

Emotional Responses to an Action Regret: Validation of a Four-Factor Scale

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Abstract

Regret is a complex, negative, self-conscious emotion, comprising of both an affective and cognitive component. Regret has been associated with the experience of negative emotions including shame, guilt, and self-punishment which may elicit distress, and result in poor mental health. Self-forgiveness has been proposed as an effective intervention to reduce those distressing emotions. Action regrets, which arise from one's act of commission, are the focus of this study. The study evaluated the validity of a novel 34-item self-report questionnaire measuring the emotional responses to an action regret across four factors: *shame*, *moral judgement*, *self-punishment*, and *repair*. $N = 200$ adults participated in an online survey, recalling details of their regret, and completed five self-report questionnaires. Correlational analyses revealed good to excellent construct validity of three factors, while repair was acceptable. Multiple regressions revealed that shame and self-punishment reliably predicted distress scores, while moral-judgement and repair, predicted self-forgiveness scores. The lower reliability of ERAR-repair and implications toward multicollinearity are discussed. The findings support the understanding that negative self-evaluations can lead to distress and self-punishing behaviour. Conversely, a moral and cognitive evaluation of one's behaviour may alleviate distress and encourage the restorative process of self-forgiveness.

Keywords: regret, action-regret, shame, guilt, self-punishment, self-forgiveness, moral emotions

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.

25th September 2023

Contributor Roles

ROLE	ROLE DESCRIPTION	STUDENT	STUDENT 2	SUPERVISOR 1	SUPERVISOR 2
CONCEPTUALIZATION	Ideas; formulation or evolution of overarching research goals and aims.			X	
METHODOLOGY	Development or design of methodology; creation of models.			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		X	X
RESOURCES	Provision of study materials, laboratory samples, instrumentation, computing resources, or other analysis tools.			X	X
SOFTWARE	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code.				
INVESTIGATION	Conducting research - specifically performing experiments, or data/evidence collection.	X	X		
VALIDATION	Verification of the overall replication/ reproducibility of	X		X	

	results/ experiments.				
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 analyze 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

Emotional Responses to an Action Regret: Validation of a Four-Factor Scale

This study investigates the validity of a novel questionnaire to measure the emotional outcomes of regret, in this case, of an individual's committed action (not inaction). The literature indicates that regret associates with certain emotional responses, including shame, guilt, self-punishment, and repair. It is hypothesised that they associate with subsequent emotional and behavioural states, including adaptive outcomes of self-forgiveness and repair, and the maladaptive outcomes of distress, depression, and anxiety.

Regret is a broad and complex emotion, conceptualised as comprising of two components: a negative affective state, and a counterfactual cognitive inference involving self-blame (Connolly & Zeelenberg, 2002; Landman, 1993). Regret shares similarity with disappointment, frustration, guilt, and sadness (Gilovich & Medvec, 1995), and is considered to be more encompassing than remorse (Proeve & Tudor, 2010). A definition of regret by Landman (1993) stated that:

Regret is a more or less painful cognitive and emotional state of feeling sorry for misfortunes, limitations, losses, transgressions, shortcomings, or mistakes. It is an experience of felt-reason or reasoned-emotion. The regretted matters may be sins of commission as well as sins of omission; they may range from the voluntary to the uncontrollable and accidental; they may be actually executed deeds or entirely mental ones committed by oneself or by another person or group; they may be moral or legal transgressions or morally and legally neutral. (p. 36)

Landman (1987) argued that regret did not carry adequate status in psychological, sociological, and psychoanalytic fields, as evidenced by its omission as a database index term. She argued for additional research into antecedents of regret, and its impact on behaviour and emotion. Below, are some research fields incorporate regret.

Regret plays a mediating role in an individual's decision-making. In hypothetical gambling and reward scenarios (Zeelenberg, 1999; Zeelenberg et al., 1996), findings suggest that individuals place greater preference on the reduction of anticipated future regret, compared to a past loss (Papé & Martinez, 2017; Shani et al., 2015). Studies in economics found that a regretted purchase could decrease customer loyalty and brand identification (Davvetas & Diamantopoulos, 2017), and was dependent upon a hedonic or utilitarian choice (Shahid Sameeni et al., 2022). Healthcare studies found a patient's regret following their involvement in an unfortunate medical decision effected later decisions (Brehaut et al., 2003), while Courvoisier et al. (2013) found that a regretted medical decision could affect both a health professional's quality of life and alter their clinical practices. Regret has been identified as a key component in decision making and counterfactual thinking by neuroscientists Camille et al. (2004), and when incorporated into neural network models of understanding human learning, it increased predictive accuracy (Marchiori & Warglien, 2008).

The intensity, chronicity, and affective states of regret can precede the development of mental illnesses (Broomhall & Phillips, 2018; Liu et al., 2020). Regret has been associated with anhedonic depression, anxiety and decreased quality of life (Roese et al., 2009), increased depressive symptoms and self-blame (Chase et al., 2010; Markman & Miller, 2006), self-recrimination (Sugden, 1985), and reduced self-worth (Monroe et al., 2005). Ruminative regret associates with increased regret and depression, which can create a cyclical effect (Roese et al.,

2009). The American Psychiatric Association (2013) lists a lack of regret as a diagnostic criterion for antisocial personality disorder, and is evident in symptoms of schizophrenia, specifically the lack of counterfactual thinking (Roese et al., 2008).

