

**Validating A New Behavioural Measure of Forgiveness and Revenge: The Relationship Between
Behavioural Forgiveness, Well-being, and Relationship Quality**

a1780146

The University of Adelaide

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Abstract

Over the past three decades, researchers have devised a number of measures to examine forgiveness that capture motivations, traits, and states. Despite this, the domain of behavioural forgiveness has been largely underutilised and, as such, no self-report measure of behavioural forgiveness currently exists. This study aims to further validate a new Behavioural Measure of Forgiveness and Revenge developed to address this gap in the literature (Bradley et al., 2019; Hilferty et al., 2022). To achieve this, the predictive power of the new behavioural measure was investigated for two important outcomes of forgiveness: well-being and relationship quality. A sample of $N = 253$ was examined on measures of behavioural forgiveness and revenge, relationship quality, and four theoretical representations of wellbeing: self-esteem, self-compassion, perceived sense of internal control, and state empowerment. Results from Pearson's bivariate correlation and hierarchical regression analyses partially support the research hypotheses, confirming an association between enacted forgiveness and revenge behaviours, and the self-assessed quality of participants' relationships. Relationship quality was a significant predictor of both behaviours. Findings did not support the predictive power of the new behavioural measure for subjective wellbeing, or an association between the behaviours and wellbeing variables. Findings indicate the new Behavioural Measure of Forgiveness and Revenge may have practical and theoretical implications by informing future forgiveness interventions, or by contributing to the triangulation of forgiveness research. More research is necessary to establish the nomological network of the new behavioural measure and determine its validity in relation to psychological constructs.

Keywords: Behavioural Forgiveness, Well-being, Relationship Quality, Validity

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the school to restrict access for a period of time.

September 2023

CONTRIBUTOR ROLES

ROLE	ROLE DESCRIPTION	STUDENT	SUPERVISOR 1	SUPERVISOR 2
CONCEPTUALISATION	Ideas: formulation or evolution of overarching research goals and aims.	X	X	
METHODOLOGY	Development or design of methodology; creation of models.	X	X	
PROJECT ADMINISTRATION	Management and coordination responsibility for the research activity planning and execution.	X	X	
SUPERVISION	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.		X	
RESOURCES	Provision of study materials, laboratory samples, instrumentation, computing resources, or other analysis tools.	X		
SOFTWARE	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code.	X		
INVESTIGATION	Conducting research - specifically performing experiments, or data/evidence collection.	X		
VALIDATION	Verification of the overall replication/reproducibility of results/experiments.	X		
DATA CURATION	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.	X		
FORMAL ANALYSIS	Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data.	X		
VISUALIZATION	Visualization/data presentation of the results.	X		
WRITING – ORIGINAL DRAFT	Specifically writing the initial draft.	X		
WRITING – REVIEW & EDITING	Critical review, commentary, or revision of original draft	X	X	

Validating A New Behavioural Measure of Forgiveness and Revenge: The Relationship Between Behavioural Forgiveness, Well-being, and Relationship Quality

Forgiveness is accepted as a function of human nature, essential for maintaining relationships and supporting social cohesion. Over the past three decades, psychologists have increasingly chronicled the healing effects of forgiveness for victims and their relationships, in what is now a vast and rich well of knowledge. Forgiveness is now known to influence both physical (Cheadle & Toussaint, 2015) and psychological health (Griffin et al., 2015), as well as the quality of people's interpersonal relationships (McCullough et al., 1997) and well-being (Gao et al., 2022). But how and why we forgive is difficult to conceptualise and thus, many different theoretical explanations have been proposed (Lawler-Row et al., 2007). This broad variation in conceptualisations has led to the development of numerous measures assessing almost every component of forgiveness (Worthington et al., 2015). However, despite the focus in recent years, at least one gap in the literature is evident – a behavioural measure of forgiveness. No measure of self-reported behavioural forgiveness exists, despite the limitations of existing behavioural measurement methods presently used in the field of forgiveness research (Fernandez-Capo et al., 2017). A project spanning several unpublished works has been devised to address this discrepancy and, in doing so, has developed a new multimodal self-report measure of forgiveness and revenge behaviours (Bradley et al., 2019; Hilferty et al., 2022). The current study builds upon previous work with the aim to further validate the new behavioural measure's predictive validity pertaining to important aspects of inter and intrapersonal forgiveness – well-being and relationship quality.

Forgiveness Defined

Forgiveness is complex and can be conceptualised in many different ways – leading to a lack of consensus regarding a standard definition. Fundamentally, forgiveness has been described as the process of releasing negative feelings towards an offender (Enright, 1996). This understanding of forgiveness can be characterised by three dimensions: the orientation (towards self or other), the direction (passive letting go or active orientation to positive feeling), and the form (e.g., emotion, cognition, and behaviour) (Lawler-Row et al., 2007). Researchers have focused on different aspects of

forgiveness across each of these dimensions, exploring forgiveness as both an intrapersonal and interpersonal process (Worthington, 2005), and as an affective (Berry et al., 2005;), motivational (McCullough, 2001), cognitive (DiBlasio, 1998; Luskin, 2002), or physiological (Witvliet, 2005) change.

To a lesser extent, researchers have explored the behavioural aspect as a mode of forgiveness. Behavioural theorists see forgiveness as an observable interpersonal process, with a series of stages marked by an increase in prosocial interactions, and the reduction of withdrawing behaviours e.g., avoidance or retaliation (Reed & Enright, 2006). The new Behavioural Measure of Forgiveness and Revenge is theoretically underpinned by the behavioural definition of forgiveness (Hilferty et al., 2022), which informs this study throughout.

