whereas Table A2 in the Supplemenetary Material contains the detailed post hoc test statistics.

DISCUSSION

The current study provided initial insights into the interplay between facial emotional expressions and the willingness to forgive, illuminating the complex psychological mechanisms involved in forgiveness. The findings underscore the significance of nonverbal emotional cues, particularly facial expressions, in shaping forgiveness responses. Since previous studies primarily focused on the OASIS set for valence and arousal, we selected images specifically associated with happy, neutral, and sad expressions in the validation study. This rigorous selection process ensured that the images in the main study accurately represented the intended emotions, enhancing the reliability of our findings. This methodological approach not only strengthened the validity of the current study but also provides a valuable resource for ongoing and future research in emotional and social psychology related to facial expressions, particularly utilizing the images set in open access.

TABLE 3.
Estimated Marginal Means of Attentional Orientation for Happy, Neutral, and Sad Faces Across Neutral and Stress-Induced Conditions and Low and High Trait Forgiveness ($N = 246$)

Manipulation	Trait forgiveness	Type of face	*M**	*SE*	95% CI	
					Lower	Upper
Neutral condition	Low	Happy	26.31	2.44	21.52	31.12
		Neutral	13.32	0.92	11.46	15.11
		Sad	10.71	0.72	9.33	12.23
	High	Happy	29.31	2.31	24.72	33.82
		Neutral	13.92	0.87	12.17	15.61
		Sad	10.13	0.68	8.75	11.42
Stress-induced condition	Low	Happy	17.23	1.45	14.38	20.1
		Neutral	10.44	0.79	8.87	12
		Sad	28.91	5.07	18.9	38.93
	High	Happy	17.4	1.38	14.65	20.12
		Neutral	10.32	0.75	8.84	11.84
		Sad	12.91	4.80	3.48	22.41

Note. *time in s.

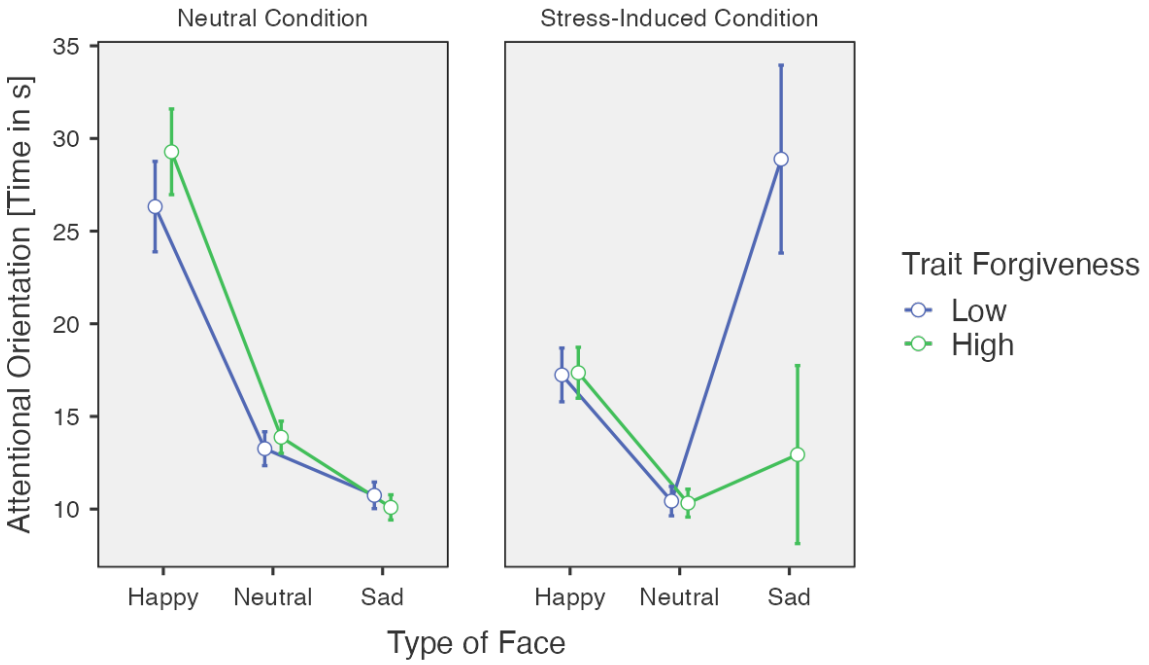

FIGURE 2.
Interaction of type of face, stress-induction, and trait forgiveness on attentional orientation ($N = 246$).