Encouragingly, regret is associated with amelioration, undoing, and fixing mistakes (Landman, 1987; Zeelenberg et al., 1998), and has shown to activate areas of the brain associated with learning, deciding, and planning (Camille et al., 2004; Coricelli et al., 2007). Regretful individuals tend to re-evaluate their decisions and outcomes using counterfactual thinking (Landman, 1987), which involves the comparison of infinite alternative scenarios to the actual outcome. The interpretations of counterfactual thoughts are mediated by the individual's affective state and cognitive appraisals. Evaluative processing of upward "if only" counterfactuals has led to increased persistence and performance on anagram scores (Markman et al., 2008), while reflection and introspection has associated with increased performance in researcher's latter-stage careers (Wang et al., 2019). Moreover, regret can encourage the avoidance of repeating mistakes, improve future decisions (Schwartz, 2004), and clarify evaluations of past and future decisions (Pink, 2022).

Types of Regret

A study of 4489 US Citizens uncovered four categories of regret (Pink, 2022). *Foundation* regrets concern the lack of responsibility or forethought to maintain material stability and security, encompassing educational, financial, and health outcomes. *Moral* regrets involve the individual's dishonest decision to break an ethical code, rationalising their actions as acceptable, and includes cheating, deceit, and unfaithful acts. *Connection* regrets arise from one's lack of reaching out to maintain or foster relationships, leading to its deterioration or collapse.

Boldness regrets arise from one's lack of action or decision. Boldness regrets, equivalent to inaction, have been found to elicit the strongest feelings of all the regrets.

Differences between action and inaction regrets justifies separate classification. Early conceptualisations posited that action regrets generated stronger initial discomfort due to their increased salience and mental availability (Kahneman & Tversky, 1982a). Contrastingly, Gilovich and Medvec (1995) found the opposite result, observing that participants recalled experiencing greater distress from inaction. Inaction regret occurs after a temporal delay, eliciting lingering and wistful emotions like nostalgia, or worse, despair and misery (Gilovich et al., 1998). They are considered more intense of experience and are roughly three times as prevalent (Gilovich & Medvec, 1995; Pink, 2022). This likely results from temporal distancing, in which the individual's confidence increases over time, viewing a once seemingly impossible task as conceivable (Gilovich & Medvec, 1995). Because inactions are forever incomplete, their constant availability in memory elicits more frequent, but not necessarily more intense emotions. Therefore, while inaction regrets can feel severe, the real and immediately distressing experience of an action regret justifies additional focus. Action regrets elicit "hot" self-conscious emotions (SCE), such as guilt, shame and embarrassment (Gilovich et al., 1998) which are distinct from other non-SCE such as anger, disgust, and frustration, which aren't linked to regret (Kedia & Hilton, 2011).

Consensus suggests that regret leads to the experience of distress and sorrow following negative outcomes (Monroe et al., 2005; Zeelenberg et al., 2000). Action regret has been linked to interpersonal moral transgressions, mainly eliciting guilt and shame (Gilovich & Medvec, 1995). Whereas intrapersonal examples, like failing to live up to one's standards and lack of self-actualisation (Zeelenberg & Breugelmans, 2008) may elicit guilt, sadness, and yearning.

Generally, most emotional experiences diminish over time, however, moral emotions such as regret, guilt, and shame may display immunity to this rule (Gilovich et al., 1998).

Emotional Responses of Regret

The behaviours related to action regrets have been evaluated as more immoral than inaction (Kedia & Hilton, 2011). Participants specifically elicited shame and guilt, which are two conceptually related yet distinct self-conscious emotions. Differentiation exists between guilt's negative evaluation of one's behaviour, whereas shame negatively evaluates the self (Tangney & Dearing, 2002; Teroni & Deonna, 2008).

Shame is broadly considered more maladaptive than guilt, stemming from a transgression witnessed by the public, that damages one's self-image (Tangney & Dearing, 2002). Shame has been linked to embarrassment, negative self-evaluations, low self-esteem, viewing oneself as a bad person, and negative interpersonal behaviour (Cohen et al., 2011; Fisher & Exline, 2006). When coupled with rumination over regret, shame has associated with reduced life satisfaction and difficulty in dealing with negative life events (Saffrey et al., 2008). In addition, dispositional shame associates with the development of psychopathological symptoms, particularly depression (Tangney & Dearing, 2002). Shame may lead to a greater tendency to experience anxiety and depression (Tangney, 1995; Tangney & Salovey, 1999), and as a motivator for suicidal behaviour (Kalafat & Lester, 2000; Lester, 1997; Mokros, 1995). Cohen et al. (2011) distinguished between two forms of shame, the emotional negative self-evaluation (*shame-NSE*), and the negative behaviour focused (*shame-withdraw*). Shame-NSE while still negatively self-evaluative, didn't associate with harmful behaviour. While the aetiology of shame is complex, there is understanding that negative self-evaluations share positive moral traits with guilt, hence shame retains a functional purpose.

Shame-withdraw and self-punishment both encompass the behavioural maladaptive subset of shame (Cibich et al., 2016). Self-punishment includes withdrawal, self-doubt, self-hatred, avoidance, denial, narcissism, concealment, aggressive defensiveness, desire for punishment, and interpersonal grudges.

Guilt is seen as more adaptive than shame, with lessened self-condemnation, and higher probability of prosocial interpersonal and intrapersonal behaviour (Teroni & Deonna, 2008). Antecedents of guilt can be generalised to private transgressions that violate the individual's conscience, with self-recrimination a characteristic response (Gilovich & Medvec, 1995). Unlike shame, guilt generally doesn't associate with rumination, or the development of psychological symptoms such as depression or antisocial behaviour (Cohen et al., 2011; Tangney & Dearing, 2002).

Attention is brought to the adaptive outcomes shared between regret and guilt. Regret carries a neurological basis toward dispositional behavioural change (Coricelli et al., 2007), and signifies a transition from offense to reparation (Warr, 2015). Similarly, guilt motivates corrective action, behavioural change (Zeelenberg, 1999), and encourages reparation and acknowledgement of moral wrongdoing (Landman, 1987). Further guilt associates with apologising and undoing of mistakes (Tangney & Dearing, 2002), reparation towards others (Teroni & Deonna, 2008), compensating a victim, and seeking forgiveness (Fisher & Exline, 2006). The notion of forgiveness is central to the following section.