Subsequently, differences in theological, ideological, theoretical, and philosophical understandings of forgiveness have resulted in it being operationalised broadly throughout research (Lawler-Row et al., 2007). However, so far, this operationalisation has been largely confined to a single mode of measurement – self-report.

Measuring Forgiveness

Self-Report

Predominantly, forgiveness has been assessed using self-report measures that examine different components of forgiving based on their theoretical conceptualisations (Worthington et al., 2015). For example, measures include but are not limited to, domains of interpersonal (Enright & Fitzgibbons, 2000), episodic (McCullough et al., 1998), and dispositional forgiveness (Berry et al., 2005). Self-report measures are known to gather rich and robust data that reflect respondents' self-view and identity, rather than relying on researchers' interpretations (Paulhus & Vezire, 2007). Another advantage lies in the practicality of self-report measures, which tend to be both highly efficient and inexpensive. However, despite the vast use of self-report measures in this field, analyses show that this mode of assessment may not be sufficient or sensitive enough to detect implicit emotions, behaviours, or attitudes, which generally require a level of reflexivity from respondents (Fernández-Capo et al., 2017). Implicit emotions play a significant role in psychological processes, as is largely the case in the context of forgiveness. Moreover, to be interpretable, self-report measures

rely on researchers and respondents sharing a mutual conceptualisation of forgiveness (Kemp et al., 2021). Research suggests academic understandings of forgiveness diverge from lay constructs, which often converge with other notions such as accepting, reconciliation, and forgetting (Lawler-Row et al., 2007). Consequently, self-report measures alone may not tell the whole story, with recent recommendations calling for a more multimodal approach to forgiveness research (Hoyt & McCullough, 2007), and the triangulation of measurement methods in the field (Fernández-Capo et al., 2017).

Behavioural

The use of behavioural measures in assessing forgiveness is somewhat limited and has often been confined to experimental conditions (e.g., lab-based) for observational research (Fernández-Capo et al., 2017). Behavioural measures have consistently focused on recording representations of prosocial behaviour towards an offender, often in contrived situations devised by researchers that involve narcissistic or exclusionist antagonists (Carlisle et al., 2012; Dorn et al., 2014; Exline et al., 2004; Zechmeister et al., 2004). Due to ethical concerns, and the nature of experimental conditions in general, lab-based scenarios are often weaker than real-world transgressions and conducted with transgressors not known to the victim (Kemp et al., 2021). As a result, findings are often not representative of real-world interactions, and therefore not generalisable.

Behavioural measures are also highly susceptible to social desirability bias (Fernández-Capo et al., 2017) as forgiveness is seen as prosocial, and therefore favourable (Lawler-Row et al., 2007). This susceptibility has further implications when interpreting the results of behavioural measures, where difficulties may arise in differentiating whether existing behavioural methods are measuring forgiveness per se, or rather instances of prosocial behaviours or tendencies (Kemp et al., 2021). For these reasons, existing behavioural methods have displayed psychometrically weak properties, and may be best suited to complement self-report measures by providing validation and nuance (Fernández-Capo et al., 2017). Despite the demonstrated need, there is currently no measure that combines self-report and behavioural methods of assessment to evaluate forgiveness.

The New Behavioural Measure of Forgiveness and Revenge

Development and Previous Research

A new self-report measure of behavioural forgiveness has been developed to alleviate the discrepancy in forgiveness research methodology. The new measure records the presence of victims' recalled forgiveness and revenge behaviours on a dichotomous yes/no scale. The new measure therefore can discern discrepancies between forgiving motivations and hostile behaviours to reflect the presence of implicit emotions by allowing respondents to answer objectively. Furthermore, by limiting respondents' ability to answer in a categorically logical, favourable (e.g., social desirability bias), or agreeable (e.g., acquiescence bias) way, the dichotomous response mechanism reduces susceptibility to response biases that commonly plague self-report measures. Unlike existing behavioural methods, the new measure records behavioural observations specific to real transgressions which hold personal relevance to participants, and therefore has the opportunity to produce more meaningful data. Consequently, the new behavioural measure may pick up on attitudes and behaviours that existing measures have missed and perhaps offer a more nuanced insight into how forgiveness and revenge interact.

Several unpublished studies have been conducted to test the validity of the new behavioural measure, providing promising results. Initial pilot studies have established the current two-factor structure consisting of 20 items following a principal components analysis, confirmatory factor analyses, and face validity assessment by a panel of experts (Bradley et al., 2019; Hilferty et al., 2022). Preliminary studies indicate the new behavioural measure has good psychometric qualities, as evidenced by a positive association with the Transgression-Related Interpersonal Motivations Inventory (TRIM-18; McCullough et al., 1998), a widely used and extensively validated measure of forgiveness. Additionally, these studies have tested the new behavioural measure against a battery of existing episodic forgiveness scales, and in a short-term longitudinal design ($N = 374$). Results support the new measure's strong construct validity and temporal stability. Findings from previous studies also provide evidence of a positive relationship between forgiving and vengeful behaviours, suggesting individuals do not follow a linear path to forgiveness, but enact both behaviours following a transgression (Bradley et al., 2019). These findings support the theory that vengeful behaviours may

help to facilitate the forgiveness process (Strelan et al., 2017), and further validate the new behavioural measure as a valuable tool to assess this interaction. So far, preliminary research has assessed the new behavioural measure's ability to predict trait-level variables such as agreeableness and neuroticism (Bradley et al., 2019), forgiveness, revenge, empathy, rumination, and the willingness to reconcile (Hilferty et al., 2022). The current study aims to further validate the new behavioural measure by assessing its predictive validity and extending the current nomological network. Namely, to see whether the new measure has predictive power of two now well-established outcomes of forgiveness that affect people's everyday lives – subjective well-being and relationship quality.