The main study revealed that sad facial expressions significantly increased participants' willingness to forgive compared to neutral or happy expressions, with neutral expressions more likely to elicit forgiveness than happy ones. This finding aligns with the empathy-altruism hypothesis, which posits that empathic concern for others' emotional states drives altruistic behaviors like forgiveness (Batson, 2022). Sad expressions may evoke empathy and compassion, thereby facilitating forgiveness as an altruistic act. The results support earlier findings that individuals displaying sadness or suffering faces elicit compassionate and empathetic responses, leading to increased tendencies to offer help or show leniency (Hareli & Hess, 2010; Scarantino et al., 2022; Stellar et al., 2020).

Conversely, people may be less inclined to forgive happy individuals because smiles can sometimes be perceived as aversive or as signals of social dominance, eliciting feelings of submissiveness and inferiority (Duijndam et al., 2020; Heuer et al., 2007; Schultheiss & Hale, 2007). Negative facial expressions, such as those conveying shame and guilt, can remind individuals of human frailty, motivating them to seek reconciliation and pardon to mitigate these feelings and restore moral wholeness. This perspective aligns with Giner-Sorolla et al. (2010), who found that displaying shame reduced perceived insult in a community sample affected by a real-world injustice. Similarly, Riek (2010, 2014) demonstrated the role of negative emotions in motivating the desire for forgiveness in intimate relationships.

Furthermore, sad facial expressions, especially those associated with guilt and shame rather than hostility, may be perceived as making forgiveness morally appropriate. This view is supported by philosophical perspectives on forgiveness, which emphasize that it is not only inherently virtuous but also a situational human action. These perspectives suggest that individuals' experiences of forgiveness are influenced by perceived moral appropriateness and the presence of amends or apologies (Carpenter et al., 2014; Ingersoll-Dayton & Krause, 2005). Undoubtedly, in the Western cultural context, smiles are not typically associated with such behaviors.

Given that increased prosocial behavior has been evidenced under stress (Tomova et al., 2017), we assumed that exposure to different facial expressions would heighten the willingness to forgive after stress induction. However, contrary to our expectations, post-manipulation results for neutral and negative faces remained like those observed before the manipulation. The statistically significant change was observed only for positive faces, where individuals were more inclined to forgive upon seeing happy faces after stress induction, though still significantly less than for neutral and sad faces. One possible explanation for this single significant effect is the concept of stress contagion, which refers to the spillover of stress from a stressed individual to an unstressed (happy) observer, influencing their affective response (Nitschke & Bartz, 2023). In this context, the displayed happy person will be perceived as feeling stress similar to what the participant feels and might become more aligned with forgiveness, akin to neutral and sad faces.

Alternatively, this finding can be explained by the stress and coping model of forgiveness, which posits that stress can alter how individuals process emotional stimuli and make decisions (Strelan, 2020; Worthington & Scherer, 2007). According to this model, under stress, people might focus more on internal coping strategies, such as emotion regulation and the need for emotional support, which could explain

their increased willingness to forgive individuals displaying positive emotions to relieve their stress.

One possible explanation for the lack of change in response to neutral and negative faces is that these expressions might be more straightforward and easier to interpret in the context of forgiveness. Neutral faces might be perceived as less threatening and more impartial, which could explain their stable influence on the willingness to forgive, regardless of stress levels. Similarly, negative faces (e.g., sad) naturally evoke empathetic responses and the need to help, which might be less dependent on the stress condition (Scarantino et al., 2022; Stellar et al., 2020).