When experiencing guilt or shame, individuals may seek self-acceptance, peace, and the reduction of distress and self-punishing feelings. Nonetheless, this can prove challenging as it requires an acceptance of responsibility, viewing the self as valued, and restoring one's self-image (Mróz & Sornat, 2023). Self-forgiveness has been suggested as an effective method in

attenuating the self-imposed harm caused by negative self-conscious emotions (Woodyatt & Wenzel, 2013). Self-forgiveness has been conceptualised by Hall and Fincham (2005) as:

A set of motivational changes whereby one becomes decreasingly motivated to avoid stimuli associated with the offense, decreasingly motivated to retaliate against the self (e.g., punish the self, engage in self-destructive behaviors, etc.), and increasingly motivated to act benevolently toward the self (p. 622)

Benefits of self-forgiveness include reducing the transgressor's avoidance of the distress associated with the negative outcome. Resultingly, the individual finds peace with their behavioural consequences (Hall & Fincham, 2005). Self-forgiveness is an intrapersonal construct, and is independent of being forgiven, or whether one was the offender or victim (Mróz & Sornat, 2023).

There is continued uncertainty about the roles of guilt and shame associating with self-forgiveness. Shame is generally considered a barrier to self-forgiveness Tangney et al. (2005). Mróz and Sornat (2023) found shame occurred during both interpersonal and intrapersonal transgressions, and decreased understanding, tolerance, restraint, self-compassion, and overall inhibited self-forgiveness. In contrast, Woodyatt and Wenzel (2014) found that by increasing the offender's shame acknowledgement via value reaffirmation, it could help enable self-forgiveness. Guilt has been found to activate an individual's motivation to seek self-forgiveness (Fisher & Exline, 2006), while decreased state-level guilt associated with increased self-forgiveness (Hall & Fincham, 2008). Contrasting results were observed when guilt- and shame-proneness were used to assess self-forgiveness (Mróz & Sornat, 2023). Expectedly, shame

negatively associated with self-forgiveness, however, guilt also negatively associated, possibly because guilt-proneness increased self-judgement and over-identification.

Although regret is associated with shame and guilt, regret can be morally neutral. For example, one can experience regret from declining a social invitation but wouldn't necessarily experience guilt. The difference between regret and guilt mainly encompasses that guilt results from interpersonal transgressions, whereas regret can result from both interpersonal and intrapersonal harm (Zeelenberg & Breugelmans, 2008).

Proposing a New Measure of Regret

Current measures of regret overlook its experienced emotional states, focusing instead on the anticipated level of regret from hypothetical scenarios (Zeelenberg et al., 1998). These include a fixation on financial scenarios and investment paradigms (Zeelenberg, 1999; Zeelenberg et al., 1996), brand identification (Shahid Sameeni et al., 2022), and a purchase regret questionnaire by Davvetas and Diamantopoulos (2017). The Regret and Disappointment Scale (Marcatto & Ferrante, 2008) accurately differentiated regret from disappointment in past experiences; however, it only contained one regret item. The self-report RIS-10 (Courvoisier et al., 2013) measured the intensity of regret experienced by physicians following a negative healthcare outcome predicted lower wellbeing and effected subsequent care decisions. The Decision Regret Scale (Brehaut et al., 2003) measured patient's levels of post-decision regret in healthcare settings. The two-factor Regret Elements Scale (Buchanan et al., 2016) acknowledged the various antecedents and consequences of regret, and differentiated regret between a maladaptive affective component, and an adaptive cognitive component.

This study addresses the shortage of research on action regret (Creyer & Ross, 1999) regarding the effects of experienced regret on subsequent behaviour. The salience of an action

regret and the accompanying feelings of responsibility, may motivate an individual toward amelioration to reduce their cognitive dissonance (Gilovich & Medvec, 1995). While inaction regrets produce strong emotions of despair and melancholy, action regrets elicit more intense initial emotional responses (Kedia & Hilton, 2011). Further study has the potential to expand on the psychological outcomes elicited by an action regret, as together with guilt and shame, regret may resist decreasing in intensity over time (Gilovich et al., 1998).

The study concerns the testing of a measure of Emotional Responses to an Action Regret (ERAR). Items in the measure are based on a previous study of ($N = 198$) participants by Proeve (2001), who investigated the relationships of items characteristic of remorse, regret, guilt, and shame. Exploratory factor analysis of this data resulted in four factors: *shame*, *moral judgment*, *self-punishment*, and *repair*.

Present Study

The aim of the study was to validate the ERAR scale by (1) evaluating the internal reliability of each subscale, (2) measuring convergent and discriminant associations with established scales, and (3) determining the predictive validity of the sub-scales to distress and self-forgiveness. Therefore, the following hypotheses are made: (H1) negative self-evaluations and a focus on the affective component of regret will be positively associated with ERAR-shame and self-punishment; (H2) ERAR-shame and self-punishment will positively associate with higher distress and depressive symptomology; (H3) negative behavioural evaluations, guilt measures, and cognitive aspects of regret will be positively associated with ERAR-moral judgment and repair; (H4) ERAR-repair, and to a lesser extent, ERAR-moral judgment will positively associate with outcomes of self-forgiveness and interpersonal repair; (H5) The elapsed time since the regret will associate with lower distress scores (Gilovich & Medvec, 1995).