Why Should We Forgive?

Well-being

Described as synonymous with the coping process (Strelan & Covic, 2006), forgiveness has been linked to a variety of physical and psychological health benefits (Cheadle & Toussaint, 2015; Enright & Fitzgibbons, 2000; Gao et al., 2022). As unforgiveness is a known driver of stress and negative affect (Toussaint & Webb, 2005), it follows that forgiveness has a variety of healing effects including lower blood pressure (Hannon et al., 2012; Toussaint et al., 2001), decreased stress hormones i.e., cortisol (Worthington & Scherer, 2004), reduced inflammation (Friedberg et al., 2015), and better cardiovascular health and immune responses (Toussaint et al., 2017). Additionally, forgiveness may further strengthen existing adaptive coping strategies, resulting in improved mental health, subjective life satisfaction and well-being (Toussaint et al., 2016).

Overall, vast literature in the field has substantiated that well-being is an important outcome of forgiveness, in the form of reduced anger, anxiety, and depression (Lawler-Row & Piferi, 2006), increased empathy, compassion (Exline et al., 2003), and enhanced psychological resilience to adversity (Wade et al., 2014). Despite these findings, the effects of forgiveness at an intrapersonal level are somewhat juxtaposed. Although some research suggests forgiveness is related to an increased capacity for self-acceptance of one's flaws (Hirsch et al., 2011), contradictory findings show that being overly forgiving may lead to a reduction in perceived self-worth and feelings of powerlessness (Exline et al., 2003). Self-esteem is shown to erode when forgiveness is granted without sufficient remorse or amends (Exline et al., 2003), or when one self-forgives without

accepting accountability or rectifying future behaviours (Hirsch et al., 2011). When forgiveness is arduous it can result in further psychological distress for both victims and offenders (Ermer & Proulx, 2016). For example, research shows feelings of self-control are depleted when one must work to rationalise or suppress negative emotions or behaviours (e.g., anger, retribution) in order to forgive (Strelan & Covic, 2006), whereas dispositional forgiveness tendencies may act as a protective factor for self-control (Exline et al., 2003).

Quality of Relationships

In a general sense, research indicates that forgiveness fosters healthier interpersonal dynamics and prosocial interactions (McCullough et al., 1997). Larkin et al. (2015) hypothesised that a person's emotional reactions and physiological responses would differ according to the personal relevance of the experimental stimuli; the same can be said for interpersonal forgiveness. An individual's experience of forgiveness and the emotional aftermath have been directly related to the personal severity and relevance of the transgression (Carlisle et al., 2012), and whether or not an apology and/or remorse were offered by an offender (McCullough et al., 1998).

When forgiveness is relationship-focused between couples, it is associated with restoration, reconciliation, the rebuilding of trust, (Fincham et al., 2007), and enhanced long-term stability (Karremans et al., 2003). On the other hand, individuals who are excessively forgiving of their partners report a greater prevalence of future transgressions and lower relationship satisfaction overall (McNulty, 2008; 2011). This may be because excessive forgiveness can ultimately affect an individual's assertiveness, leading to increased levels of vulnerability experienced within the relationship (Paleari et al., 2005). A longitudinal study that examined well-being in married couples ($N = 144$) over five years demonstrates this effect. They found that a victim's sense of self-respect and self-concept clarity eroded when they forgave a partner who subsequently failed to signal safety and appreciation in the continued relationship, likened to that of a human doormat (Luchies et al., 2010). Ultimately, the findings, although conflicting, suggest that relationship quality is an important outcome of forgiveness, which may be mutually beneficial or mutually destructive for victims and offenders alike.

Revenge

The new measure of behavioural forgiveness also includes items that assess revenge behaviours. It is common for individuals experiencing emotional injury following a transgression to commit uncharacteristic acts of revenge towards a partner (Murphy, 1982; Rowe et al., 1989). Revenge has been defined as a response to harm, intended to cause punishment or discomfort to an offender (Fridja, 1994). Given that existing models typically characterise forgiveness as the process of reducing hostility, it would be logical to place forgiveness and revenge at opposite ends of the emotional spectrum. Despite this, research suggests that forgiveness and revenge may exist on a continuum. Revenge may help to close the gap created by the offence in the absence of restitution or remorse, thereby facilitating the forgiveness process (Strelan et al., 2017). Research supports this theory, finding most acts of revenge are concerned with retributive justice, rather than inflicting harm (Osgood, 2017). Injured partners often carry out revenge as a sort of ‘vigilante justice’ to alleviate power imbalances within the relationship (Exline et al., 2003), and restore faith in a ‘just’ world (Strelan & Sutton, 2011). Moreover, revenge is an evolutionary punitive measure used to deter partners from reoffending by implying that offences will have negative consequences and will not be tolerated (Gordon & Baucom, 1998; McCullough et al., 2013).

Like forgiveness, research has demonstrated that acting vengefully may be influential in predicting the quality of an individual's well-being and personal relationships. For example, when transgressed against, victims may experience a threatened sense of self, and a perceived loss of power (Bies & Tripp, 2005). Acting vengefully has been shown to enact feelings of empowerment for victims in a threatened state by reaffirming self-image (Gollwitzer & Bushman, 2012), and providing an assertive response to disrespect (Strelan et al., 2017). This may further help to strengthen a victim's self-esteem, as revenge is often interpreted as strength (Zdaniuk & Bobocel, 2012). However, revenge has also been associated with worse relationship outcomes (Fincham et al., 2004) and well-being (e.g., higher depression and negative affect, lower life satisfaction) (McCullough et al., 2001; Ysseldyk et al., 2019).

