How forgiveness affects processing time: Mediation by rumination about the transgression

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ABSTRACT

Previous work has demonstrated that individuals high (vs. low) in forgiveness are faster to rate their current thoughts and feelings toward their transgressor (i.e., their state forgiveness), but the underlying mechanism is still unclear. The present study examined whether individual differences in rumination about the transgression would mediate the association between forgiveness and response time. Participants ($N = 767$) completed measures of trait forgiveness, rumination about the transgression, and state forgiveness (while response time was unobtrusively recorded). Trait forgiveness was significantly negatively associated with response time and this effect was mediated by lower rumination about the transgression. Results support the use of response time as an unobtrusive measure of forgiveness-related processes and further clarify the role of rumination about the transgression in the forgiveness–response time link.

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1. Introduction

How can one tell if someone has forgiven an offense? One way to answer this question is to directly ask the individual for such information. Indeed, most forgiveness research has almost exclusively relied on self-reports, in which individuals (1) recall an interpersonal transgression and then (2) rate statements such as "I have given up my hurt and resentment" (McCullough, Root, & Cohen, 2006, p. 897). However, individuals' reports of their forgiveness can be affected by introspective limits and response factors (Greenwald et al., 2002). That is, individuals might be unable to accurately indicate their forgiveness, or they might present themselves favorably to others. In light of these limitations, researchers have called for a multimethod research strategy (McCullough & Witvliet, 2002). However, the use of alternative measures of forgiveness is still in its infancy.

To circumvent the problems intrinsic to self-report, researchers have begun to employ behavioral observations of forgiveness (Carlisle et al., 2012). For example, a recent study found that high-forgiving individuals, as compared to low-forgiving individuals, generated more positive characteristics that describe their transgressor in a free-listing task (Dorn, Hook, Davis, Van Tongeren, & Worthington, 2014, Study 2). Another study demonstrated that individuals who had forgiven their transgressor used more plural pronouns (e.g., we, us) in an unrelated task (Karremans, Van Lange, & Holland, 2005, Study 1). Although promising, it is unclear whether these indices truly represent forgiveness-related behavior—or whether such indices are an epiphenomenal manifestation of some other factor (e.g., demand characteristics).

Another line of research employed a more subtle measure of response time that seeks to capture the processes underlying forgiveness–response decisions (Bast & Barnes-Holmes, 2014). The benefit of this methodology is that it does not require self-insight necessary for self-reports; instead, the relevant characteristic is targeted via performance (Robinson & Neighbors, 2006). For example, Fatfouta, Schröder-Abé, and Merkl (2014) had participants to relive a real-life transgression and then rate their current thoughts and feelings toward the offender (i.e., their state forgiveness). The latency for responding served as an unobtrusive indicator of forgiveness. The rationale behind this approach is that individuals should need less time to rate their state forgiveness when they have already worked through the pain (i.e., when they can easily access internal cues about their forgiveness) than when they have not yet achieved forgiveness (i.e., when they find internal forgiveness cues to be rather difficult to access). Indeed, the authors showed that high-forgiving individuals, as compared to low-forgiving individuals, exhibited faster responses. The authors

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further found that response time was unrelated to socially desirable responding. At present, however, there is no evidence as to *how* forgiveness affects response time. Thus, in the present research, the aim was to replicate and extend these initial findings by exploring the underlying mechanism that mediates this association.

Although several socio-cognitive variables have been shown to impact forgiveness, a critical role has been attributed to rumination (Ysseldyk, Matheson, & Anisman, 2007). Rumination is characterized by a "passive and repetitive focus on the negative and damaging features of a stressful transaction" (Skinner, Edge, Altman, & Sherwood, 2003, p. 242). Cross-sectional studies have demonstrated that forgiveness is negatively related to rumination (Berry, Worthington, Parrott, O'Connor, & Wade, 2001; Thompson et al., 2005). Specifically, individuals who report lower levels of forgiveness ruminate more after an interpersonal transgression (Kachadourian, Fincham, & Davila, 2005). These findings are corroborated by longitudinal data, demonstrating that changes in forgiveness are negatively correlated with changes in rumination (McCullough, Bellah, Kilpatrick, & Johnson, 2001; McCullough, Bono, & Root, 2007).