Method

Participants

Two-hundred participants (74 Male, 102 Female, two non-binary) voluntarily participated in an online survey through Prolific. Inclusion criteria required participants were: (1) a minimum 18 years of age, (2) fluent in English, and (3) consented to study participation. The mean age was 40.34 ($SD = 12.7$, range = 18–81). The nationality of the sample was 67.5% UK, 17.5% North American, 9% European, 3% African, 2.5% South American, 1.5% Chinese, 0.5% Middle Eastern, and 2.5% mixed. Participants were 48.89% Atheist, 35% Christian, 6.11% Catholic, 5.56% Muslim, other religions 3.3%, and 1% spiritual. Exclusion criteria omitted 20 responses from analysis due to inappropriate or invalid responses ($N = 2$) and with an inaction regret ($N = 18$), which resulted in 180 participants.

Design

The sample was used for a separate confirmatory factor analysis project and for this project, which required correlational and regression analyses. For scale development, 200 participants has been deemed satisfactory (Comrey & Lee, 1992), although, there is no established rule to determine sample size (Boateng et al., 2018). Therefore, an initial sensitivity analysis was conducted using R-Studio (RStudio Team, 2020). A power level of .8, $\alpha = .05$, and effect size of $r = .5$ for a linear regression resulted in a recommended 197 participants.

All procedures were approved by The University of Adelaide School of Psychology: Low Risk Human Research Ethics Committee (HREC Approval Number: App 23/63).

Procedure

The questionnaire was conducted using Qualtrics and hosted on Prolific. Participants first recorded their demographic information (refer Appendix A). Next, they completed three written

questions recalling their action regret, including a description of the event, what they were thinking and feeling at the time, what they did and said, and how the event affected them emotionally, mentally, and physically (see Appendix J for the full questionnaire). The recall of an event is an effective measure to study regret (Gilovich & Medvec, 1994), and to elicit a range of self-conscious emotions including guilt, shame, and self-anger (Kedia & Hilton, 2011). Following this, participants completed five randomly ordered questionnaires.

Materials

Emotional Responses to an Action Regret (ERAR). The Emotional Responses to an Action Regret (Proeve, 2023) is a 34-item self-report, state-based, unpublished questionnaire. It measures an individual's responses to an experienced event across four subscales, which were developed from an exploratory factor analysis (Proeve, 2001). *Shame* (twelve items) measures negative self-conscious emotions and evaluations. *Moral-judgement* (eight items) investigates an individual's evaluation of their moral wrongdoing, and guilt-based emotions. *Self-punishment* (six items) looks at maladaptive, withdrawal and self-condemning behaviours. *Repair* (eight items) assesses prosocial responses including both intrapersonal and interpersonal restoration. Items are scored using a seven-point Likert scale ranging from *Not true at all* (1) to *Very True* (7). No testing of the ERAR's temporal stability using test-retest coefficients was undertaken.

Accompanying the ERAR questionnaire were five established self-report questionnaires:

Depression Anxiety Stress Scale (DASS-21). The 21-item Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) is a state-based measure of participant depression, anxiety, stress, and combined overall distress score. Responses measure how often the participant felt about that item in the past week, scored from 0 = *Never*, to 3 = *Almost Always*. Higher scores

indicate more severe distress. The three subscales have moderate intercorrelations ($r = .5$ to $.7$), hence this study will preference the validity and use of the overall distress score (Lee et al., 2019). The reliability in the current sample was $\alpha = .91$, $\omega = .92$.

Differentiated Process Scale of Self-Forgiveness (DPSSF). The 20-item Differentiated Process Scale of Self-Forgiveness (Woodyatt & Wenzel, 2013) measures self-forgiveness as a process, rather than an end state score. *Self-punitive* measures an offender's self-condemnation, dejection, inability to let go, and perceived deservingness of punishment. *Pseudo self-forgiveness* measures the deflection or downplay of the severity of the offender's wrongdoing. *Genuine self-forgiveness* looks at acceptance of responsibility, reflection over wrongdoing, and determination to change. *Interpersonal restoration* looks at feelings of empathy, and reparation towards others. Respondents answer how applicable the description of the offense applies to them. Scores range from, 1 = *don't agree at all*, to 7 = *strongly agree*. The reliability in the current sample was $\alpha = .85$, $\omega = .85$.

Guilt and Shame Proneness Scale (GASP). The Guilt and Shame Proneness Scale (Cohen et al., 2011) assesses proneness to experiencing guilt and shame. The 16-item trait-based questionnaire contains four subscales measuring, *guilt-negative behaviour evaluation (NBE)*, *guilt-repair*, *shame-negative self-evaluation (NSE)*, and *shame-withdraw*. Participants choose from 1 = *very unlikely*, to 7 = *very likely* as to how likely a scenario applies to them. The scale is suitable in its ability to separate the emotional and behavioural responses of guilt and shame. The reliability in the current sample was $\alpha = .77$, $\omega = .76$.

Offense-Related Shame and Guilt Scale (ORSGS). The Offense-Related Shame and Guilt Scale (Wright & Gudjonsson, 2007) is a state-based questionnaire. Two subscales: *shame* (four items), and *guilt* (six items) measure participant responses to a committed transgression and

their endorsement of that item. Scoring ranges from 1 = *not at all*, to 7 = *very much*. The reliability in the current sample was $\alpha = .94$, $\omega = .94$.

Regret Elements Scale (RES). The Regret Elements Scale (Buchanan et al., 2016) distinguishes between the affective and cognitive components of regret. The RES measures post-decision state-level regret with 10-items, five for each component. Responses range from, 1 = *strongly disagree*, to 7 = *strongly agree*. Higher scores of *affective* regret may predict maladaptive responses (e.g., shame, self-condemnation), whereas *cognitive* regret may predict ideal outcomes (reparation, conciliatory behaviours). The reliability in the current sample was $\alpha = .91$, $\omega = .86$.

Data Analysis

The data was screened for frivolous responses prior to analysis. All analyses were conducted using JASP Version 0.17.2 (JASP Team, 2023). The online format of Prolific allowed elimination of partial, repeat, and inappropriate responses using unique identifiers such as survey completion time, respondent ID, and IP address.