Current Study

In this study, the new behavioural measure of forgiveness and revenge will be evaluated in relation to important known outcomes of forgiveness not yet considered in preliminary studies with the aim to further validate the measure's predictive validity and in doing so, extend the nomological network. To achieve this, the relationship between the behavioural measure, the participants' current relationship quality, and constructs representative of wellbeing including, self-esteem, self-compassion, perceived sense of internal control, and empowerment, will be assessed through correlation analyses. In addition, hierarchical regression analyses will examine whether the new behavioural measure can predict well-being and relationship quality in this sample when considering the role of perceived hurt, remorse, and intent.

Hypotheses

The following is hypothesised for the current study.

1. Enacted forgiveness behaviours will have a positive association with relationship quality, state empowerment, and perceived control of internal states.
2. Enacted revenge behaviours will have a negative association with relationship quality.
3. Enacted forgiveness and revenge behaviours will have an association with self-esteem and self-compassion, although the direction of this relationship may be positive or negative.

Method

Participants

258 individuals participated in this study. Five participants were excluded from the final dataset for inadequate fulfilment of the study requirements, resulting in a sample of $N = 253$.

Participants are comprised of members from the wider community and abroad who were recruited via snowball sampling through friends, family, and acquaintances. Online research platforms such as Survey Circle were used to recruit more broadly. The age of participants ranged from 18 to 62 years ($M = 28.7$, $SD = 8.7$), of which 71.2% identified as female, 28.1% as male and 0.8% as non-binary or did not wish to say. Nationalities varied across European (47.8%), Australasian (21.3%), Asian (13.4%), North American (9.5%), African (5.5%), and South American (2.4%) backgrounds.

Participation in this study was completely voluntary, therefore all individuals were recruited by self-selecting to partake and received no reimbursement or incentivisation for their involvement. To be included in this study, participants were required to be a minimum of 18 years of age, proficient in English, and in an ongoing romantic relationship in which they could recall a recent hurtful event occurring. A sample size of 199 participants was deemed sufficient for correlational analyses according to an a priori power analysis conducted on G*Power, for an estimated effect size of $r = .2$, with power of .8 and $\alpha = .05$.

Procedure

Participants accessed the self-report style survey online through the website Qualtrics. Participants were first required to provide informed consent, following which, demographic information was obtained through a series of questions. For the purpose of recollection enhancement and survey personalisation, participants were then asked to provide their partner's name and briefly describe a recent event in which their partner caused their feelings to be hurt. Partners' names were then included in any further questions that referenced them. Names and overviews were removed once data collection was complete to retain the anonymity of participants. For further context and corroboration of the reported transgressions, participants were asked how long ago the transgression had transpired. Finally, participants responded to measures of transgression-specific variables,

forgiveness and revenge behaviours, self-compassion, self-esteem, empowerment, current relationship quality/investment, and perceived sense of internal control.

Materials

Demographic Information

Participants provided demographic information pertaining to age, sex, and nationality.

Behavioural Forgiveness and Revenge

Developed previously as part of a pilot study, the new Behavioural Measure of Forgiveness and Revenge is a 20-item scale that examines the recalled enactment of forgiveness and revenge behaviours towards another (Bradley et al., 2019). The following 12 items measure behaviours that express forgiveness ($\alpha = .81$): ‘I have gone out of my way to engage with X’, ‘I have continued to do things with X that we did before the incident’, ‘I continue to communicate with X [either in person or online]’, ‘I have interacted with X in a friendly manner’, ‘I have assisted/helped X in some way’, ‘I have spoken positively of X to other people’, ‘I have given X compliments’, ‘I have said things that have helped X feel better about what he/she did’, ‘I have literally told X that I forgive him/her’, ‘I have asked X for help/assistance’, ‘I have shared my personal achievements/good news with X’, ‘I have stuck up for X in front of other people’.

The remaining eight items measure revenge behaviours ($\alpha = .67$): ‘I have insulted X because of what he/she did’, ‘I have made X look bad in front of others’, ‘I have made X feel bad about what he/she did’, ‘I have set X up to get into trouble’, ‘I have told X that I would never speak to him/her again’, ‘I have posted hurtful or disrespectful things about X on social media’, ‘I have reminded X about what he/she did to me’, ‘I have explicitly told X what he/she did to me’. The scale records dichotomous *yes/no* responses to all items, where higher scores indicate a greater occurrence of vengeful or forgiving behaviours. Previous psychometric testing has confirmed the new Behavioural Measure of Forgiveness and Revenge fits a distinct two-factor structure ($\chi^2(374) = 311.995, p < .001, CFI = .970, TLI = .966, RMSEA = .048, CI_{90} [.039, .056]$), as indicated by confirmatory factor analysis (Hilferty et al., 2022).

Transgression-Specific Variables

Nine items measured transgression-specific variables. Of this, three items measured the transgression severity, or degree of hurt experienced by the participant e.g., ‘What they did was hurtful’ ($\alpha = .66$). Three items measured the level of remorse perceived by the participant e.g., ‘They made amends for what they did’ ($\alpha = .88$), and three items measured how intentional the participant felt the behaviour was e.g., ‘I think that they acted on purpose’ ($\alpha = .94$). All nine items were measured on a five-point Likert scale in which 1 = *Strongly disagree* and 5 = *Strongly agree*. Total scores were averaged, in which higher scores indicate greater agreement and personal relevance/severity of the transgression to the participant.

Empowerment

Participants’ state empowerment at the time of survey administration was measured by six items revised from Spreitzer (1995) to reflect situation-specific empowerment (Strelan et al., 2017). Participants rated their agreement on a seven-point Likert scale where 1 = *Strongly disagree* and 7 = *Strongly agree*, to items with the prompt ‘right now, I feel...’. Options ranged from, ‘empowered’, ‘confident’, ‘Like I am in charge’ etc. Total scores were averaged, in which higher scores indicate greater agreement. A Cronbach’s alpha of .91 suggests the scale has excellent reliability.

