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Walk the Talk: The Effects of Apology and Reparation After Acts of Prejudice

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ABSTRACT

In an era of abundant high-profile apologies, many of which are perceived to be cheap and insincere, it is crucial to understand what constitutes a meaningful response from a high-status perpetrator. Across three studies using a 2 (apology: present, absent) × 2 (reparation: present, absent) within-subjects design, we presented participants ($N_{total} = 300$) with 16 vignettes describing prejudicial harm and assessed the unique effects of apology and reparation on perceptions of the perpetrators' subsequent responses. We additionally examined whether apology and reparation operate via a cognitive mechanism (reevaluation of the harm itself) or via a relational mechanism (identification with the perpetrator). As predicted, the presence of an apology and of reparation each independently predicted more positive perceptions of the perpetrator's response. Reparation exerted a stronger effect than apology on ratings of response quality (Study 1) and on ratings of the response's impact (Studies 2 and 3); in some cases, if reparation was present, apology did not add value. Our findings suggest that, while apology operates primarily via a relational mechanism, reparation operates via both cognitive and relational mechanisms. Additionally, responses were perceived more favorably overall in the context of close relationships (Study 3), which contributes to existing evidence that relational closeness buffers against negative attributions about the perpetrator and their motives. We suggest that while apology and reparation are each key to an effective response, reparation plays a particularly important role in predicting positive reception to a response to prejudicial harm.

Following high-profile acts of prejudice, apologies from celebrities, politicians, and business leaders are commonplace, appearing daily in national media and social network feeds. Public apologies have been on the rise since the turn of the 21st century (Okimoto et al. 2015). In fact, scholars have suggested that the proliferation of public expressions of remorse in the early 2000s marked the start of an "age of apology" which continues into the present (Quinn 2008; Zoodsma and Schaafsma 2022).

At first glance, an age of apology sounds like a positive development. After all, apologies are critical strategies for relational repair, with benefits such as restoration of trust (DiFonzo et al. 2020; Reinders Folmer et al. 2021), willingness to reconcile (Tomlinson et al. 2004), and forgiveness (Yucel and Vaish 2021; Fehr et al. 2010; McCullough et al. 2014; Ohbuchi and Sato 1994; though see individual differences and exceptions: Ashy et al. 2010; Struthers et al. 2008). These effects are early-emerging: apology promotes forgiveness in children as young as age four to five years old (Amir et al. 2021; Oostenbroek and Vaish 2019; Vaish et al. 2011; Yucel and Vaish 2021), and the development of theory of mind predicts children's forgiveness of transgressors who apologize (Mulvey et al. 2022) as children

gradually learn to infer remorse from apology (Denham et al. 2005; Smith et al. 2010). The robust effects of apologies on positive relational outcomes are evident not only in measures of attitudes and behavioral intentions (DiFonzo et al. 2020; McElroy et al. 2023) but also in physiological paradigms (Ohtsubo et al. 2018) and resource allocation tasks (Jeter and Brannon 2017). Underscoring the value of apology, some argue that formally incorporating apologies into the justice system would reduce recidivism and promote better outcomes for offenders and victims alike (Petrucci 2002).

However, high-profile apologies are often discounted and not applauded. Rather than inflate the value of apology, a cultural context in which apologies are commonplace can weaken each apology's perceived value (Okimoto et al. 2015) and thus threaten its very function as a symbolic gesture of repair. Indeed, participants primed with an "age of apology" norm highlighting the recent profusion of high-profile apologies were both more likely to expect an apology and less likely to find it satisfying (Okimoto et al. 2015). Sensitivity to normative dilution may begin in childhood: six- to seven-year-olds were more likely to accept an apology from a robot than from a human, perhaps because human apologies were perceived to reflect conformity to social norms rather than genuine signals (Flanagan et al. 2024). Such discounting is also evident in the context of real social issues: in the wake of the #MeToo movement, while the perceived quality of apologies for sexual misconduct varied, even the highest quality apologies received slightly negative ratings (Schumann and Dragotta 2020).

Additionally, those who apologize are subject to public scrutiny of their motives. Virtuous behavior, broadly, can prompt others' admiration, and thus confer social status (Bai 2017). Accordingly, those who behave in virtuous ways may face accusations that they are motivated by status or reputation (i.e., "virtue signaling," Kraft-Todd et al. 2023). Apologizing, as a prominent image repair and public relations strategy (Benoit 1995, 1997, 2014; Sandlin and Gracyalny 2018, 2020), is particularly susceptible to accusations of selfish motives. High-status perpetrators are especially liable to suspicion: they are perceived to be more emotionally inauthentic (Kim et al. 2017) and ineffective in expressing remorse (Zheng et al. 2016), compared to low-status individuals who commit the same transgression. A puzzle thus emerges: how can one engage in repair without being judged as reputation-driven?

The aphorisms "actions speak louder than words" and "put your money where your mouth is" suggest one way to avoid accusations of ulterior motives: pair an expression of remorse with concrete reparation. In evolutionary terms, reparation acts as a costly signal, or an indication that one's altruism is genuine because it is exhibited at a personal cost (Gintis et al. 2001; Ohtsubo and Watanabe 2009). In support of a costly signaling model, apologies costly to the transgressor are perceived to be more sincere (Ohtsubo and Watanabe 2009; Ohtsubo et al. 2018). Preferred apology wording also points to concrete action: a response promising to "make it up" to the victim is more predictive of behavioral forgiveness than six other response types, such as "I feel bad" and "I was wrong" statements (Jeter and Brannon 2017). Conversely, non-costly apologies, operationalized as an apologetic message sent with an unfair offer in an economic game, can even backfire, prompting retaliation (Skarlicki et al. 2004). A preference for reparation emerges young: while apology alone was insufficient, six- to seven-year-olds felt better when a transgressor offered restitution after knocking over their block tower (Drell and Jaswal 2016), and children evaluated perpetrators whose responses included offers of repair more favorably (Wainryb et al. 2020), particularly when the harm was severe (Darby and Schlenker 1982). Together, these findings suggest that costly action may be key to determining whether apologies are perceived to be effective.

The present studies thus sought to answer the question of whether reparation is an effective strategy for high-status perpetrators who seek to make things right. We focus on acts of prejudice (e.g., racism, sexism, heterosexism) to address a gap in the literature. Previous work examining redress for group-based harm has analyzed apology *without* reparation delivered by both institutional actors (Perez et al. 2021; Augoustinos et al. 2011; Blatz et al. 2009; Borneman 2005; Thompson 2012; Páez 2010) and high-status individuals (Cerulo and Ruane 2014; Hu et al. 2019; Kampf 2008; Nunn and Biressi 2010; Sandlin and Gracyalny 2018, 2020). Additionally, prior work has examined the effect of concrete restitution in domains such as contract breach (DiFonzo et al. 2020), unfair resource allocation (Desmet et al. 2011; Carlisle et al. 2012; Haesevoets et al. 2013, 2015, 2018), service failure (Roschk and Kaiser 2013; Wei et al. 2020) and property damage (Witvliet et al. 2020a, 2020b). Still more work has examined individual- and group-level support for financial reparations on a broad scale (Hakim et al. 2021), such as for descendants of enslaved people in the United States (Reichelmann and Hunt 2021; Rhodes et al. 2024; Kraus and Vinluan 2023) and Indigenous peoples in Canada (Starzyk et al. 2019). Yet no literature to our knowledge has bridged these areas to measure the effects of concrete acts of reparation on individual high-status perpetrators' apologies for acts of prejudice.

Across a range of prejudice domains (e.g., racism, sexism, heterosexism), we hypothesized that the presence of an apology and the presence of reparation would each predict more favorable perceptions of the response. We were additionally interested in the mechanism by which apology and reparation might predict successful repair following a transgression. Is it a process of cognitive reappraisal, such that apology and reparation prompt re-evaluation of the harm itself? Or, rather, is it a process of interpersonal identification, such that apology and reparation prompt greater felt affinity with the perpetrator?

Prior literature offers competing evidence. In support of the cognitive reappraisal hypothesis, perceptual validation, or verification that one has correctly interpreted the harm, mediates the association between a perpetrator's apology and a victim's forgiveness of the perpetrator (Eaton et al. 2006). In support of the interpersonal identification hypothesis, impressions of the perpetrator explain the association between a perpetrator's apology and the likelihood of outcomes such as forgiveness (Struthers et al. 2008) and retaliation (Ohbuchi et al. 1989). Of course, it may be that both cognitive reappraisal processes and interpersonal identification processes are simultaneously at play.

To address these questions about underlying mechanisms, we measured harm perception (a composite of "How **severe** do you think this harm was?" and "How **intentional** do you

think this harm was?") and perpetrator affinity (a composite of "I **like** the person responding to the harm" and "I feel **similar** to the person responding to the harm"). Exploratorily, we examined whether apology or reparation exerted a greater impact on each of our primary outcomes of interest (response quality, response intent/impact, harm perception, perpetrator affinity) and tested for interactive effects of apology and reparation on those outcomes of interest, to account for potentially complex patterns (i.e., that apology and reparation operate via different mechanisms).