Another factor is that positive facial expressions, such as smiles, might gain significance in stressful situations as social signals indicating the availability of trust, support, and safety, which could explain the increased willingness to forgive after stress induction (Dong et al., 2014). In high-stress situations, people might value positive social interactions more and be more open to forgiveness to relieve their own stress and improve emotional well-being, a dynamic not necessarily applicable to other facial expressions.

Our results after a stress induction indicate that attentional orientation towards emotional expressions varied depending on the individual's trait forgiveness and the type of emotional expression. Participants with higher trait forgiveness preferred happy faces, while those with lower trait forgiveness were more attentive to sad faces. Before the stress induction, all participants were most attentive to happy faces, which aligns with the general tendency to favor positive faces in neutral situations (Agustí et al., 2017).

Although we hypothesized that greater interference from sad faces in individuals with low trait forgiveness would also be observed before the stress induction, significant attentional biases are primarily seen in clinical populations dealing with psychopathology or social anxiety (Amir et al., 2009; Maratos, 2011). These biases typically do not emerge unless mood or stress induction techniques are applied (Dewitte & De Houwer, 2008; Schwager & Rothermund, 2013). This might explain why, contrary to our expectations, individuals with low trait forgiveness, who may exhibit similar emotional tendencies, showed a preference for sad faces only after the stress induction.

Our finding is consistent with the emotion-congruency perspective of attentional bias, which suggests that individuals' state or trait characteristics predispose them to focus on information congruent with their emotional state or traits (McEwan et al., 2014). In this case, individuals with lower trait forgiveness, who are generally less happy and have lower well-being and health, tend to prefer sad faces (Ingersoll-Dayton et al., 2010; Stackhouse et al., 2016). Conversely, individuals with higher trait forgiveness are often described in the literature as being in good health, resilient amidst adversities, and possessing greater coping resources (Skalski-Bednarz et al., 2024), which help them maintain attentional orientation towards positive faces even under stress.

Additionally, the results from both manipulation conditions for individuals with low forgiveness can be understood through the lens of fearfully attached individuals, who generally exhibit a low disposition toward forgiveness (Berry et al., 2005; Kaleta & Mróz, 2022). These individuals tend to avoid intimacy and shy away from emotional information due to fears that a positive response to an act of forgiveness may not occur from the transgressor, and that negative information may be overwhelming (Dewitte & De Houwer, 2008). This tendency is particularly significant when an individual perceives insufficient resources to cope with a stressor. Before stress induction, participants preferred happy faces, likely seeking positive social cues. However, their preference for sad faces over happy ones after stress induction could be seen as an effort to avoid the potential pain of disappointment and rejection associated with positive social cues.

Moreover, after the stress induction, there was a change in attentional focus regardless of the level of trait forgiveness, with participants with low trait forgiveness looking away from neutral faces, which they previously focused on more before the stress induction. This could be because neutral faces do not provide clear information and, in a potentially threatening situation, may not help interpret the context effectively (Hess & Thibault, 2009). This shift in focus suggests that individuals with dispositional limitations to forgiveness might prioritize emotionally salient cues over ambiguous ones under stress.

These outcomes extend existing research on the role of cognitive control in forgiveness (M. J. Maier et al., 2018) by proposing the interconnected nature of cognition and forgiveness and emphasizing the role of trait forgiveness in shaping attentional orientation. Our study suggests that trait forgiveness not only influences emotional responses, such as episodic (state) forgiveness but also affects where individuals direct their attention, particularly under stress. Considering that both dispositional traits and situational factors in the study of forgiveness and attentional processes are essential, this study paves the way for future research in this area.

In line with our expectations, we observed a positive influence of trait forgiveness and dispositional compassion for others on the willingness to forgive immediately. This finding aligns with the consensus that trait forgiveness moderately predicts state forgiveness (Koutsos et al., 2008; Stackhouse, 2019). The moderate size of this effect has led to an increased focus on state forgiveness in recent research, highlighting its relevance in specific offenses and situational dynamics (Skalski-Bednarz & Toussaint, 2024). Furthermore, compassion, defined as an emotional response to another's suffering coupled with a desire to alleviate it, significantly impacts social interactions (Quaglia et al., 2021). Therefore, fostering compassion could be an effective approach to promoting forgiveness and enhancing social harmony.