By mulling an aversive event such as an interpersonal transgression over in their minds, individuals often attempt to understand *why* it upsets them (Watkins & Baracaia, 2001). Such a thought process involves evaluative and analytical questions (e.g., "Why did he/she hurt me?") that revolve around the (negative) causes and consequences of that event (Watkins, 2008; Watkins & Baracaia, 2002). Furthermore, when individuals ruminate, they tend to process information more thoroughly, carefully, and slowly (see Andrews & Thomson, 2009). Hence, when prompted to (1) call to mind a transgression and then (2) rate their state of forgiveness, individuals who ponder on their transgression more persistently than others do, should require more time to arrive at a response (and, hence, exhibit longer latencies). This is consistent with evidence that a deliberative mode of information processing takes time, as indexed by a slowing in response time (Baxter & Hinson, 2001; Fazio, 1990a).

To the extent that response times represent "overt behavioral indices of a covert mental process" (Holden, Woermke, & Fekken, 1993, p. 2), they may provide an appealing approach to the study of forgiveness. Moving beyond previous work, the present research sought to scrutinize the psychological mechanism underlying the association between forgiveness and the time with which individuals generated responses to state forgiveness ratings following the transgression recall. If individuals high (vs. low) in forgiveness are faster to rate their state forgiveness, it is perhaps their reduced amount of ruminative tendencies that explains this association. To test this hypothesis, a mediation model is proposed in which individuals high (vs. low) in forgiveness would display lower ruminative tendencies and this, in turn, might mediate the association between forgiveness and response time.

2. Methods

2.1. Participants

Seven hundred and sixty-seven individuals (76.6% women) of the general population, living in Germany (69.9%), Austria (28.3%), and Switzerland (1.8%), were recruited to complete an online study. Participants ranged in age from 18 to 60 (M_{age} = 24.02, SD = 5.19), and 23.3% held a college or university degree. All participants were German speaking. As an incentive, participants were offered entry into a raffle for a 25€ gift card.

2.2. Procedure

After consenting to participate, individuals completed the measures described below. Each item appeared one at a time on the computer screen. To proceed with the next item, participants had to click on the respective response category. Participants first answered questions to obtain a measure of their baseline speed (see Baseline speed) and then completed a measure of trait forgiveness. Next, participants were instructed to bring to mind a real-life situation in which someone had hurt them and to "indicate your current thoughts and feelings about the person who hurt you; that is, we want to know how you feel about that person right now." Participants then completed measures of rumination about the transgression and state forgiveness. Response time was recorded as the time (in milliseconds) between item presentation and response selection. Participants were not informed that response time was being assessed so their behavior reflects their natural speed of responding (Lischetzke, Angelova, & Eid, 2011; Lischetzke, Cuccodoro, Gauger, Todeschini, & Eid, 2005).

3. Measures

3.1. Baseline speed

Given that response time was used as an individual-difference variable, it was particularly important to control for participants' baseline speed of responding (Fazio, 1990b). Baseline speed was assessed by means of ten easy-knowledge questions (e.g., "What type of celestial body is the earth?" (1) White giant; (2) Planet; (3) Asteroid; (4) Moon; Fatfouta et al., 2014; Lischetzke et al., 2005). The correct answer was always obvious, so that response time tapped only individual differences in reading ability and motor skills (e.g., muscle speed). Median item accuracy was high (100%), thus confirming this rationale. Following the procedures outlined by Ratcliff (1993), fixed-cutoff values were used to minimize the impact of response-time outliers; very fast ($\leqslant 1000$ ms) and very slow ($\geqslant 10,000$ ms) latencies were excluded on this base (4.6% of response times). The first question was regarded as a training item to familiarize participants with the response format and was therefore removed from the analysis (for a similar procedure, see Lischetzke et al., 2005, 2011). As a robust estimator of central tendency, the median rather than the mean of the remaining nine response time scores was calculated (Whelan, 2008).

3.2. Trait forgiveness

Trait forgiveness was measured with the four-item Tendency to Forgive Scale (TTF; Brown, 2003; e.g. "When people wrong me, my approach is just to forgive and forget"). Participants rated each item on a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

3.3. Rumination about the transgression

Rumination about the transgression was assessed using an adapted version of the post-event rumination scale (McCullough et al., 2007). Participants responded to six items (e.g., "Images of the offense kept coming back to me") on a 7-point Likert-type scale from 1 (*not at all true of me*) to 7 (*extremely true of me*).

3.4. State forgiveness

State forgiveness was assessed with the Transgression-Related Interpersonal Motivations Inventory (TRIM; McCullough et al., 1998, 2006). The questionnaire assesses individuals' motivational