In our third study, we extended the question of identification with a perpetrator by experimentally manipulating whether the perpetrator was a close friend or a stranger. Prior research examining the impact of relational closeness on repair following a breach indicates that friendship may be protective. For instance, victims are more likely to forgive and less likely to avoid the perpetrator or pursue revenge in the context of a close relationship (Lewis et al. 2015; McCullough et al. 1998; Tomlinson et al. 2004; Van der Wal et al. 2014), and relationship satisfaction mediates the association between apology and forgiveness (Schumann 2012). Children are also more motivated to forgive close others (Van der Wal et al. 2017; Peets et al. 2013). Other literature, however, suggests that harm in the context of friendship is a greater betrayal—but that apologies may also be more meaningful. Specifically, self-reported anger at a friend or partner who commits an offense is more intense than anger at a coworker who commits a similar offense (Eaton and Struthers 2006), and, while close others who take responsibility for their actions are perceived more positively, close others who do *not* take responsibility are perceived more negatively: a finding that holds across friends (vs. acquaintances) (Hodgins and Liebeskin 2003) and ingroup members (vs. outgroup members) (Vaish and Oostenbroek 2022). As such, the pattern by which relationship context, apology, and reparation interact is unclear. On the one hand, it may be that friendship is protective overall (main effect of relationship context), such that perceptions of the perpetrator and their response are more favorable in a close relationship. On the other hand, the presence of apology and/or reparation may be particularly important in a friendship (interactive effect of relationship context), such that close friends who apologize and/or offer reparation are perceived particularly favorably, while close friends who do not apology and/or offer reparation are perceived particularly unfavorably. Study 3 tests these competing hypotheses.

1 | Study 1

Our first study examined the independent and interactive effects of apology and reparation on evaluations of response quality, harm perception, and perpetrator affinity. We hypothesized that the presence of an apology and the presence of reparation would each predict more favorable evaluations of response quality. Given our competing hypotheses about cognitive reappraisal and interpersonal identification, we did not have directional predictions about harm perception and perpetrator affinity. Exploratorily, we examined interactions between apology and reparation and assessed whether apology or reparation had a larger effect on each outcome.

1.1 | Methods

1.1.1 | Participants

We recruited 100 participants from Prolific, an online behavioral research platform. No participants were excluded from analysis. Participants were paid $4.41 for completing a 33-min survey. All participants were from the United States and had a previous Prolific approval rate of 95% or higher. See Table 1 for demographics.

1.1.2 | Materials and Procedure

The present study used a 2 × 2 within-subjects design. We measured the effects of apology (present or absent) and of a concrete offer of reparation (present or absent) following an act of prejudice. Participants read 16 vignettes, with four in each condition (see Table 2).

All vignettes involved a high-status perpetrator (e.g., professional athlete, politician, CEO) apologizing to a lower-status person for saying or doing something discriminatory. Four vignettes each described harm related to race and gender, and two each described harm related to disability, socioeconomic class, sexual orientation, and nationality or culture. We intended for all harms to be moderately severe and excluded stimuli with very low or very high severity ratings in pilot data (see Supporting Information S1: Figure S1). See Table 3 for a sample vignette; see OSF for all vignettes. These studies were not preregistered; sample sizes were selected to align with pilot work (see Supporting Information S1), not determined via a priori power analyses.

Participants then answered 12 questions indicating their perception of the perpetrator's response. Response quality emerged as a composite of eight of those measures; see Table 4. The order of vignettes and of response quality questions was randomized. The condition in which each vignette appeared was quasi-randomized (i.e., vignettes were clustered into four groups and each cluster was presented in one of the four conditions in this 2 × 2 design; see OSF: https://osf.io/mpq7v/?view_only=879c0a29add3453c93a75dec799b65d).

1.1.3 | Analytic Strategy

Given our within-subjects design and the nested nature of vignettes within conditions, we conducted a series of linear mixed-effects models using the lme4 (Bates et al. 2015) and lmerTest (Kuznetsova et al. 2017) packages in R, with apology (present or absent) and reparation (present or absent) as fixed effects, and participant and vignette as random effects. We began by attempting to fit the maximal model (e.g., random slopes for apology and reparation within participant and within vignette, and random intercepts of participant and vignette; Barr et al. 2013). When necessary, we iteratively reduced the model until it converged and no longer had a singular fit (Matuschek et al. 2017; Bates et al. 2018). We

TABLE 1 | Participant demographics across studies 1, 2, and 3.

Age								
Study 1	$M = 38.3$, SD = 13.9							
Study 2	$M = 39.7$, SD = 14.3							
Study 3	$M = 39.3$, SD = 16.3							
Gender								
	Men	Women	Nonbinary or "other"	Undisclosed				
Study 1	47	47	4	2				
Study 2	48	50	1	1				
Study 3	45	50	3	2				
Race								
	White	Black	Hispanic or Latina/o/x/e	Asian	Native Hawaiian/ Pacific Islander	Indigenous American or Alaska Native	Multi-racial	Undisclosed
Study 1	67	12	5	5	1	0	9	1
Study 2	63	6	11	8	0	0	9	1
Study 3	70	12	6	3	0	1	4	4
Political affiliation								
	Republican	Democrat	Independent	Other/undisclosed				
Study 1	18	40	39	3				
Study 2	23	30	44	2				
Study 3	12	48	35	3				

TABLE 2 | Condition labels.

Condition	Condition label
Apology absent Reparation absent	(apology− | reparation−)
Apology absent Reparation present	(apology− | reparation+)
Apology present Reparation absent	(apology+ | reparation−)
Apology present Reparation present	(apology+ | reparation+)

report main effects from an additive model and interactive effects from an interaction model. When the main effects of both apology and reparation were significant, we compared unstandardized beta values in the additive model to compare the relative effects of apology and reparation on our outcomes of interest. We then conducted follow-up tests using the "emmeans" (Lenth 2024) and "effsize" (Torchiano 2020) packages in R to identify significant pairwise differences in condition means, using a Tukey correction to control for the family-wise error rate (FWER). Using a formula derived from the work of Judd et al. (2017), we report a general effect size d for each model; using a tool designed by the same authors (https://jakewestfall.shinyapps.io/two_factor_power/), we report a sensitivity analysis based on the interaction model of the first reported predictor.

1.2 | Results

All data and materials for this project are available at https://osf.io/mpq7v/?view_only=879c0a29add3453c93a75deec799b65d. We report main results from the response quality factor below; we report the results of our factor analysis (Supporting Information S1: Tables S2, S4) and additional results in the Supplementary Materials.

1.2.1 | Response Quality

1.2.1.1 | Main Effects and Interactions. In alignment with our hypotheses, responses were perceived to be higher quality when they included an apology, compared to when they did not ($b = 0.87$, $SE = 0.05$, $t = 16.11$, $p < 0.001$, $d = 0.65$), and when they included reparation, compared to when they did not ($b = 1.30$, $SE = 0.05$, $t = 24.12$, $p < 0.001$, $d = 0.97$). The unstandardized effect of reparation ($b = 1.30$) was larger than the unstandardized effect of apology ($b = 0.87$). Additionally, there was a significant interaction between apology and reparation ($b = -0.84$, $SE = 0.11$, $t = -7.96$, $p < 0.001$, $d = -0.63$) on response quality (see Figure 1; see Table 5 for condition means). A sensitivity analysis suggests that our model had 80% power to detect an interaction effect as small as $d = 0.085$.

1.2.1.2 | Comparing Conditions. Follow-up tests revealed all pairwise comparisons between conditions to be significant; see Table 6.

TABLE 3 | Sample vignette.

Sample vignette: musician			
A famous musician receives much backlash after it comes out that she significantly underpays the one technician of color on her staff compared to his White counterparts.			
⤮ within-subjects			
Apology- Reparation-	Apology– Reparation+	Apology+ Reparation-	Apology+ Reparation+
The musician spends the next month planning her upcoming tour across North America. She must decide which cities to visit and which songs to play at each of her shows.	To make things right, the musician decides she will give this technician a bonus to make up for lost wages, in addition to adjusting the technician's pay going forward and making sure there are no other racial pay discrepancies on her team.	The musician reaches out to the technician and says, "I am deeply sorry for underpaying you, which was both unfair and racist. I am fully responsible for the damage this has caused to your career and livelihood, when you have every right to be properly compensated for your valuable work."	The musician reaches out to the technician and says, "I am deeply sorry for underpaying you, which was both unfair and racist. I am fully responsible for the damage this has caused to your career and livelihood, when you have every right to be properly compensated for your valuable work. To make things right, I would like to give you a bonus to make up for lost wages, in addition to adjusting your pay going forward and making sure there are no other racial pay discrepancies on my team."

TABLE 4 | Outcome variables, study 1.