Results

Data Cleaning

A single commitment check (truthful answering), considered to be more valid than attention checks (Geisen, 2022, May 10) followed the demographic questions. Only participants who answered “Yes, I will” were allowed to progress. Pattern responding was determined by visual inspection with no identified problems. Survey completion times were deemed satisfactory ($M = 26$ minutes, $\min = 6.7$, $\max = 98.48$). Responses were selected from the entire dataset, with 180 responses used in the analysis after controlling with exclusion criteria.

Analysis of Regrets and Categorisation

Regrets were categorised according to Pink's (2022) four definitions. *Foundation material* (43.3%) included financial, career, and educational regrets. *Foundation health* (13.3%) concerned physical health including diet, substance use, and reckless physical behaviour. *Connection* (22.2%) involved decisions leading to the decline, damage or cessation of relationships and friendships. *Moral-low* (16.7%) included instances of taking the moral low ground, such as lying, cheating, and deceiving. A new category, *moral-high* (4.4%) occurred where one's good-natured intentions, resulted in a negative outcome. See Appendix I for full definitions. The participant responses were coded into categories together with another honours psychology student. A development sample of 40 (20%) responses was coded by both authors. Secondly, the first coder independently coded an additional 20 (10%) responses, which was then checked by the second coder to determine category reliability. Inter-rater agreement for classifying the regret categories was determined by a Cohen's kappa as the most accurate technique (Boateng et al., 2018). The resulting coefficient of ($k = .83$, $SE = .08$, 95% CI [0.68, 0.98]) indicated almost perfect agreement according to (Landis & Koch, 1977). Regrets involved 27.22% family, 25.56% no-one, 13.33% an organization or group, 12.22% a friend, 11.11% a colleague, and 10.56% other. Time since the regret encompassing ordinal categories included: more than five years ago (39.44%), one to five years ago (32.78%), six to twelve months (10.56%), three to six months (7.22%), and less than three months (10.00%).

Descriptive Statistics

Table 1 displays means, *SDs*, intercorrelations, and internal consistencies of the ERAR subscales. Inspection of intercorrelations between the subscales revealed ERAR-repair correlated moderately with ERAR-shame and self-punishment, while all other intercorrelations were strong

Table 1*Descriptive Statistics, Reliabilities, and Correlations Among the ERAR Subscales*

Study	<i>M</i>	<i>SD</i>	<i>IQR</i>	1	2	3	4
1. Shame	47.80	16.55	26.25	(.91)			
2. Moral Judgement	41.49	9.64	13.00	.50***	(.84)		
3. Self-Punishment	19.23	7.90	12.00	.63***	.57***	(.82)	
4. Repair	40.13	7.99	11.00	.42***	.69***	.39***	(.72)

Note. $N = 180$. Responses ranged from 1 (very unlikely) to 7 (very likely), with higher scores indicating stronger endorsement of the construct. Zero-order correlations are presented on the diagonal with Cronbach's coefficient alphas for internal reliability in parentheses. *IQR* = interquartile range.

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

($r = .50-.69$). Internal reliability of each factor was, ERAR-shame: $\alpha = .91$, $\omega = .92$, ERAR-moral judgement: $\alpha = .84$, $\omega = .85$, ERAR self-punishment: $\alpha = .82$, $\omega = .82$, and ERAR-repair: $\alpha = .71$, $\omega = .71$. Table 2 displays means, *SDs*, and correlations between the external measures. Partial correlations were calculated to control for any shared variance within the factors of the external questionnaires to assess the divergent validity of the ERAR (refer to Table 3 notes). ORSGS-shame and guilt highly correlated ($r = .80$). The DPSSF subscales of genuine-SF and pseudo-SF correlated at $r = .57$ and $.52$ in this study. The RES-cognitive and affective subscales correlated at $r = .73$ in the original study and $.48$ in this study.

Correlational Analyses assessing Convergent and Divergent Validity

Correlations between the ERAR subscales and external measures were used to determine construct validity (see Table 3). An initial observation was the absence of significant correlations with GASP guilt-NBE and guilt-repair. There were small positive correlations between ERAR-

Table 2*Means, SDs, and Correlations for External Validation Questionnaires*

Measures	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DASS																		
1 Depression	6.10	5.32	-															
2 Anxiety	4.44	3.82	.68***	-														
3 Stress	7.52	4.77	.71***	.74***	-													
4 Overall score	17.97	12.80	.90	.88***	.91***	-												
DPSSF																		
5 Pseudo SF	20.52	7.68	.10	.11	.09	.11	-											
6 Self Punitive	20.86	10.26	.32***	.22***	.30***	.31***	-.04	-										
7 Genuine SF	34.23	10.40	.06	.02	.08	.06	-.20**	.52***	-									
8 Interpersonal restoration	8.58	3.58	.03	-.04	.05	.02	-.07	.26***	.45***	-								
GASP																		
9 Guilt-NBE	21.67	4.95	-.12	-.15	-.19*	.16*	.18**	.15*	.20**	.09	-							
10 Guilt-repair	22.96	3.86	-.10	-.09	-.14	-.12	.06	.02	.18*	.01	.54***	-						
11 Shame-NSE	23.31	4.18	.05	-.04	.05	.03	.07	.14	.16*	.01	.51***	.53***	-					
12 Shame-withdraw	14.60	5.03	.19*	.08	.24**	.19**	.15*	.12	-.07	-.04	.06	-.04	.25***	-				
ORSGS																		
13 Guilt	20.52	8.30	.09	.06	.12	.10	-.08	.57***	.45***	.32***	.20***	.07	.20**	.09	-			
14 Shame	21.73	9.70	.15*	.11	.17*	.16*	-.04	.58***	.36***	.31***	.12	0.00	.15	.16*	.80***	-		
RES																		
15 Affective	24.84	7.59	.27***	.15*	.30***	.27***	-.17*	.56***	.60***	.31***	.15*	.07	.27***	.04	.45***	.29***	-	
16 Cognitive	29.87	6.26	.09	-.02	.03	.04	-.13	.25***	.39***	.08	.05	.14	.21**	-.14	.14	.09	.48***	-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. DASS = Depression Anxiety Stress Scales. DPSSF = Differentiated Process Scales of Self-Forgiveness. GASP = Guilt and Shame Proneness. ORSGS = Offence Related Shame and Guilt Scale. RES = Regret Elements Scale.