Limitations

Despite the valuable insights gained from this study, several limitations should be acknowledged. First, the sample population may not fully represent cultures outside the United States. While Ekman's (1992) research suggests cultural universals in facial expressions, cultural differences can still influence the relationship between emotional expression and forgiveness processes. While the study did provide valuable insights into American participants' responses, cultural differences can significantly influence emotional expression and forgiveness processes. Future research should aim to include more diverse cultural

samples to ensure the generalizability of the findings across different cultural contexts.

Also, our stress induction procedure relied on visual stimuli from the OASIS database, which, although validated, might not elicit uniform stress responses across all participants. Physiological measures such as heart rate or cortisol levels were not monitored, which could have provided more objective data on participants' stress responses. Including these measures in future studies could enhance the reliability of stress induction and offer deeper insights into the physiological correlates of stress and forgiveness.

The facial expressions used in the study were selected and validated through a pilot study. However, emotional expressions are complex and context-dependent, and the static images used may not have fully captured the dynamic nature of real-life emotional interactions. The faces were presented in various scenes, such as standing with an apple on the street or sitting in an apartment. These distractors could have influenced participants' attention and impacted their willingness to forgive. Nevertheless, we chose these stimuli because real-life forgiveness occurs in such complex visual environments.

Additionally, we focused on basic emotions like sadness and happiness. More complex images involving a broader repertoire of nuanced, infrahumanized emotions (e.g., empathy, hope, shame, anger, joy, fear) as well as different types of smiles could provide more detailed results. Furthermore, our interpretation suggests that negative faces may be associated with shame and regret, which could facilitate forgiveness. This is a preliminary suggestion based on previous research. Future studies could aim to portray shame and regret on faces or control these as variables (e.g., rate the level of shame and regret on the presented face). Moreover, it is essential to consider that nonverbal communication extends beyond facial expressions to include body language. Therefore, future studies could also explore this aspect to provide a more comprehensive understanding of emotional expressions in the context of forgiveness.

Finally, our assessment of attentional orientation was based on response times, which may not fully capture the automatic and unconscious aspects of attentional bias. Eye-tracking technology could offer more precise measurements of attentional focus and shifts. By monitoring participants' gaze patterns, researchers could better understand the real-time processing of emotional stimuli and how it relates to forgiveness. While eye-tracking could enhance measurement precision, it is worth noting that response time measures, as used in this study, are a commonly used approach in attentional research (e.g., McEwan et al., 2014). Nevertheless, future studies should consider incorporating eye-tracking methods to obtain a more comprehensive view of attentional biases.

Overall, by addressing these limitations in future research, the field might gain a more nuanced and comprehensive understanding of the interplay between emotional expressions, forgiveness, and compassion. This will help to enhance the ecological validity of findings and provide deeper insights into the psychological mechanisms underlying forgiveness.

Practical Implications

The current study's results suggest that recognizing and addressing emotional expressions can facilitate forgiveness and reconciliation, offering practical implications for conflict resolution strategies. For instance, training programs for mediators, counselors, and restorative justice practitioners could incorporate modules on interpreting and responding to emotional cues, enhancing their effectiveness in resolving interpersonal and intergroup conflicts (Nadler & Liviatan, 2006). In therapeutic settings, this aligns with the REACH Forgiveness model (Worthington, 2019), which emphasizes empathy and emotional attunement as core mechanisms for promoting forgiveness. Helping clients become more attuned to their own and others' emotional cues can foster empathic concern, reduce defensive responses, and promote emotional regulation, ultimately increasing willingness to forgive and repair relationships. This approach could be particularly beneficial in high-stress environments, such as workplaces, healthcare, or crisis intervention—where the ability to read and respond to emotional expressions accurately can mitigate misunderstandings and reduce interpersonal tension. Moreover, these results underscore the value of integrating emotional intelligence training into educational curricula (Brackett et al., 2011), equipping individuals with the skills needed to navigate social interactions more constructively. Developing the capacity to decode nonverbal emotional signals could promote prosocial behavior, enhance relational harmony, and contribute to a more forgiving and cooperative social climate.