Name	Item	Scale anchors
Moral	Is this person's response **morally good** behavior?	0 = "definitely not" 6 = "definitely yes"
Genuine	Is this person's response a **genuine** sign of their remorse?	0 = "definitely not" 6 = "definitely yes"
Difference	Will this person's response **make a difference**?	0 = "definitely not" 6 = "definitely yes"
Sincere	Is this person's response **sincere**?	0 = "definitely not" 6 = "definitely yes"
Effective	Is this person's response **effective**?	0 = "definitely not" 6 = "definitely yes"
Forgive	Are you likely to **forgive** this person for the harm they did?	0 = "definitely not" 6 = "definitely yes"
Financial cost	How **materially (financially) costly** was it for this person to offer this response?	0 = "not at all" 6 = "very"
Emotional cost	How **psychologically (emotionally) costly** was it for this person to offer this response?	0 = "not at all" 6 = "very"

1.2.2 | Harm Perception

1.2.2.1 | Main Effects and Interactions. There was not a significant main effect of apology on harm perception ($b = -0.05$, $SE = 0.05$, $t = -0.92$, $p = 0.36$, $d = -0.03$). There was a significant main effect of reparation ($b = -0.16$, $SE = 0.05$, $t = -2.95$, $p = 0.003$, $d = -0.11$), such that participants found the harm to be less intentional and severe if the perpetrator offered a concrete act of reparation. The effect of reparation on post-manipulation measures of harm persisted when accounting for pre-manipulation measures of harm ($b = -0.10$, $SE = 0.04$, $t = -2.39$, $p = 0.017$, $d = -0.11$). There was not a significant interaction between apology and reparation on harm perception ($b = 0.07$, $SE = 0.11$, $t = 0.63$, $p = 0.53$, $d = 0.05$; see Figure 2; see Table 7 for condition means).

1.2.2.2 | Comparing Conditions.

Follow-up tests revealed a significant pairwise comparison only between the two extreme conditions: the harm was perceived to be more severe and intentional in the (apology− | reparation−) condition, relative to the (apology+ | reparation+) condition ($b = -0.21$, $SE = 0.08$, $t = -2.73$, $p = 0.033$, $d = -0.14$) (see Table 8).

1.2.3 | Perpetrator Affinity

1.2.3.1 | Main Effects and Interactions.

Participants felt greater affinity with perpetrators who offered an apology ($b = 0.29$, $SE = 0.05$, $t = 5.32$, $p < 0.001$, $d = 0.20$) than with those who did not. Participants felt more affinity for perpetrators who offered reparation ($b = 0.35$, $SE = 0.05$, $t = 6.32$, $p < 0.001$, $d = 0.24$) than with those who did not. The unstandardized effect of reparation ($b = 0.35$) was larger than the unstandardized effect of apology ($b = 0.29$). Additionally, there was a significant interaction between apology and reparation on perpetrator affinity ($b = -0.23$, $SE = 0.11$, $t = -2.14$, $p = 0.033$, $d = -0.13$) (see Figure 3; see Table 9 for condition means).

1.2.3.2 | Comparing Conditions.

Follow-up tests indicated that all pairwise comparisons between conditions were significant *except* the difference between the (apology+ | reparation−) condition and the (apology− | reparation+) condition (the two "middle" conditions), and the difference between the (apology− | reparation+) condition and the (apology+ | reparation +) condition; see Table 10.

1.3 | Discussion

Our first study found that participants perceived responses to be higher quality when the perpetrator offered an apology, and when

FIGURE 1 | Response Quality by Condition, Study 1. *Note:* Figure demonstrates perceptions of response quality as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

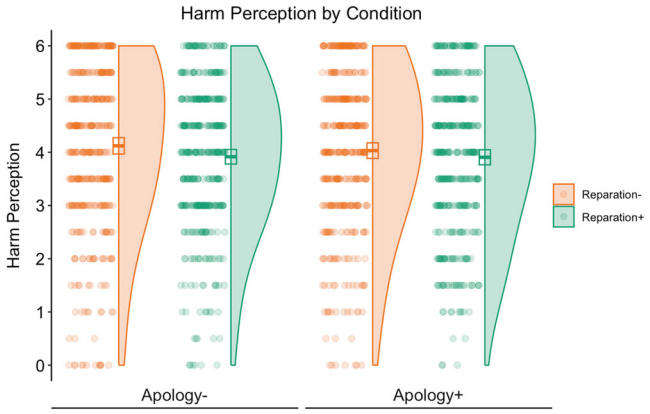

FIGURE 2 | Harm Perception by Condition, Study 1. *Note:* Figure demonstrates harm perception as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

TABLE 5 | Means of response quality by condition, study 1.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.9$	$M = 2.7$	$M = 2.2$	$M = 3.1$
SD = 1.2	SD = 1.4	SD = 1.3	SD = 1.4

TABLE 6 | Response quality: pairwise comparisons, study 1.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	−0.88	0.07	−11.80	< 0.001***	−0.67
A_NR - NA_NR	1.29	0.07	17.25	< 0.001***	0.97
A_NR - NA_R	−0.43	0.07	−5.77	< 0.001***	−0.33
A_R - NA_NR	2.18	0.07	29.10	< 0.001***	1.64
A_R - NA_R	0.45	0.07	6.03	< 0.001***	0.34
NA_NR - NA_R	−1.73	0.07	−23.04	< 0.001***	−1.30

***indicates $p < 0.001$.

TABLE 7 | Means of harm perception by condition, study 1.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 4.1$	$M = 3.9$	$M = 4.0$	$M = 3.9$
SD = 1.6	SD = 1.4	SD = 1.5	SD = 1.4

TABLE 8 | Harm perception: pairwise comparisons, study 1.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	0.13	0.08	1.64	0.36	0.09
A_NR - NA_NR	−0.08	0.08	−1.09	0.69	−0.06
A_NR - NA_R	0.11	0.08	1.44	0.48	0.07
A_R - NA_NR	−0.21	0.08	−2.73	0.033*	−0.14
A_R - NA_R	−0.02	0.08	−0.20	> 0.99	−0.01
NA_NR - NA_R	0.19	0.08	2.53	0.057	0.13

*indicates $p < 0.05$.

the perpetrator offered reparation. While follow-up tests found all condition differences to be significant, the effect of reparation on response quality was larger than the effect of apology. Only reparation predicted harm perception. Apology and reparation both predicted perpetrator affinity, with reparation exerting a larger effect. Specifically, if either apology *or* reparation was present, it did not matter which was offered, and if reparation was present, apology did not add additional value. Study 1 thus provided tentative evidence to suggest that reparation may promote reconciliation via two mechanisms—cognitive reappraisal (represented by harm perception) and interpersonal identification (represented by perpetrator affinity)—while apology may promote reconciliation solely via interpersonal identification.

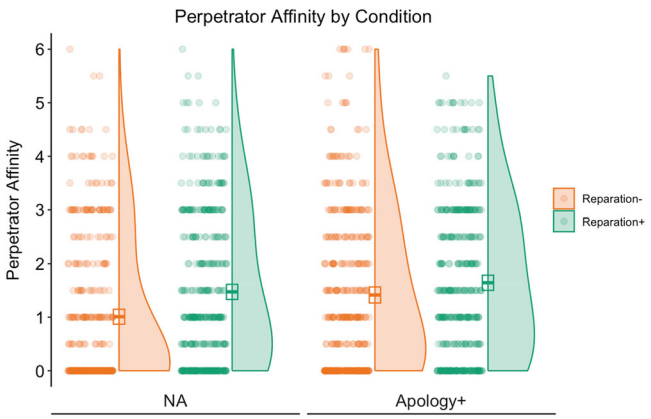

FIGURE 3 | Perpetrator Affinity by Condition, Study 1. *Note:* Figure demonstrates perpetrator affinity as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

2 | Study 2

Our second study sought to examine the respective effects of apology and reparation on perceptions of (a) perpetrators' intentions in issuing a response ("response intent") and (b) the impact of that response ("response impact"). While our first study found that reparation exerted a stronger influence than apology on response quality, perhaps our response quality measure was driven by considerations of the response's impact. We thus developed a separate measure to assess whether apology might exert a relatively stronger effect on response intent. We hypothesized that apology and reparation would each predict more favorable evaluations of response intent and response impact. Without directional predictions, we again assessed the impact of apology and reparation on harm perception and perpetrator affinity.

2.1 | Methods

2.1.1 | Participants

We recruited 100 participants from Prolific, using the same selection criteria as in Study 1; none were excluded from analysis. Participants were paid $5.81 to complete a 44-min survey. See Table 1 for demographics.

2.1.2 | Materials and Procedure

The procedure for Study 2 differed from Study 1 in minor wording changes, such as referencing the perpetrator's "response to the harm" rather than "apology." We also fine-tuned our measures to more precisely separate perceptions of response intent and response impact.