Self-Compassion

Self-compassion was measured using the Self-Compassion Scale-Short Form (SCS-SF) (Raes et al., 2011). The SCF-SF is a 12-item adaptation of the Self-Compassion Scale (Neff, 2003). The SCF-SF assesses self-compassion relating to six factors: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification with items such as, ‘I try to see my failings as part of the human condition.’ Items are measured on a five-point Likert scale in which participants rate the frequency of occurrence, from 1 = *Almost never* to 5 = *Almost always*. The mean of each subscale is calculated and used to determine an averaged total. Scores are interpreted as 1 to 2.49 = low, 2.5 to 3.5 = moderate, and 3.51 to 5 = high in self-compassion. The SCS-SF has shown good internal consistency in this study ($\alpha = .83$).

Self-Esteem

To measure participants self-esteem, Rosenberg's (1965) Self-Esteem Scale was used. The Self-Esteem Scale is comprised of 10 items (e.g., 'I take a positive attitude toward myself'), measured on a 4-point Likert scale in which 1 = *Strongly agree* and 4 = *Strongly disagree*. Scores are then summed, with total possible scores ranging from 0 - 30. Higher scores are indicative of greater self-esteem. Scores between 15 - 25 are considered within range, whereas scores below 12 indicate low self-esteem. The Self-Esteem scale demonstrates good internal consistency ($\alpha = .84$).

Control

The Perceived Control of Internal States Scale (PCOISS) was used to measure how in-control participants felt of their internal states in the domains of emotions, thoughts, and physical reactions (Pallant, 2000). The scale consists of 18 items such as, 'My feelings are usually fairly stable.' Items are measured on a five-point Likert scale in which 1 = *Strongly disagree* and 5 = *Strongly agree*. Total scores are determined by summing all values. Possible scores range from 18 to 90, where higher scores correspond with greater perceived control and competence beliefs. The PCOISS displays excellent internal consistency ($\alpha = .90$).

Relationship Quality

The Investment Model Scale (IMS) is designed to measure an individual's commitment and satisfaction level with the intimacy, companionship, sexuality, security, and emotional involvement of their relationship, the quality of alternatives available to them and current investment (Rusbult et al., 1998). A revised short form of the IMS was used to obtain participants' current evaluation of their relationship quality with the perpetrator (Lehmiller & Agnew, 2006). 15 items are included in the scale (e.g., 'I feel satisfied with our relationship'). Individuals rate their agreement on a nine-point Likert scale, ranging from 1 = *Do not agree at all* to 9 = *Agree completely*. Scores of each subscale are summed, where higher scores relate to better couple functioning and relationship status. The IMS revised short form has shown good reliability ($\alpha = .89$).

Results

Overview of Transgression-Specific Variables

Participants recalled and reported transgressions such as betrayals of trust, dishonesty, deception, infidelity, abandonment, disrespect, emotional neglect, and psychological abuse. The amount of time elapsed since the transgressions occurred varied, ranging from 0 to 4000 days ($M = 118.7$, $SD = 485.62$). One sample t-tests were performed to compare participants' transgression-specific variables scores with the scale's midpoint value (3) as a reference. Results from one sample t-tests indicate the level of hurtfulness (transgression severity) experienced by participants ($M = 2.99$, $SD = .88$), was comparatively similar to the scales midpoint $t(252) = -.26$, $p = .79$. Participants felt that the transgressions were less intentional ($M = 2.69$, $SD = 1.28$) than the midpoint of the scale $t(252) = -3.84$, $p = .000$, but that the transgressors showed more remorse than the midpoint ($M = 3.38$, $SD = 1.23$), $t(252) = 4.86$, $p = .000$.

Correlation Analyses

Prior to analyses, Shapiro-Wilks and Kolmogorov-Smirnov tests of normality were carried out to assess the data. Results indicate all but one variable to be non-normal ($p < .05$). Further visual inspection of histograms and QQ plots indicate the data does not deviate significantly from normality, demonstrating an approximately normal distribution. Research has demonstrated that with large enough samples (> 30 or 40), the sampling distribution tends to be normally distributed, and the use of parametric tests should not cause significant problems (Ghasemi & Zahediasl, 2012). Based on these findings and visual inspection of the data, parametric tests were deemed suitable and employed for the following analyses.

Pearson's bivariate correlations were conducted to test research hypotheses one, two and three regarding associations between forgiveness and revenge behaviours, well-being variables and relationship quality. The resulting correlations are shown in Table 1, which includes transgression-specific variables for exploratory analyses.

Positive Relations between Forgiveness Behaviours, Well-being, and Relationship Quality

Hypothesis one predicted a significant positive relationship between forgiveness behaviours, relationship quality and well-being constructs of empowerment, and perceived control of internal states. As shown in Table 1, Pearson's bivariate correlation analysis found a moderate, positive relationship between forgiveness behaviours and relationship quality that was statistically significant. No association was evident between forgiveness behaviours and empowerment or perceived control of internal states. Therefore, hypothesis one is only partially supported¹.

Negative Relations between Revenge Behaviours and Relationship Quality

Hypothesis two predicted that there would be a significant negative relationship between revenge behaviours and participants' current relationship quality. Results from Pearson's bivariate correlation analysis support the hypothesis, indicating there is a significant small, negative association between revenge behaviours and relationship quality, as shown in Table 1.