Table 3

Bivariate Correlations (with Partial Correlations in Parentheses) of the ERAR With Other Construct Measures

Construct Measures	Shame	Moral Judgement	Self-Punishment	Repair
Shame				
Shame-NSE (GASP)	.19* (.19*)	.18* (.18*)	.15 (.17*)	.12 (.10)
Shame-withdraw (GASP)	.22** (.22**)	.03 (.04)	.17* (.17*)	-.03 (-.03)
Shame (ORSGS)	.55*** (.40***)	.34*** (-.03)	.39*** (.15*)	.30*** (-.02)
Guilt				
Guilt-NBE (GASP)	.05 (-.05)	.0 (-.05)	-.00 (-.09)	.08 (.02)
Guilt (ORSGS)	.41*** (-.06)	.44*** (.30***)	.38*** (.13)	.38*** (.25***)
Self-punishment				
Self-punitive (DPSSF)	.57*** (.49***)	.52*** (.30***)	.67*** (.59***)	.39*** (.14)
Repair				
Guilt-repair (GASP)	.02 (.03)	.07 (.07)	-.05 (-.04)	.06 (.06)
Interpersonal restoration (DPSSF)	.15 (.00)	.33*** (.23**)	.09 (-.12)	.44*** (.38***)
Self-forgiveness				
Genuine self-forgiveness (DPSSF)	.32*** (.06)	.65*** (.45***)	.38*** (.06)	.55*** (.44***)
Pseudo self-forgiveness				
Pseudo self-forgiveness (DPSSF)	.09 (.14)	-.28*** (-.23**)	-.01 (.03)	-.11 (.00)
Distress (DASS)				
Total distress	.46***	.19*	.48***	.24*
Depression	.43***	.18*	.52***	.19*
Anxiety	.36***	.09	.35***	.19*
Stress	.46***	.22**	.40***	.27***
Regret (RES)				
Regret cognitive	.16* (-.09)	.53*** (.29***)	.32*** (.06)	.40*** (.16*)
Regret affective	.48*** (.46***)	.73*** (.65***)	.58*** (.51***)	.60*** (.51***)

Note. $N = 180$. The table presents zero-order correlations (Pearson's r), with partial correlations in parentheses. GASP = Guilt and Shame Proneness scale; ORSGS = Offence Related Shame and Guilt Scale; DPSSF = Differentiated Process Scale of Self-Forgiveness; RES = Regret Elements Scale; DASS = Depression Anxiety Stress Scale. Shame-NSE, Shame-withdraw, Guilt-NBE, and Guilt-repair are from GASP. Shame and guilt are from ORSGS. Genuine self-forgiveness (GSF), pseudo self-forgiveness (PSF), self-punitive (SP), and interpersonal restoration (IR) are from the DPSSF.

The partial correlations were conducted separately controlling for the following: ORSGS-shame was controlled for ORSGS-guilt. ORSGS-guilt was controlled for ORSGS-shame. DPSSF GSF was controlled for DPSSF PSF and SP. DPSSF PSF was controlled for SP and GSF. DPSSF SP was controlled for GSP and PSF. DPSSF IR was controlled for PSF and SP. RES-cognitive was controlled for RES-affective, and RES-affective was controlled for RES-cognitive. GASP shame-NSE was controlled for GASP guilt-NBE, and GASP guilt-NBE was controlled for GASP Shame-NSE. GASP shame-withdraw was controlled for GASP guilt-repair. GASP guilt-repair was controlled for GASP shame-withdraw.

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

shame with shame-NSE and shame-withdraw, between moral-judgement and shame-NSE, and between ERAR self-punishment and shame-withdraw ($r = .17-.22$). The partial correlations were similar.

Supporting H1, ERAR-shame displayed moderate to strong positive correlations to ORSGS-shame, GASP shame-withdraw, RES-affective, and DASS subscales ($r = .45-.57$), which remained positive and significant after partial correlations. Discriminant measures of ORSGS-guilt, DPSSF genuine-SF (GSF), and RES-cognitive reduced to non-significance after partial correlations. H1 posited that ERAR self-punishment would correlate highly with withdrawal, self-punitive, and distress measures. ERAR self-punishment correlated strongly with DPSSF self-punitive ($r = .67$) and RES-affective, which after partial correlations, remained significant at .59, and .51 respectively. All correlations with the DASS were moderate to strong. Partial correlations reduced the discriminant ORSGS-guilt and RES-cognitive to non-significance, and ORSGS-shame to a small correlation ($r = .15$).

H3 posited that ERAR-moral judgement and repair should correlated strongly with guilt, reparative, and regret-cognitive. Moral judgement displayed moderate to strong positive correlations with ORSGS-guilt, DPSSF interpersonal restoration (IR), GSF, and RES-cognitive ($r = .33-.65$), which lowered after partial correlations ($r = .23-.45$). Partial correlations resulted in the divergent measure of ORSGS-shame reduced to non-significance, however DPSSF self-punitive and RES-affective remained significant and positive. ERAR-repair displayed moderate

to strong correlations with DPSSF GSF and IR, and small with ORSGS-guilt. Unrelated measures of ORSGS-shame and DPSSF self-punitive were reduced to non-significance after partial correlations, however RES-affective remained strong ($r = .51$), while RES-cognitive was small ($r = -.16$). Moral judgement didn't correlate strongly with the DASS, whereas ERAR-repair was significant and small ($r = .19-.27$).