2.2 | Results

Given the addition of new variables, we again performed exploratory factor analysis. We report response intent and

TABLE 9 | Means of perpetrator affinity by condition, study 1.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 1.0$	$M = 1.5$	$M = 1.4$	$M = 1.6$
SD = 1.4	SD = 1.4	SD = 1.5	SD = 1.4

TABLE 10 | Perpetrator affinity: pairwise comparisons, study 1.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	−0.23	0.08	−3.03	0.013*	−0.16
A_NR - NA_NR	0.41	0.08	5.25	< 0.001***	0.28
A_NR - NA_R	−0.05	0.08	−0.71	0.89	−0.04
A_R - NA_NR	0.64	0.08	8.21	< 0.001***	0.44
A_R - NA_R	0.18	0.08	2.32	0.09	0.12
NA_NR - NA_R	−0.46	0.08	−5.95	< 0.001***	−0.32

*indicates $p < 0.05$.
***indicates $p < .001$.

TABLE 11 | Variables that make up response intent composite, study 2.

Moral	Is this person's response **morally good** behavior?	0 = "definitely not" 6 = "definitely yes"
Genuine	Is this person's response a **genuine** sign of their remorse?	0 = "definitely not" 6 = "definitely yes"
Sincere	Is this person's response **sincere**?	0 = "definitely not" 6 = "definitely yes"
Remorse	Does this person feel **remorse** for what they did?	0 = "definitely not" 6 = "definitely yes"

response perception below; see additional outcomes in Supplementary Materials (Supporting Information S1: Tables S3–S4; Supporting Information S1: Figures S7–S12).

2.2.1 | Response Intent

Response intent was a composite of four measures; see Table 11.

2.2.1.1 | Main Effects and Interactions. In alignment with our hypotheses, perceptions of response intent were more favorable when perpetrators apologized, compared to when they did not ($b = 1.00$, $SE = 0.07$, $t = 14.91$, $p < 0.001$, $d = 0.63$), and when they offered reparation, compared to when they did not ($b = 1.11$, $SE = 0.07$, $t = 16.60$, $p < 0.001$, $d = 0.70$). The unstandardized effect of reparation ($b = 1.11$) was larger than the unstandardized effect of apology ($b = 1.00$). There was a significant interaction between apology and reparation on response intent ($b = -1.12$, $SE = 0.12$, $t = -9.29$, $p < 0.001$, $d = -0.66$; see Figure 4; see Table 12 for group means). A sensitivity analysis suggests that our model had 80% power to detect an interaction effect as small as $d = 0.48$.

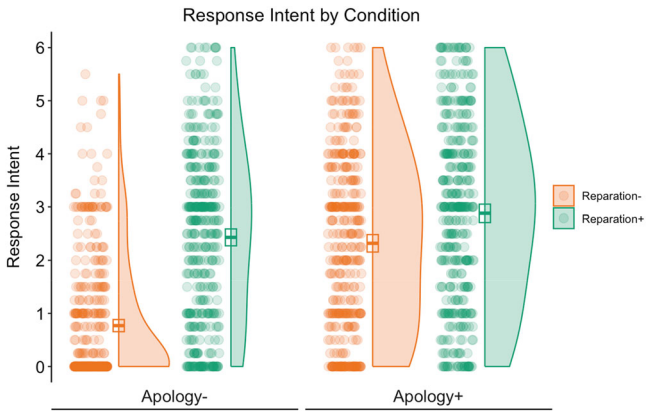

FIGURE 4 | Response Intent by Condition, Study 2. *Note:* Figure demonstrates perceptions of the perpetrator's intent as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

2.2.1.2 | Comparing Conditions. Follow-up tests revealed that all pairwise comparisons were significant except for the difference between the (apology− | reparation+) condition and the (apology+ | reparation−) condition (the "middle" conditions); see Table 13.

TABLE 12 | Means of response intent by condition, study 2.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.8$	$M = 2.4$	$M = 2.3$	$M = 2.9$
SD = 1.2	SD = 1.6	SD = 1.7	SD = 1.7

TABLE 13 | Response intent: pairwise comparisons, study 2.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	−0.54	0.17	−3.18	0.024*	−0.24
A_NR - NA_NR	1.57	0.16	10.06	< 0.001***	0.70
A_NR - NA_R	−0.11	0.20	−0.54	0.95	−0.05
A_R - NA_NR	2.11	0.16	13.16	< 0.001***	0.94
A_R - NA_R	0.44	0.11	3.89	0.004**	0.20
NA_NR - NA_R	−1.67	0.15	−11.24	< 0.001***	−0.75

*indicates $p < 0.05$.
**indicates $p < 0.01$.
***indicates $p < 0.001$.

TABLE 14 | Variables that make up response impact composite, study 2.

Effective	Is this person's response **effective**?	0 = "definitely not" 6 = "definitely yes"
Difference	Will this person's response **make a difference**?	0 = "definitely not" 6 = "definitely yes"
Financial costliness	Is this person's response **materially (financially) costly**?	0 = "definitely not" 6 = "definitely yes"

2.2.2 | Response Impact

Response impact was a composite of three measures; see Table 14.

2.2.2.1 | Main Effects and Interactions. In alignment with our hypotheses, response impact was perceived more favorably when perpetrators offered an apology, compared to when they did not ($b = 0.57$, $SE = 0.07$, $t = 8.21$, $p < 0.001$, $d = 0.35$), and when perpetrators offered reparation, compared to when they did not ($b = 1.58$, $SE = 0.10$, $t = 16.40$, $p < 0.001$, $d = 0.98$). The unstandardized effect of reparation ($b = 1.58$) was larger than that of apology ($b = 0.57$). There was an interaction between apology and reparation ($b = -0.71$, $SE = 0.11$, $t = -6.27$, $p < 0.001$, $d = -0.51$; see Figure 5; see Table 15 for group means).

2.2.2.2 | Comparing Conditions. Follow-up tests revealed that all pairwise comparisons were significant except for the difference between the (apology+ | reparation+) condition and the (apology− | reparation+) condition ($p = 0.050$); see Table 16.

2.2.3 | Harm Perception

Harms were perceived to be more severe when there was no apology relative to when there was an apology ($b = -0.18$, $SE = 0.06$, $t = -2.96$, $p = 0.003$, $d = -0.11$), and when no reparation was offered ($b = -0.28$, $SE = 0.06$, $t = -4.65$, $p < 0.001$, $d = -0.17$), compared to when reparation was offered. The unstandardized effect of reparation ($b = -0.28$) was greater in absolute value than the unstandardized effect of apology ($b = -0.18$). There was a significant two-way interaction

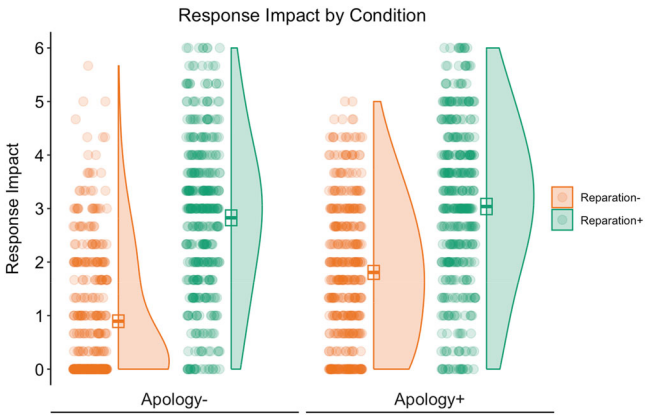

FIGURE 5 | Response Impact by Condition, Study 2. *Note:* Figure demonstrates perceptions of the impact of the response as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

TABLE 15 | Means of response impact by condition, study 2.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.9$	$M = 2.8$	$M = 1.8$	$M = 3.0$
SD = 1.2	SD = 1.5	SD = 1.3	SD = 1.5

TABLE 16 | Response impact: pairwise comparisons, study 2.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	−1.22	0.11	−11.58	< 0.001***	−0.59
A_NR - NA_NR	0.92	0.08	10.86	< 0.001***	0.45
A_NR - NA_R	−1.01	0.10	−9.93	< 0.001***	−0.49
A_R - NA_NR	2.14	0.13	17.02	< 0.001***	1.04
A_R - NA_R	0.21	0.08	2.61	0.050	0.10
NA_NR - NA_R	−1.93	0.12	−16.74	< 0.001***	−0.94

***indicates $p < 0.001$.

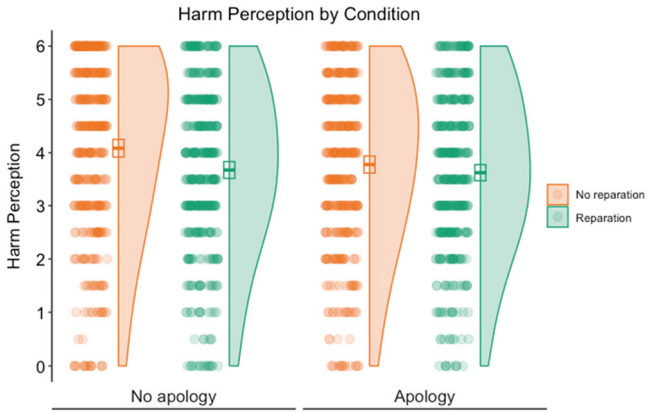

FIGURE 6 | Harm Perception by Condition, Study 2. *Note:* Figure demonstrates harm perception as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

between apology and reparation ($b = 0.29$, $SE = 0.12$, $t = 2.42$, $p = 0.016$, $d = 0.18$) on post-response harm perception, which persisted when adding pre-manipulation measures of harm to the model ($b = 0.23$, $SE = 0.09$, $t = 2.52$, $p = 0.012$, $d = 0.23$; see Figure 6; see Table 17 for group means).