Exploratory Analysis

Hypothesis three was aimed at exploring the association between forgiveness and revenge behaviours and well-being constructs of self-esteem and self-compassion. The direction of the relationship for hypothesis three was not hypothesised, as self-esteem and self-compassion are two constructs that have been shown to relate both positively and negatively to forgiveness in different samples and circumstance. As shown in Table 1, no significant relationship was found between revenge or forgiveness behaviours and self-esteem or self-compassion². Therefore, hypothesis three was not supported.

¹ A partial correlation analysis controlling for gender resulted in a significant positive association ($p < .05$) between forgiveness behaviours and empowerment ($r = .12$).

² A partial correlation analysis controlling for the amount of time since transgressions occurred returned a significant negative association ($p < .05$) between revenge behaviours and self-esteem ($r = .14$) and perceived sense of internal control ($r = .14$).

Table 1

Pearson's Bivariate Correlations between Forgiveness and Revenge Behaviours, Well-being Variables, Transgression-Specific Variables and Relationship Quality

	1	2	3	4	5	6	7	8	9	10
1. Forgiveness	-									
2. Revenge	-.038	-								
3. Intent	-.276**	.313**	-							
4. Hurt	-.113	.337**	.491**	-						
5. Remorse	.320**	-.007	-.265**	-.144*	-					
6. Internal Control	.076	-.131*	.014	-.118	.046	-				
7. Self-Compassion	.033	-.048	.028	-.053	.017	.714**	-			
8. Self-Esteem	.090	-.113	-.086	-.149*	-.012	.557**	.564**	-		
9. Empowerment	.122	-.060	-.160*	-.135*	.302**	.378**	.337**	.416**	-	
10. Relationship Quality	.393**	-.186**	-.318**	-.184**	.369**	.033	.044	.056	.185**	-

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

Regression Analyses Examining Predictors of Forgiveness and Revenge Behaviours

Hierarchical regression analyses were performed to further examine the extent to which the well-being variables of interest may contribute unique variance in predicting forgiveness or revenge behaviours when also considering other variables of interest to the study. Two hierarchical regression analyses were conducted which regressed the well-being variables, the transgression-specific variables, and relationship quality onto dependent variables of forgiveness and revenge behaviours. Prior to analyses assumptions of normality, linearity, multicollinearity, and homoscedasticity were assessed. Given the large sample size ($N > 15$ per IV), visual inspection of the data was considered sufficient to assess assumptions of normality, linearity, and homoscedasticity (Stevens, 1996). Visual inspection was conducted via histograms and scatterplots of residuals, and suggests that the data has acceptable normality, linearity, and homoscedasticity. The multicollinearity of predictors was assessed by examining the value inflation factors (VIF) and tolerance values. No evidence of multicollinearity was found, as indicated by VIF ranging from 1.1 to 2.3, and tolerance values between .43 and .93. As shown in Table 2, correlation coefficients between all independent variables were also below the suggested cut-off of .80 (Berry & Feldman, 1985). Based on the results, hierarchical regression analysis was deemed appropriate given the dataset.

Hierarchical Regression Predicting Forgiveness Behaviours

The first hierarchical regression predicted forgiveness behaviours, the results of which are displayed in Table 2. Step one included the transgression-specific variables of perceived hurt (severity), remorse and intent. Step one accounted for 14% of the variance in forgiving behaviours $R^2 = 0.14$, $\Delta R^2 = 0.14$, $F(3, 249) = 13.81$, $p < .001$. The inclusion of relationship quality in step two accounted for an additional 7% of the variance and was a significant predictor of forgiveness behaviours $R^2 = 0.21$, $\Delta R^2 = 0.07$, $F(1, 248) = 20.54$, $p < .001$. The inclusion of well-being variables, self-esteem, self-compassion, state empowerment and perceived sense of internal control in step three and revenge behaviours in step four accounted for less than 2% of the variance in forgiveness behaviours respectively, and results confirm they were not significant in predicting forgiveness behaviours. As shown in Table 3, results from the hierarchical regression indicate the transgression-

specific variables in step one accounted for the greatest variance in forgiveness behaviours. Of the transgression-specific variables included in step one, the level of remorse perceived by the victim was the most significant predictor of forgiving behaviours overall ($\beta = .27$, $CI = .03, .07$, $p < .001$). Perceived remorse further contributed the most unique variance in forgiveness behaviours along with relationship quality ($r = .066$, $p < .001$). The perceived level of intent by the victim was also a significant negative predictor of forgiveness behaviours, though the level of hurtfulness (transgression severity) was not.

Table 2

Hierarchical Regression Analysis with Transgression-Specific Variables, Well-being Variables, Relationship Quality and Revenge Behaviours as Predictors of Forgiveness Behaviours

Predictors	R^2	ΔR^2	<i>Forgiveness Behaviours</i>				
			β	95% CI		p	sr^2
				LB	UB		
Step 1:	.143	.143					
Hurt			.035	-.025	.043	.606	.001
Intent			-.223	-.063	-.015	.001	-.036
Remorse			.266	.027	.071	.000	.066
Step 2:	.208	.066					
Relationship Quality			.284	.025	.064	.000	.066
Step 3:	.218	.010					
Internal Control			.090	-.028	.091	.295	.003
Empowerment			-.053	-.034	.015	.436	-.002
Self-Esteem			.081	-.030	.104	.278	.004
Self-Compassion			-.067	-.084	.036	.430	-.002
Step 4:	.223	.005					
Revenge			.075	-.051	.210	.230	.005

Note. Total $N = 253$. CI = confidence interval; UB = upper bound; LB = lower bound.