CONCLUSION

This study contributes to the understanding of how facial emotional expressions impact forgiveness. It demonstrated that sad expressions can significantly increase the willingness to forgive immediately compared to neutral or happy expressions. This supports the empathy-altruism hypothesis, which posits that empathic concern for others' emotional states drives altruistic behaviors like forgiveness. The study also found that trait forgiveness and compassion can positively influence the willingness to forgive, highlighting the interplay between dispositional traits and situational factors in shaping forgiveness responses. Additionally, our results indicate that attentional orientation towards emotional expressions varies depending on the individual's trait forgiveness, the type of emotional expression, and stress exposure. Individuals with higher trait forgiveness preferred happy faces, while those with lower trait forgiveness were more attentive to sad faces, but only after the stress induction.

Again, our validation study conducted before the main study ensured the emotional accuracy of the images used, providing a valuable resource for future studies examining sad and happy expressions. This methodological approach strengthens the validity of the current study and can be utilized in future research in the field of emotional and social psychology.

Overall, our findings have practical implications for conflict resolution strategies, suggesting that recognizing and addressing emotional

expressions can facilitate forgiveness and reconciliation. Despite these insights, the study had several limitations, including the cultural representation of the sample and the complexity of real-life emotional interactions. Future research should address these limitations by incorporating more diverse samples, using advanced measurement techniques like eye-tracking, and employing more diverse stimuli to further understand the psychological mechanisms underlying forgiveness.

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the Ethics Committee of the University of Economics and Human Sciences in Warsaw.

Informed consent was obtained from all individual participants included in the study.

DATA AVAILABILITY

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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SUPPLEMENTARY MATERIAL

TABLE A1.
Post Hoc Comparisons for Significant Interaction of Factors: Type of Face and Manipulation on Willingness to Immediately Forgive in ANCOVA ($N = 246$).

Type of face	Manipulation	Type of face	Manipulation	Mean difference	*SE*	*t*
Happy	Neutral condition	Happy	Stress-induced condition	−3.20	0.12	−26.14***
		Neutral	Neutral condition	−3.43	0.11	−31.19***
		Neutral	Stress-induced condition	−3.81	0.14	−27.63***
		Sad	Neutral condition	−3.93	0.13	−29.81***
		Sad	Stress-induced condition	−4.34	0.13	−33.8***
	Stress-induced condition	Neutral	Neutral condition	−0.23	0.11	−2.15***
		Neutral	Stress-induced condition	−0.61	0.13	−4.86***
		Sad	Neutral condition	−0.73	0.15	−4.94***
		Sad	Stress-induced condition	−1.14	0.13	−8.62***
Neutral	Neutral condition	Neutral	Stress-induced condition	−0.38	0.13	−2.96
		Sad	Neutral condition	−0.5	0.12	−4.2***
		Sad	Stress-induced condition	−0.91	0.13	−7.13***
	Stress-induced condition	Sad	Neutral condition	−0.12	0.18	−0.69
		Sad	Stress-induced condition	−0.53	0.14	−3.81**
Sad	Neutral condition	Sad	Stress-Induced Condition	−0.41	0.15	−2.77

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

TABLE A2.
Post Hoc Comparisons for Significant Interaction of Factors: Manipulation, Type of Face, and Trait Forgiveness on Attentional Orientation in ANCOVA ($N = 246$)