2.2.3.1 | Comparing Conditions. Follow-up tests revealed that all pairwise comparisons were significant except for the difference between the (apology+ | reparation+) condition and the (apology− | reparation+) condition ($p = 0.050$); see Table 18.

2.2.4 | Perpetrator Affinity

Participants affiliated more strongly with perpetrators who offered an apology than with those who did not ($b = 0.21$, $SE = 0.04$, $t = 4.85$, $p < 0.001$, $d = 0.18$). Participants affiliated more strongly with perpetrators who offered reparation than with those who did not ($b = 0.32$, $SE = 0.04$, $t = 7.53$, $p < 0.001$, $d = 0.28$). The unstandardized effect of reparation ($b = 0.32$) was larger than the unstandardized effect of apology ($b = 0.21$). There was not a significant interaction between apology and reparation ($b = -0.15$, $SE = 0.09$, $t = -1.74$, $p = 0.082$, $d = -0.15$) (see Figure 7; see Table 19 for group means).

2.2.4.1 | Comparing Conditions. Follow-up tests revealed that all pairwise comparisons were significant except for the difference between the (apology+ | reparation−) condition and the (apology− | reparation+) condition (the "middle" conditions), and the difference between the (apology+ | reparation+) condition and the (apology− | reparation+) condition; see Table 20.

2.3 | Discussion

Reasoning that our findings in Study 1 might be driven by considerations of a response's impact, our second study examined the independent and interactive effects of apology and reparation on response intent and response impact. Reparation exerted a larger effect than apology not only on response impact but also on response intent. In the case of response intent, if apology *or* reparation was present, it did not matter which was offered. In the case of response impact, if reparation was present, apology did not add value. While Study 1 found only a significant effect of reparation on harm perception, Study 2 found effects of both apology and reparation, though the effect of reparation was larger. In the case of harm perception, as with impact perception, if reparation was present, apology did not add value. In the case of perpetrator affinity, reparation exerted a larger effect than apology. Further, if apology or reparation was present, it did not matter which of the two was offered, and if reparation was present, apology did not add value. Given these findings, Study 2 suggests that apology and reparation may both operate via the mechanisms of cognitive reappraisal *and* interpersonal identification.

TABLE 17 | Means of harm perception by condition, study 2.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 4.1$	$M = 3.7$	$M = 3.8$	$M = 3.6$
SD = 1.7	SD = 1.6	SD = 1.6	SD = 1.5

TABLE 18 | Harm perception: pairwise comparisons, study 2.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	0.13	0.08	1.58	0.39	0.08
A_NR - NA_NR	−0.32	0.08	−3.81	0.001**	−0.20
A_NR - NA_R	0.10	0.08	1.20	0.63	0.06
A_R - NA_NR	−0.45	0.08	−5.40	< 0.001***	−0.28
A_R - NA_R	−0.03	0.08	−0.38	0.98	−0.02
NA_NR - NA_R	0.42	0.08	5.01	< 0.001***	0.26

**indicates $p < 0.01$.
***indicates $p < 0.001$.

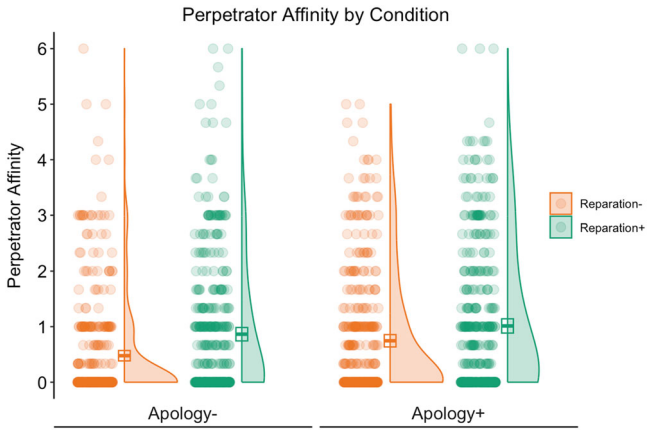

FIGURE 7 | Perpetrator Affinity by Condition, Study 2. *Note:* Figure demonstrates perpetrator affinity as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

3 | Study 3

In our third study, we additionally manipulated the relational closeness between perpetrator and victim. While the previous two studies found that apology and reparation predicted greater perpetrator affinity, our third study sought to conceptually separate the situational affinity generated by an effective response to harm (i.e., apology and/or reparation) from the enduring affinity of a close relationship. We again hypothesized that the presence of an apology and of reparation would each predict more favorable perceptions of response intent and response impact. We again measured harm perception and perpetrator affinity, tested for interactions, and compared effect sizes for apology vs. reparation. We tested the competing hypotheses that a close relationship would result in more favorable ratings overall (main effect of relationship context), and that the presence of apology and/or reparation would matter more in the context of a close relationship (interactive effect of relationship context).

3.1 | Methods

3.1.1 | Participants

We recruited 100 participants on Prolific, using the same selection criteria as Studies 1 and 2. Participants were paid $5.58 to complete a 42-min survey. No participants were excluded from analysis. See Table 1 for demographics.

3.1.2 | Materials and Procedure

Study 3 used a $2 \times 2 \times 2$ within-subjects design, adding a relational closeness variable (*stranger* vs. *close other)* to the two existing factors (apology vs. no apology; reparation vs. no reparation). Each of the eight conditions featured two vignettes; see OSF for full vignettes.

3.2 | Results

We performed confirmatory factor analysis (CFA), using the factor structure from Study 2 (see SOM, Table S4). Results indicated a good fit ($\chi^2 = 22{,}275.12$, CFI = 0.98, TLI = 0.97, RMSEA = 0.068; Kline 2023).

3.2.1 | Response Intent

3.2.1.1 | Main Effects and Interactions. In alignment with our hypotheses, response intent was rated more favorably when perpetrators offered an apology, compared to

TABLE 19 | Means of perpetrator affinity by condition, study 2.

Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.5$	$M = 0.9$	$M = 0.8$	$M = 1.0$
SD = 1.0	SD = 1.2	SD = 1.1	SD = 1.3

TABLE 20 | Perpetrator affinity: pairwise comparisons, study 2.

Contrast	*b*	*SE*	*t*	*p*	*d*
A_NR - A_R	−0.25	0.06	−4.10	< 0.001***	−0.21
A_NR - NA_NR	0.28	0.06	4.66	< 0.001***	0.24
A_NR - NA_R	−0.12	0.06	−1.90	0.23	−0.10
A_R - NA_NR	0.53	0.06	8.77	< 0.001***	0.45
A_R - NA_R	0.13	0.06	2.20	0.12	0.11
NA_NR - NA_R	−0.40	0.06	−6.56	< 0.001***	−0.34

***indicates $p < 0.001$.

TABLE 21 | Main effects of apology and reparation on response intent, study 3.

	b	*SE*	*t*	*p*	*d*
Apology					
Overall	1.38	0.07	19.63	< 0.001***	0.80
Stranger	1.28	0.10	12.99	< 0.001***	0.75
Close other	1.49	0.10	14.81	< 0.001***	0.85
Reparation					
Overall	1.20	0.07	17.13	< 0.001***	0.69
Stranger	1.14	0.10	11.58	< 0.001***	0.66
Close other	1.26	0.10	12.53	< 0.001***	0.72

***indicates $p < 0.001$.

when they did not, and when perpetrators offered reparation, compared to when they did not; see Table 21. The unstandardized effect of apology ($b = 1.38$) was larger across both the *stranger* ($b = 1.28$) and *close other* ($b = 1.49$) conditions, relative to reparation ($b = 1.20$; *stranger*: $b = 1.14$; *close other*: $b = 1.26$). There was a significant two-way interaction between apology and reparation ($b = -1.50$, $SE = 0.14$, $t = -11.14$, $p < 0.001$, $d = -0.89$; see Figure 8; see Table 22 for group means). A sensitivity analysis suggests that our model had 80% power to detect a two-way interaction effect as small as $d = 0.086$. There was not a significant three-way relationship between apology, reparation, and relationship on response intent ($b = -0.35$, $SE = 0.26$, $t = -1.34$, $p = 0.18$, $d = -0.18$), nor significant two-way interactions between apology and relationship, or between reparation and relationship. There was a significant main effect of relational status, such that response intent was perceived more favorably in the *close other* condition ($b = 0.40$, $SE = 0.07$, $t = 5.71$, $p < 0.001$, $d = 0.23$).