Hierarchical Regression Predicting Revenge Behaviours

A second hierarchical regression predicted revenge behaviours; a summary of the results is provided in Table 3. Step one included the transgression-specific variables (hurt, remorse, intent) and accounted for 15% of the total variance ($R^2 = 0.15$, $\Delta R^2 = 0.15$, $F(3, 249) = 14.53$, $p < .001$). Results indicate that the transgression-specific variables in step one also accounted for the greatest variance in revenge behaviours, though the level of hurtfulness perceived by the victim (transgression severity) was found to be the most significant predictor in this model ($\beta = .24$, $CI = .03, .09$, $p < .001$). As shown in Table 3, the level of intent perceived by the victim was also a significant predictor of revenge behaviours, though perceived remorse was not. The level of hurtfulness also added the most unique variance in revenge behaviours ($r = .045$, $p < .001$), followed by intent ($r = .034$, $p < .05$). With the inclusion of relationship quality in step two, an additional 1% of the variance in revenge behaviours was accounted for ($R^2 = 0.16$, $\Delta R^2 = 0.01$, $F(1, 248) = 3.93$, $p < .05$). The inclusion of well-being variables in step three and forgiveness behaviours in step four accounted for less than 2% of the variance in revenge behaviours respectively, and neither were found to be significant predictors.

Table 3

Hierarchical Regression Analysis with Transgression-Specific Variables, Well-being Variables, Relationship Quality and Forgiveness Behaviours as Predictors of Revenge Behaviours

Predictors	R^2	ΔR^2	Revenge Behaviours				p	sr^2
			β	95% CI				
				LB	UB			
Step 1:	.149	.139						
Hurt			.243	.027	.091	.000	.045	
Intent			.217	.013	.059	.002	.034	
Remorse			.086	-.006	.035	.159	.007	
Step 2:	.162	.149						
Relationship Quality			-.128	-.038	.000	.048	-.013	
Step 3:	.178	.151						
Internal Control			-.169	-.114	.001	.054	-.013	
Empowerment			.033	-.018	.029	.633	.001	
Self-Esteem			-.022	-.074	.055	.775	.000	
Self-Compassion			.084	-.030	.087	.335	.003	
Step 4:	.183	.153						
Forgiveness			.079	-.047	.196	.230	.005	

Note. Total $N = 253$. CI = confidence interval; UB = upper bound; LB = lower bound

Discussion

Summary of Findings

Correlations Between Forgiveness and Revenge Behaviours, Well-being, and Relationship Quality

Results confirmed an association between enacted forgiveness and revenge of the new behavioural measure and the current quality of participants' relationship with the perpetrator. The finding partially supported hypothesis one, predicting positive relations between forgiveness behaviours and relationship quality, and further supported hypothesis two, predicting a negative association between revenge behaviours and relationship quality. Although significant, associations resulting from bivariate correlation analyses were relatively weak across the board and therefore must be interpreted as such. Findings, however, did not support the predicted relationship between enacted behaviours and participants' subjective well-being – as measured by their state self-esteem, self-compassion, perceived sense of internal control, and empowerment.

Predictive Validity of the New Behavioural Measure of Forgiveness and Revenge

Hierarchical regression analyses found the most important predictors of both forgiveness and revenge behaviours were variables specific to the transgressions, including the level of hurt experienced and the amount of remorse and intent perceived. The self-assessed quality of participants' relationships with the transgressor was the second most significant predictor for both behaviours, whereas well-being variables were not found to be significant predictors of either behaviour. Although the transgression-specific variables and participants' relationship quality were significant predictors, together they only accounted for up to 21% of the variance in forgiveness and revenge behaviours. Overall, findings indicate there is a substantial amount of variance in these behaviours unexplained by the variables included in this study.

Limitations

Although instructions informed participants to base their responses on a recent transgression committed by their current partner, transgressions occurred an average of three months prior to participant responses and deviated significantly from this point. A significant time lapse following transgressions may have weakened the potential effects on participants' well-being. A partial bivariate correlation analysis controlling for time provides evidence to this effect, resulting in a significant

negative relationship between revenge behaviours and participants' self-esteem and perceived sense of internal control. Additionally, a significant time lapse between transgressions and responses may have implications for participants' ability to accurately recollect their behaviours related to the transgressions they described. Findings from a preliminary short-term longitudinal study demonstrate this limitation. Twenty days after participants' initial responses, they found a large proportion ($n = 238$) could not remember the transgression they had originally discussed (Hilferty et al., 2022) and concluded the inability to recall transgressions may also indicate that they were not considered significantly severe.

The severity of transgressions is a further limitation of the current study. Results show the average level of hurt participants experienced from the transgressions was similar to the scales midpoint or 'neutral' score. Results therefore imply participants from this sample considered the transgressions they recalled to be mostly benign. The transgressions reported may not have been severe enough to significantly change or have a lasting effect on the victim's well-being. The problem of severity may relate to a methodological limitation of the new behavioural measure of forgiveness and revenge – in that it requires respondents to have continued contact with the perpetrator following a transgression. This requirement may potentially limit the scope of the new behavioural measure to reflect less severe transgressions, rather than those that may significantly and irreparably damage a relationship.

How Current Findings Relate to Previous Research

Findings from the current study are counterintuitive when compared with previous literature, which has repeatedly found well-being constructs to be related to forgiveness (Toussaint & Webb, 2005). As previously discussed, participants painted a picture of mostly benign transgressions as indicated by neutral levels of severity, compared with lower levels of intent and higher levels of remorse. Differences in severity may explain the inconsistencies between current and previous findings, as research has connected the ease of forgiveness directly to the size of the perceived injustice gap created by a transgression (Worthington, 2005). It may be that benign transgressions were not enough to require participants to enable the forgiveness process, and therefore not reflected in their behavioural responses or moreover, impact on their well-being. Additionally, well-being

effects observed in previous literature are frequently the result of longitudinal studies that gather data over significant time periods (Bono et al., 2007; Luchies et al., 2010). Such studies can observe patterns over longer periods using a myriad of methods, the scope of which outweighs the current studies measurably. More research is necessary to judge whether the relationship between behavioural forgiveness and revenge and subjective well-being is apparent in such a design.