Manipulation	Type of face	Trait forgiveness	Manipulation	Type of face	Trait forgiveness	Mean difference	*SE*	*t*
Neutral condition	Happy	Low	Happy	Happy	High	−2.96	3.52	−0.84
			Neutral	Neutral	Low	13.07	2.50	5.22***
			Neutral	Neutral	High	12.45	2.60	4.79***
			Sad	Sad	Low	15.58	2.37	6.59***
			Sad	Sad	High	16.23	2.55	6.37***
			Happy	Happy	Low	9.08	2.62	3.46*
			Happy	Happy	High	8.97	2.82	3.18
			Neutral	Neutral	Low	15.89	2.51	6.34***
			Neutral	Neutral	High	16	2.56	6.25***
			Sad	Sad	Low	−2.56	5.64	−0.45
			Sad	Sad	High	13.38	5.39	2.48
		High	Neutral	Neutral	Low	16.02	2.50	6.42***
			Neutral	Neutral	High	15.4	2.37	6.49***
			Sad	Sad	Low	18.54	2.44	7.6***
			Sad	Sad	High	19.19	2.24	8.56***
			Happy	Happy	Low	12.04	2.75	4.38***
			Happy	Happy	High	11.92	2.49	4.8***
			Neutral	Neutral	Low	18.85	2.45	7.69***
			Neutral	Neutral	High	18.96	2.38	7.97***
			Sad	Sad	Low	0.40	5.57	0.07
			Sad	Sad	High	16.34	5.35	3.06
	Neutral	Low	Neutral	Neutral	High	−0.62	1.32	−0.47
			Sad	Sad	Low	2.52	0.89	2.83
			Sad	Sad	High	3.17	1.16	2.72
			Happy	Happy	Low	−3.98	1.39	−2.86
			Happy	Happy	High	−4.1	1.68	−2.44
			Neutral	Neutral	Low	2.83	0.98	2.87
			Neutral	Neutral	High	2.94	1.20	2.44

			Sad	Sad	Low	−15.63	4.98	−3.14
			Sad	Sad	High	0.32	4.91	0.06
		High	Sad	Sad	Low	3.14	1.15	2.73
			Sad	Sad	High	3.79	0.84	4.49***
			Happy	Happy	Low	−3.36	1.72	−1.96
			Happy	Happy	High	−3.48	1.32	−2.64
			Neutral	Neutral	Low	3.45	1.20	2.88
			Neutral	Neutral	High	3.56	0.93	3.81**
			Sad	Sad	Low	−15.01	5.16	−2.91
			Sad	Sad	High	0.94	4.72	0.2
	Sad	Low	Sad	Sad	High	0.65	1.04	0.63
			Happy	Happy	Low	−6.5	1.29	−5.04***
			Happy	Happy	High	−6.62	1.58	−4.19**
			Neutral	Neutral	Low	0.31	0.91	0.34
			Neutral	Neutral	High	0.42	1.05	0.4
			Sad	Sad	Low	−18.14	5.05	−3.59**
			Sad	Sad	High	−2.2	4.86	−0.45
		High	Happy	Happy	Low	−7.15	1.63	−4.39***
			Happy	Happy	High	−7.27	1.22	−5.95***
			Neutral	Neutral	Low	−0.34	1.06	−0.32
			Neutral	Neutral	High	−0.23	0.87	−0.27
			Sad	Sad	Low	−18.79	5.12	−3.67*
			Sad	Sad	High	-2.85	4.79	−0.6
Stress-induced condition	Happy	Low	Happy	Happy	High	−0.12	2.10	−0.06
			Neutral	Neutral	Low	6.81	1.29	5.28***
			Neutral	Neutral	High	6.92	1.67	4.15**
			Sad	Sad	Low	−11.65	5.20	−2.24
			Sad	Sad	High	4.30	5.03	0.86
		High	Neutral	Neutral	Low	6.93	1.62	4.28**
			Neutral	Neutral	High	7.03	1.22	5.75***
			Sad	Sad	Low	−11.53	5.26	−2.19
			Sad	Sad	High	4.42	4.93	0.90
	Neutral	Low	Neutral	Neutral	High	0.11	1.15	0.09
			Sad	Sad	Low	−18.45	4.89	−3.78*
			Sad	Sad	High	−2.51	4.89	−0.51
		High	Sad	Sad	Low	−18.56	5.15	−3.61*
			Sad	Sad	High	−2.62	4.63	−0.57
	Sad	Low	Sad	Sad	High	15.94	7.32	3.41*

*$p < .05$, **$p < .01$, ***$p < .001$