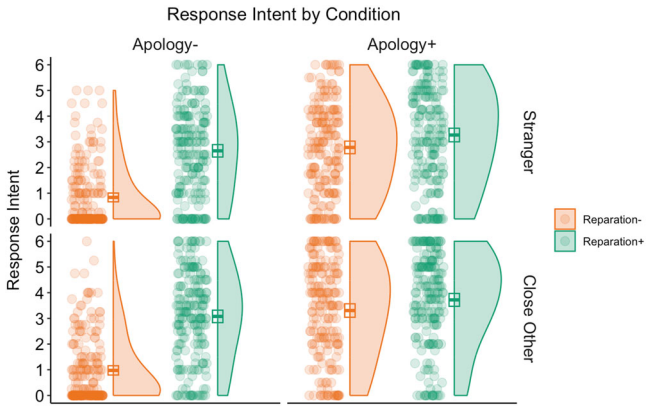

FIGURE 8 | Response Intent by Condition, Study 3. *Note:* Figure demonstrates perceptions of the perpetrator's intent as a function of apology (absent or present) and reparation (absent or present), and the relationship between perpetrator and victim (*stranger* or *close other*). Large points represent means by condition and error bars represent 95% confidence intervals.

3.2.1.2 | Comparing Conditions. Across the *stranger* and *close other* conditions, follow-up tests indicated that all pairwise comparisons were significant except for the difference between the (apology− | reparation+) condition and the (apology+ | reparation−) condition (the "middle" conditions); see Table 23.

3.2.2 | Response Impact

3.2.2.1 | Main Effects and Interactions. In alignment with our hypotheses, response impact was perceived more favorably when perpetrators offered an apology, compared to when they did not, and when perpetrators offered reparation, compared to when they did not (see Table 24). The unstandardized effect of reparation ($b = 1.52$) was larger across both the *stranger* ($b = 1.43$) and *close other* ($b = 1.60$) conditions,

TABLE 22 | Means of response intent by condition, study 3.

Stranger			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.8$	$M = 2.7$	$M = 2.8$	$M = 3.3$
SD = 1.2	SD = 1.7	SD = 1.8	SD = 1.9
Close other			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 1.0$	$M = 3.1$	$M = 3.3$	$M = 3.7$
SD = 1.3	*SD* = 1.7	SD = 1.9	SD = 1.8

TABLE 23 | Response intent: pairwise comparisons, study 3.

Contrast	***b***	***SE***	***t***	***p***	***d***
Stranger					
A_NR - A_R	−0.47	0.14	−3.50	0.003**	−0.28
A_NR - NA_NR	1.95	0.14	14.47	< 0.001***	1.17
A_NR - NA_R	0.14	0.14	1.04	0.73	0.08
A_R - NA_NR	2.43	0.14	17.98	< 0.001***	1.45
A_R - NA_R	0.61	0.14	4.54	< 0.001***	0.37
NA_NR - NA_R	−1.81	0.14	−13.44	< 0.001***	−1.08
Close other					
A_NR - A_R	−0.41	0.14	−3.08	0.012*	-0.25
A_NR - NA_NR	2.33	0.14	17.30	< 0.001***	1.38
A_NR - NA_R	0.23	0.14	1.70	0.32	0.14
A_R - NA_NR	2.74	0.14	20.38	< 0.001***	1.62
A_R - NA_R	0.64	0.14	4.78	< 0.001***	0.38
NA_NR - NA_R	−2.10	0.14	−15.60	< 0.001***	−1.24

*indicates $p < 0.05$.
**indicates $p < 0.01$.
***indicates $p < 0.001$.

TABLE 24 | Main effects of apology and reparation on response impact, study 3.

	b	***SE***	***t***	***p***	***d***
Apology					
Overall	0.80	0.06	13.64	< 0.001***	0.53
Stranger	0.77	0.08	9.35	< 0.001***	0.51
Close other	0.85	0.09	10.04	< 0.001***	0.56
Reparation					
Overall	1.52	0.06	25.92	< 0.001***	1.01
Stranger	1.43	0.08	17.52	< 0.001***	0.96
Close other	1.60	0.09	18.86	< 0.001***	1.05

***indicates $p < 0.001$.

relative to apology ($b = 0.80$, *stranger*: b = 0.77; *close other*: $b = 0.85$). Additionally, there was a significant two-way interaction between apology and reparation ($b = -1.00$, $SE = 0.11$, $t = -8.79$, $p < 0.001$, $d = 0.68$). There was not a significant three-way interaction between apology, reparation, and relationship ($b = -0.23$, $SE = 0.21$, $t = -1.13$, $p = 0.26$, $d = -0.13$), nor significant two-way interactions between apology and relationship, or between reparation and relationship; see Figure 9; see Table 25 for group means. There was a main effect of relationship context, such that response impact was perceived more favorably in the *close other* condition ($b = 0.15$, $SE = 0.06$, $t = 2.62$, $p = 0.009$, $d = 0.10$).

3.2.2.2 | Comparing Conditions.

Across the *stranger* and *close other* conditions, follow-up tests indicate that all pairwise conditions were significant; see Table 26.

3.2.3 | Harm Perception

The presence of an apology did not predict harm perception; however, the presence of reparation predicted less severe harm ratings; see Table 27. The two-way interaction between apology and reparation was not significant ($b = 0.23$, $SE = 0.12$, $t = 1.84$, $p = 0.066$, $d = 0.14$). There was a significant two-way interaction between apology and

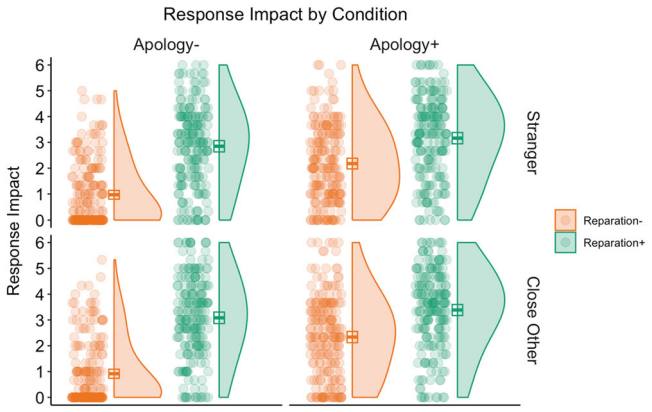

FIGURE 9 | Response Impact by Condition, Study 3. *Note:* Figure demonstrates perceptions of the impact of the response as a function of apology (absent or absent) and reparation (absent or present), and the relationship between perpetrator and victim (*stranger* or *close other*). Large points represent means by condition and error bars represent 95% confidence intervals.

relationship (b = -0.27, SE = 0.12, t = −2.15, p = 0.032, d = -0.05); however, this did not persist when adding pre-manipulation measures of harm to the model (b = -0.14, SE = 0.09, t = −1.52, p = 0.13, d = −0.14). There was not a significant two-way interaction between reparation and relationship (b = 0.08, SE = 0.12, t = 0.68, p = 0.50, d = 0.16), nor a significant three-way interaction between apology, reparation, and relationship (b = 0.12, SE = 0.25, t = 0.49, p = 0.63, d = 0.07); see Figure 10; see Table 28 for group means). There was a significant main effect of relationship context, such that harms were perceived to be less severe in the context of a close relationship (b = -0.26, SE = 0.06, t = −4.26, p < 0.001, d = 0.16).

3.2.3.1 | Comparing Conditions. Follow-up tests indicated that the only significant pairwise comparison was between the (apology− | reparation−) condition and the (apology+ | reparation−) condition: a difference which emerged in the *close other* condition but not in the *stranger* condition; see Table 29.

TABLE 25 | Means of response impact by condition, study 3.

Stranger			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
M = 1.0	M = 2.9	M = 2.2	M = 3.2
SD = 1.2	SD = 1.6	SD = 1.5	SD = 1.6
Close other			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
M = 0.9	M = 3.1	M = 2.3	M = 3.4
SD = 1.3	SD = 1.6	SD = 1.6	SD = 1.5

TABLE 26 | Response impact: pairwise comparisons, study 3.