Criterion Validity

Participant age was significantly correlated with ERAR-shame ($r = -.20, p < .01$), ERAR self-punishment ($r = -.24, p = .001$), and DASS overall distress ($r = -.26, p < .001$). Therefore, together with the ERAR subscales, age was included in the regression analyses to assess the dependent variables of distress and genuine self-forgiveness (refer Table 4). H2 posited that ERAR-shame and self-punishment would positively associate with distress scores. The overall model was significant and moderate, $F(5, 174) = 16.60, p < .001$, adjusted $R^2 = .30$, contributing

Table 4

Multiple Regressions of ERAR Subscales on Distress and Genuine Self-Forgiveness Scores

Effect	β	B	SE	95% CI	p
Distress regressed on...					
Shame	.27	.21	.07	[.08, .34]	.001
Moral judgement	-.29	-.39	.13	[-.65, -.14]	.003
Self-punishment	.38	.61	.14	[.33, .89]	<.001
Repair	.18	.28	.14	[.01, .56]	.045
Age	-.13	-.13	.07	[-.26, 0]	.05
Self-forgiveness regressed on...					
Shame	-.06	-.03	.05	[-.13, .06]	.47
Moral judgement	.51	.55	.10	[.36, .74]	<.001
Self-punishment	.05	.06	.11	[-.15, .27]	.56
Repair	.21	.27	.10	[.06, .47]	.01
Age	-.01	0	.05	[-.10, .10]	.94

Note. $N = 180$. β = standardized beta coefficient. B = unstandardized beta coefficient. SE = standard error. CI = confidence interval. Distress from DASS total score. Self-forgiveness from DPSSF Genuine Self-forgiveness score.

to 30.30% of the variance in total distress scores. When accounting for the proportion of unique variance, ERAR-shame contributed a small amount ($\beta = .27$), while self-punishment contributed moderately, ($\beta = .38$). ERAR-repair contributed to a small amount ($\beta = .18$), while moral judgement contributed moderately negatively to the unique variance. Age was non-significant ($p = .05$).

H4 posited that ERAR-moral judgement and ERAR-repair would positively associate with scores of genuine self-forgiveness. The overall model was significant and large, $F(5, 174) = 27.87, p < .001$, adjusted $R^2 = .43$, contributing to 42.90% of the unique variance in self-forgiveness scores. ERAR-shame, self-punishment, and age were all non-significant predictors. ERAR-moral judgement was significant, and accounted for a large portion of variance, ($\beta = .51$), while the contribution of ERAR-repair was small ($\beta = .21$).

Plots of predicted outcome against residuals for both regression models were visually inspected to analyse homoscedasticity, revealing some slight funnelling (refer Appendix F). Tests for multicollinearity were conducted on both regression models revealing ideal scores (refer Appendix G). Tolerance values greater than 0.2, and VIF values less than 10 indicated no multicollinearity (Field, 2017). The Durbin-Watson test for autocorrelations was non-significant for the self-forgiveness model ($p = .18$), and just non-significant ($p = .053$) for distress, indicating a favourable non-independence of errors (Tabachnick & Fidell, 2013). Lastly, the collinearity diagnostics revealed ideal condition index values of less than 30 (Belsley et al., 1980). The only potential hint at multicollinearity was the variance proportions of some variables exceeded $>.50$.

Hypothesis 5 posited that distress would reduce with time since the regret. Observing Appendix C, the results of the ANOVA (see Appendix C) indicated a significant effect of time

since regret on reported distress scores, $F(4,175) = 2.89, p = .024$. The calculated eta-squared of $\eta^2 = .06$, indicated a medium effect size. For the most recent times since regret, mean distress scores ranged from 17.72–26.00, whereas scores from more than five years ago were lower ($M_{distress} = 14.69$).

Discussion

This study evaluated the reliability, construct validity, and predictive validity of the ERAR—a novel four-factor questionnaire measuring the emotional responses following an action regret. Shame and moral judgement assessed emotional and evaluative outcomes, whereas self-punishment and repair assessed behavioural outcomes. An English-speaking sample of mostly Western adults was used to analyse the scale's psychometric properties, who recalled a real-life event. Three subscales displayed good to excellent internal reliability, while ERAR-repair was acceptable. Correlations with established construct measures confirmed the convergent and divergent reliability of the subscales, supporting H1 and H3. Regressions provided evidence of the scale's predictive validity. Supporting H2, ERAR-shame and self-punishment predicted distress scores with significant small to medium contributions. Supporting H4, moral-judgement and repair were significant contributors to self-forgiveness scores, with large and small contributions respectively.

Critical Evaluation of Findings

Firstly, the internal reliability of the subscales measured using Cronbach's alpha is discussed. DeVellis (2012) suggested a minimum $\alpha = .70$ for a novel scale, whereas Clark and Watson (2019) cautioned values below $\alpha = .80$ were an inaccurate measure of the construct. Therefore, alpha values of .80 to .95 were employed (Boateng et al., 2018; Nunnally & Bernstein, 1994). According to these recommendations, the reliability of ERAR-shame was

excellent ($\alpha = .91$), moral judgement and self-punishment were good ($\alpha = .82$ – $.84$), while repair was acceptable ($\alpha = .72$). The lower reliability may suggest the construct lacks sufficient definition, or that some items are not accurately measuring the construct. Notably, in the previous exploratory factor analysis by Proeve (2023), McDonald's omega values for repair were lower ($\omega = .79$), than shame, moral judgement, and self-punishment ($\omega = .90$ – $.91$).