Nonetheless, findings related to relationship quality are comparatively consistent with other validated measures of forgiveness, in that the expression of forgiveness is seemingly reliant and closely tied to factors relating to the triggering event. Namely, that of perpetrator remorse and intent, as well as the perceived personal severity are known to heavily influence the forgiveness process and resulting responses (Carlisle et al., 2012; McCollough et al., 1998). Transgression-specific variables contributed the most unique variance in forgiveness and revenge behaviours overall, a finding that supports the convergent validity of the new behavioural measure (Boateng et al., 2018). Results support the broad conceptualisation of behavioural forgiveness as a reduction in withdrawing behaviours and an increase in prosocial interactions (Reed & Enright, 2006). Furthermore, the findings are consistent with the theoretical notion that, generally, the subjective quality of romantic relationships should be negatively associated with vengeful acts and positively associated with benevolent acts (DiBlasio & Proctor, 1993; Fenell, 1993; Fincham, 2015).

Literature has so far observed the relationship between well-being and forgiveness largely through the lens of dispositional and motivational measures (Toussaint & Friedman, 2009). As the new behavioural measure is the first of its kind, there are currently no published papers that have examined well-being and forgiveness using self-reported behaviours. Differing modes of forgiveness may be associated with differential effects when observing interpersonal and intrapersonal outcomes (Carlisle et al., 2012). Differential effects of forgiveness for well-being have been observed when comparing measures of decisional and emotional forgiveness (Cook et al., 2022), and differences in feelings/expressions of forgiveness when comparing behavioural measures with self-reported forgiveness motivations within the same sample (Carlisle et al., 2012). This pattern of results may indicate the new behavioural measure is simply more suited to observing interpersonal effects of forgiveness such as relationship quality or connectedness, as these outcomes are more heavily

influenced by behaviours rather than intrapersonal, psychological effects such as well-being. This theory is consistent with previous research related to the new behavioural measure, which did not support a link between forgiveness or revenge behaviours with psychological constructs of rumination, the willingness to reconcile, state empathy, agreeableness, or neuroticism (Bradley et al., 2019; Hilferty et al., 2022). Consequently, measures that assess emotional or decisional forgiveness may, in this regard, be better equipped to observe and reflect the psychological effects related to forgiveness than behavioural modes.

Implications and Further Recommendations

Theoretical and Practical Implications

Results from the current study were expected to support a positive relationship between forgiveness and revenge behaviours, as observed throughout previous research in the development of the new behavioural measure thus far (Bradley et al., 2019; Hilferty et al., 2022). The current study was the first of its kind to discover a negative relationship, contrary to previous research. This difference may be explained by the more moderate transgressions observed in this study – which could have ultimately produced more benevolent responses. Nonetheless, conflicting findings have important theoretical implications for understanding the nuance in behavioural forgiveness, and what this means for the way that people forgive more generally.

Researchers and clinicians have increasingly examined and adapted the use of forgiveness therapy in therapeutic practice over recent years. Results have demonstrated the success of forgiveness therapy in fostering significant psychological improvements in well-being (Hansen et al., 2009; Hebl & Enright, 1993; Osterndorf et al., 2011) across different samples to cope with experiences of trauma and illness (Akhtar & Barlow, 2018; Elliot, 2011; Reed & Enright, 2006). Subsequently, there may be practical implications for the new behavioural measure to inform future forgiveness therapy interventions. Further, there is the potential for the new behavioural measure's application as a unique tool for screening forgiveness therapy programs and evaluating their efficacy. Specifically, in the domains of couples therapy and correctional rehabilitation, where there is an emphasis on interventions to address vengeful, maladaptive behavioural reactions (Cordova et al., 2006; Yu et al., 2021).

Further Research

Further research is necessary to continue the current line of work, with the aim to further validate the new Behavioural Measure of Forgiveness and Revenge. This research should assess the predictive validity of the new behavioural measure for subjective well-being with a sample of more severe transgressions to determine whether this relationship does indeed exist. Introducing more stringent parameters for participants or employing a short-term longitudinal design similar to Hilferty et al. (2022) may help examine whether memory is a confounding factor in this research. Other important constructs known to relate to forgiveness that should be assessed in the context of predictive validity include interpersonal connectedness (Bono et al., 2007), subjective life satisfaction, (Gao & Bai, 2022) and physical symptomology (Lawler-Row et al., 2008).

Next steps may also include investigating the cross-cultural validity of the new behavioural measure to examine its generalisability across broad populations (Matsumoto & Yoo, 2006). Research suggests theological and psychological perspectives of forgiveness are influenced by cultural context and social function, and therefore differ between Eastern and Western cultures (Gassin, 2001; Sandage & Watson-Wiens, 2001). Research is necessary to investigate whether such differences affect the new behavioural measure's applicability among different cultural groups.

Conclusion

The current study has contributed to a growing pool of knowledge surrounding the new Behavioural Measure of Forgiveness and Revenge and provides a basis for future research to expand this further. Findings from this study speak to the importance of triangulation in forgiveness research, and the need for a multimodal approach that fully encapsulates the nuances and complexities of this process. The new Behavioural Measure of Forgiveness and Revenge has demonstrated promising results, which will have implications for use in both clinical and research domains. However, further research is necessary to gauge whether these findings can extend to more latent constructs, such as well-being.

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