Contrast	***b***	***SE***	***t***	***p***	***d***
Stranger					
A_NR - A_R	−0.98	0.13	−7.62	< 0.001***	−0.50
A_NR - NA_NR	1.21	0.12	10.33	< 0.001***	0.61
A_NR - NA_R	−0.68	0.13	−5.42	< 0.001***	−0.34
A_R - NA_NR	2.20	0.15	14.94	< 0.001***	1.11
A_R - NA_R	0.31	0.12	2.68	0.042*	0.16
NA_NR - NA_R	−1.89	0.15	−12.95	< 0.001***	−0.95
Close other					
A_NR - A_R	−1.05	0.11	−9.48	< 0.001***	−0.62
A_NR - NA_NR	1.42	0.14	10.11	< 0.001***	0.84
A_NR - NA_R	−0.75	0.12	−6.37	< 0.001***	−0.45
A_R - NA_NR	2.46	0.15	16.16	< 0.001***	1.46
A_R - NA_R	0.29	0.11	2.62	0.049*	0.17
NA_NR - NA_R	−2.17	0.15	−14.66	< 0.001***	−1.28

*indicates p < 0.05.
***indicates p < 0.001.

3.2.4 | Perpetrator Affinity

Participants felt greater affinity with perpetrators who offered an apology, compared to those who did not and with perpetrators who offered reparation, compared to those who did not; see Table 30. There was a significant two-way interaction between apology and reparation ($b = -0.31$, $SE = 0.09$, $t = -3.35$, $p < 0.001$, $d = -0.24$); see Figure 11; see Table 31 for group means). There was not a significant three-way interaction between apology, reparation, and relationship ($b = -0.24$, $SE = 0.18$, $t = -1.30$, $p = 0.20$, $d = 0.18$). There was not a significant two-way interaction between reparation and relationship ($b = 0.14$, $SE = 0.09$, $t = 1.49$, $p = 0.14$, $d = 0.10$), nor between apology and relationship ($b = 0.16$, $SE = 0.09$, $t = 1.76$, $p = 0.078$, $d = 0.12$). There was a main effect of relationship context, such that participants felt more affinity with perpetrators in the *close other* condition ($b = 0.22$, $SE = 0.05$, $t = 4.67$, $p < 0.001$, $d = 0.17$).

TABLE 27 | Main effects of apology and reparation on harm perception, study 3.

	b	*SE*	*t*	*p*	*d*
Apology					
Overall	−0.05	0.06	−0.84	0.40	0.03
Stranger	0.08	0.09	0.93	0.35	−0.05
Close other	−0.20	0.08	−2.28	0.023*	0.11
Reparation					
Overall	−0.14	0.06	−2.33	0.020*	0.09
Stranger	−0.18	0.09	−1.94	0.053	0.11
Close other	−0.10	0.08	−1.16	0.25	0.06

*indicates $p < 0.05$.

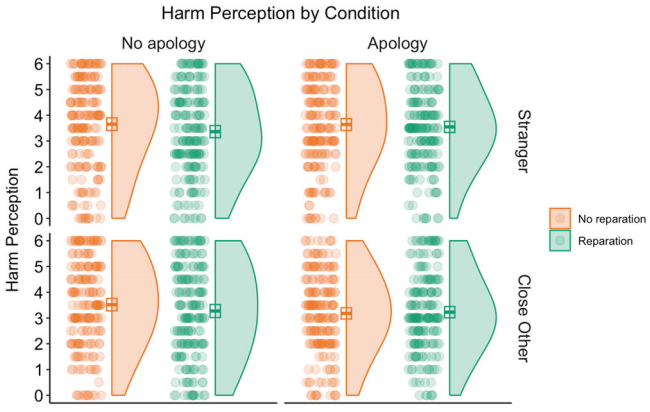

FIGURE 10 | Harm Perception by Condition, Study 3. *Note:* Figure demonstrates harm perception as a function of apology (absent or present) and reparation (absent or present). Violins represent group distributions, dots represent individual data points, and rectangles represent means and 95% confidence intervals.

3.2.4.1 | Comparing Conditions. Follow-up tests indicated that across the *close other* and *stranger* conditions, the same pairwise comparisons were significant: between the (apology− | reparation−) and (apology+ | reparation−) conditions, between the (apology− | reparation−) and the (apology− | reparation+) condition, and between the (apology− | reparation−) and (apology+ | reparation+) conditions (the "extreme" conditions); see Table 32.

3.3 | Discussion

Our third study directly manipulated the relational closeness between perpetrator and victim. Across all four measured outcomes, responses were more favorable in the *close other* condition relative to the *stranger* condition. As such, we find strong evidence for the hypothesis that a close relationship is protective (main effect of relationship context). Conversely, across all measured outcomes, only one interactive effect with relationship context emerged: a significant interaction between apology and relationship on harm perception, suggesting that, relative to nothing at all, the presence of an apology predicts less severe harm ratings—but only in the context of a close relationship, and only when not accounting for baseline perceptions of harm. We thus find little evidence to support the interaction hypothesis, such that the presence or absence of apology and/or reparation matters more in the context of a close relationship. Indeed, contrary to what this hypothesis would suggest, harm ratings were *less* severe overall in the context of a close relationship.

Consistent with Study 2, apology and reparation both significantly predicted response intent, response impact, and

TABLE 28 | Means of harm perception by condition, study 3.

Stranger			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 3.7$	$M = 3.4$	$M = 3.6$	$M = 3.6$
SD = 1.8	SD = 1.7	SD = 1.7	SD = 1.6
Close other			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 3.5$	$M = 3.3$	$M = 3.2$	$M = 3.2$
SD = 1.7	SD = 1.8	SD = 1.6	SD = 1.6

TABLE 29 | Harm perception: pairwise comparisons, study 3.

Contrast	*b*	*SE*	*t*	*p*	*d*
Stranger					
A_NR - A_R	0.10	0.13	0.77	0.87	0.06
A_NR - NA_NR	−0.01	0.13	−0.05	> 0.99	−0.004
A_NR - NA_R	0.27	0.13	2.13	0.14	0.16
A_R - NA_NR	−0.10	0.13	−0.81	0.85	−0.06
A_R - NA_R	0.17	0.13	1.37	0.52	0.10
NA_NR - NA_R	0.27	0.13	2.18	0.13	0.17
Close other					
A_NR - A_R	−0.05	0.12	−0.41	0.98	−0.03
A_NR - NA_NR	−0.34	0.12	−2.84	0.024*	−0.20
A_NR - NA_R	−0.09	0.12	−0.79	0.86	−0.06
A_R - NA_NR	−0.29	0.12	−2.44	0.071	−0.17
A_R - NA_R	−0.05	0.12	−0.39	0.98	−0.03
NA_NR - NA_R	0.24	0.12	2.05	0.17	0.15

*indicates $p < 0.05$.

TABLE 30 | Main effects of apology and reparation on perpetrator affinity, study 3.

	b	*SE*	*t*	*p*	*d*
Apology					
Overall	0.27	0.05	5.91	< 0.001***	0.21
Stranger	0.19	0.06	3.16	0.002**	0.15
Close other	0.36	0.07	5.23	< 0.001***	0.26
Reparation					
Overall	0.28	0.05	6.06	< 0.001***	0.21
Stranger	0.21	0.07	3.42	0.001**	0.17
Close other	0.34	0.07	5.01	< 0.001***	0.25

**indicates $p < 0.01$.
***indicates $p < 0.001$.

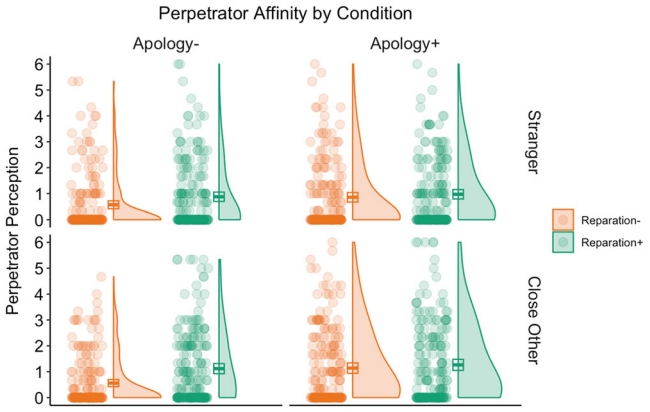

FIGURE 11 | Perpetrator Affinity by Condition, Study 3. *Note:* Figure demonstrates perpetrator affinity as a function of apology (absent or present) and reparation (absent or present), and the relationship between perpetrator and victim (*stranger* or *close other*). Large points represent means by condition and error bars represent 95% confidence intervals.

perpetrator affinity. Contrary to Study 2 (but consistent with Study 1), reparation, but not apology, predicted less severe harm ratings in Study 3. Study 3 thus aligns with Study 1 in suggesting that, while reparation may promote reconciliation via the dual mechanisms of cognitive reappraisal and interpersonal identification, apology may promote reconciliation solely through interpersonal identification.

There were other inconsistencies between Study 2 and Study 3. While Study 2 found a larger effect of reparation than of apology on response intent, Study 3 found a larger effect of apology than of reparation. While Study 2 found that, if reparation was present, apology did not add value for response impact, Study 3 did not find this effect. While Study 2 found that reparation exerted a larger effect than apology on perpetrator affinity, in Study 3, these effects were practically identical in size. While Study 2 found that, if reparation was present, apology did not add value for perpetrator affinity, this effect was not found in Study 3.

4 | General Discussion

Perpetrators who engage in high-profile apologies are often met with accusations of insincerity and self-interest. Concrete acts of reparation, as costly signals, offer one potential path to a more positive public reception of these expressions of remorse. Aiming to address both a gap in the literature and a question of practical importance, the present work examined the effect of apology and of reparation on perceptions of the perpetrator's response in the domain of prejudice-related harm. Secondarily,

TABLE 31 | Means of perpetrator affinity by condition, study 3.

Stranger			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.6$	$M = 0.9$	$M = 0.9$	$M = 1.0$
SD = 1.1	SD = 1.3	SD = 1.3	SD = 1.3
Close other			
Apology-Reparation-	Apology-Reparation+	Apology+Reparation-	Apology+Reparation+
$M = 0.6$	$M = 1.1$	$M = 1.1$	$M = 1.3$
SD = 1.0	SD = 1.4	SD = 1.4	SD = 1.5

TABLE 32 | Perpetrator affinity: pairwise comparisons, study 3.

Contrast	***b***	***SE***	***t***	***p***	***d***
Stranger					
A_NR - A_R	−0.11	0.09	−1.33	0.54	0.08
A_NR - NA_NR	0.29	0.09	3.32	0.005**	< −0.01
A_NR - NA_R	−0.02	0.09	−0.18	> 0.99	0.21
A_R - NA_NR	0.40	0.09	4.66	< 0.001***	−0.08
A_R - NA_R	0.10	0.09	1.15	0.66	0.14
NA_NR - NA_R	−0.30	0.09	−3.51	0.003**	0.22
Close other					
A_NR - A_R	−0.13	0.10	−1.33	0.54	−0.09
A_NR - NA_NR	0.58	0.10	5.96	< 0.001***	0.42
A_NR - NA_R	0.02	0.10	0.16	> 0.99	0.01
A_R - NA_NR	0.70	0.10	7.29	< 0.001***	0.52
A_R - NA_R	0.14	0.10	1.49	0.44	0.11
NA_NR - NA_R	−0.56	0.10	−5.79	< 0.001***	−0.41

**indicates $p < 0.01$.
***indicates $p < 0.001$.

we examined whether apology and reparation were associated with harm perception and perpetrator affinity, to assess whether apology and reparation operate via the mechanism of cognitive reappraisal (i.e., "rethinking" the harm itself) or the mechanism of interpersonal identification (i.e., feeling more closely aligned with the perpetrator). Across three studies, we found that, as predicted, responses were perceived more favorably when the perpetrator apologized, and when the perpetrator offered reparation. Across all studies, reparation predicted both less severe harm ratings and increased perpetrator affinity, suggesting that offering concrete restitution may promote reconciliation by activating both cognitive and relational mechanisms. By contrast, while apology predicted increased perpetrator affinity across all three studies, only in Study 2 did apology predict less severe harm ratings. Thus, our data suggest that apology may promote reconciliation primarily via a mechanism of interpersonal identification. Additional tests of these hypothesized mechanisms, such as mediation models that test whether harm perception and perpetrator affinity explain the associations between apology/reparation and distal outcomes such as forgiveness, are needed to increase confidence in these findings.

Across all three studies, there was a particularly strong effect of reparation in promoting more favorable perceptions of perpetrators and their response. The effect of reparation was larger than the effect of apology on measures of response quality (Study 1), response intent (Study 2), response impact (Studies 2 and 3), and perpetrator affinity (Studies 1–3). In Studies 1 and 3, reparation (but not apology) predicted harm perception; in Study 2, the effect of reparation was stronger than that of apology. Finally, in several cases (response impact and harm perception in Study 2; perpetrator affinity in Studies 1 and 2), if reparation was present, apology did not add value. Our work thus extends prior literature finding a stronger effect of restitution vs. apology across different contexts (DiFonzo et al. 2020; Witvliet et al. 2020a), suggesting that reparation is an effective costly signal in the context of prejudice perpetrated by high-status offenders.

In manipulating relational closeness between perpetrator and victim, our third study sought to test competing hypotheses: that a close relationship would buffer against negative judgments of the perpetrator and their response (main effect of relationship),

and that a close relationship would promote polarizing judgments: particularly unfavorable in the absence of an apology and/or reparation, and particularly favorable in the presence of an apology and/or reparation (interactive effect of relationship). Replicating prior work (Lewis et al. 2015; McCullough et al. 1998; Peets et al. 2013; Tomlinson et al. 2004; Van der Wal et al. 2014; Van der Wal et al. 2017), we found compelling evidence for the buffering hypothesis, suggesting that the protective effect of a close relationship, which perhaps exemplifies in-group bias as described by Social Identity Theory (Tajfel and Turner 1979), extends to the domain of prejudice. To our knowledge, the finding that prejudicial harms are perceived to be less severe in the context of a close relationship is a novel contribution to the literature and proposes nuanced interactions between relational closeness and evaluations of the transgression itself.

In Study 3, the impact of apology (vs. reparation) was stronger, relative to previous studies. Specifically, in Study 3, the effect of apology was larger than the effect of reparation on intent perception, and previous findings that apology did not add value, if reparation was present, did not replicate. One potential explanation for these discrepancies is that Study 3 made relationship context salient: even in the *stranger* condition, the vignette explicitly commented on the absence of a relationship, and given a within-subjects design, relationship context varied between *stranger* and *close other* vignettes. As such, the average of the *stranger* and *close other* conditions in Study 3 is not exactly analogous to the measures in Study 2. Future research might further examine this intriguing possibility that making relationship context salient might boost the perceived importance of apology.

We note several ambiguous aspects of our design that could be clarified in future work. First, in the (apology− | reparation+) condition, we did not stipulate that no apology was given. While some participants may have assumed an apology took place, as the perpetrator aimed "to make things right," our within-subjects design make these assumptions less likely, as all participants saw conditions in which apologies were explicitly described. Second, some vignettes left ambiguous whether the response occurred online or in-person, and publicly or privately. Future work might constrain the vignette space to either hold these factors constant or directly manipulate them. Finally, in the (apology− | reparation−) condition, the perpetrator did not issue a response addressing the transgression; participants might have been confused when they were subsequently asked to rate this "response." While we consider this condition to be ecological valid (i.e., there are many cases in which a perpetrator does not issue any kind of response after committing a transgression), future work might include a control condition in which the perpetrator and victim do interact, but the perpetrator offers neither apology nor reparation, so that we can separate the quality of a response from the mere presence of a response.

Future work might extend our paradigm to examine institutional apologies (i.e., governments' responses to historical harms). The stronger effect of reparation relative to apology may be even more pronounced in the institutional context, as apologies, which appear to have more impact on character assessments, may be less relevant. Such work would bridge the gap between our examination of individuals' apologies and a growing body of literature about public perceptions of institutional apologies (e.g., Perez et al. 2021). In addition, to further examine reparation as a costly signal, future work might explore whether the effectiveness of the reparation offered matters, or whether reparation instead acts primarily as a communicative signal (see recent literature on punishment: Cushman et al. 2019; Sarin et al. 2021). Finally, future work might examine how perceptions of a transgressor's responses differ based on whether the perceiver belongs to the social group targeted by the act of prejudice. While we conducted post-hoc analyses to address this question (see Supplementary Materials), we did not have a priori hypotheses on the topic and may not have been adequately powered to detect these effects.

We close by presenting several potential applied contributions of our findings. The present studies find that reparation exerts a stronger effect on many outcomes, particularly perceptions of a response's impact—and in some cases, apology does not add any value, if reparation is present. Thus, the apologies that flood traditional media and social media, without offers of reparation, are likely ineffective in repairing trust and moral standing. Our studies suggest that high-status perpetrators seeking to overcome collective cynicism about the authenticity of their remorse would do well to follow the aphorism "actions speak louder than words" by offering a concrete, costly signal that their remorse is genuine—and following through. Our work also offers applied contributions to adjacent fields: organizational psychologists might design trainings that promote effective reconciliation through reparation after prejudice perpetrated in the workplace, while clinical and counseling psychologists, social workers, couples therapists, and other clinicians could model the incorporation of reparation into apologies as part of social skills trainings and other interventions designed to promote reconciliation after relational breaches. Finally, as an extension of prior work suggesting that apology should play a formal role in the justice system (Petrucci 2002), our studies lend support for models of restorative justice: an approach to criminal, civil, or social transgressions that prioritizes healing over punishment (Menkel-Meadow 2007; Reimund 2004). Specifically, our findings suggest that, in the domain of prejudicial harm, concrete reparation can both improve the moral standing of the perpetrator and prompt a reevaluation of the harm itself. As such, legal theorists and policymakers might draw from these psychological findings to promote legal frameworks that prioritize restitution over retribution.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data and analytic code can be found at https://osf.io/mpq7v/?view_only=879c0a29add3453c93a75deec799b65d.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.
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