The intercorrelations between the ERAR subscales ($r = .39$ – $.69$) signify the shared change in variance that multiscale items display under influence of a latent variable (DeVellis, 2012), in this case regret.

Construct validity was analysed using Pearson's r product-moment correlations. Notably, after participant exclusion, the ($N = 180$) sample fell short of the recommended 200 for robust construct validity (Clark & Watson, 2019). Convergent validity was determined by strong positive correlations to a theoretically related construct. A further check indicated no convergent correlations exceeded the square root of its respective internal reliability value (DeVellis, 2012). Discriminant validity was determined by low correlations with conceptually unrelated constructs. While a value lower than $r = 0.8$ is deemed sufficient (Campbell & Fiske, 1959), there is no accepted lower value to establish significant discriminant validity (DeVellis, 2012).

Supporting H1, ERAR-shame and self-punishment correlated strongly with DPSSF self-punitive (SP), signifying that shame that can progress to withdrawal and self-punishment tendencies. While the initially significant correlation to genuine self-forgiveness (GSF) may demonstrate shame's functional aspects (Leach & Cidam, 2015), the partial correlation reduced it to non-significance. Expectedly, ERAR-shame and self-punishment displayed similar correlations with distress, with self-punishment correlating strongest to DASS-depression. Supporting H1, it indicates that focussing on negative self-evaluations and the affective

component of regret positively associates with distress. Furthermore, the non-significant correlations with self-forgiveness, repair, and cognitive measures indicate that experienced distress may be hindering adaptive functioning. Both ERAR-shame and self-punishment didn't correlate with pseudo self-forgiveness, demonstrating the moral aspect of shame (Tangney & Dearing, 2002), and possibly self-punishment (Woodyatt & Wenzel, 2013). This could be interpreted that the individual is accepting their wrongdoing, rather than denying or excusing (Fisher & Exline, 2006). This shows promise, as an individual's acceptance of responsibility is one of two requirements for successful self-forgiveness (Woodyatt et al., 2017). Comparing to ERAR self-punishment to ERAR-shame, the lower endorsement of shame, and higher self-punitive and affective regret, strengthen the idea that the self-punishing aspect of regret is behavioural rather than evaluative (Cibich et al., 2016; Woodyatt & Wenzel, 2013).

In line with H3, ERAR-moral judgement displayed strong convergent validity with expected guilt and repair measures, excluding the GASP. Encouragingly, the strongest correlation was to genuine self-forgiveness, while pseudo self-forgiveness was moderately negative, emphasising the subscale's strong acceptance of responsibility and aversion to excusing (Woodyatt et al., 2017). Partial correlations reduced ORSGS-shame to non-significance, while guilt was still significant, indicating the individual's focus on evaluating their behaviour.

Considering its lower reliability, ERAR-repair still displayed sufficient convergent validity, specifically after partial correlations. Correlations with interpersonal restoration (IR) were moderate, and strong with GSF, supporting H3. ORSGS-guilt, GSF and IR remained significant after partial correlations, while ORSGS-shame and DPSSF self-punitive reduced to non-significance. The findings reveal some overlap with moral judgement.

Both, ERAR-moral judgement and repair correlated strongly with affective regret, and slightly to distress, seemingly confounding H3. In line with Gilovich and Medvec (1995), the initial distress of regret may be forecasting early signs that the individual wants to reduce their cognitive dissonance and motivate repair (Kedia & Hilton, 2011). Contrastingly, when observing the lower distress scores, it appears that the cognitive component of regret mediates distress.

Supporting H2, in the regression model, ERAR-shame contributed a small amount to distress scores, while self-punishment was the strongest contributor. The findings add to the understanding that a negative behavioural response rather than a negative self-evaluation is positively associated with greater distress (Cohen et al., 2011). The higher distress and DPSSF-self punitive scores, indicate ERAR self-punishment is likely capturing the transition to the maladaptive and self-destructive responses, that is distinct from shame (Cohen et al., 2011; Wright et al., 2008).

Supporting H4, moral-judgement was the strongest predictor of self-forgiveness, supporting the understanding that a cognitive and evaluative response is fundamental for self-forgiveness (Woodyatt et al., 2017). Compared to ERAR moral-judgement, whose contribution was large ($\beta = .51$), the smaller than expected contribution of ERAR-repair ($\beta = .21$), warrants investigation.

Seen in Appendix D, each ERAR subscale was separately regressed onto study measures to address several issues. As suggested by Boateng et al. (2018), bivariate regressions are superior to correlations for assessing discriminant validity by quantifying results into meaningful values. Some observed differences between the correlations and regressions were that ERAR-shame negatively contributed to the variance of ORSGS-guilt. ERAR-moral judgment no longer significantly contributed to DPSSF interpersonal-restoration, whereas ERAR-repair still did.

Interestingly, both subscales similarly contributed to the unique variance in GSF scores ($\beta = .22-.20$). This may be a sign of highly intercorrelated subscales ($r = .69$) leading to multicollinearity, which may cause statistical errors and erroneous conclusions if simultaneously entered into multiple regressions (Cohen et al., 2011). The results section and Appendix G displayed only slight signs of multicollinearity via some variance proportions above .50 (Belsley et al., 1980).

A second explanation likens repair to the process of self-forgiveness, whereby self-forgiveness requires acceptance of responsibility and valuing the self (Enright, 1996; Hall & Fincham, 2005). Whereby self-forgiveness precedes restoration and repair (Woodyatt & Wenzel, 2013) successful repair may first require the attainment of self-forgiveness. In the same study, genuine self-forgiveness displayed some low reliabilities ($\alpha = .46-.68$), which ERAR-repair may replicating, since using brief measures of a theoretically broad construct can result in lower reliabilities (Schwartz et al., 2001).

The similarly sized correlations between the ORSGS and ERAR may be comprising discriminant validity. The high intercorrelations between ORSGS-guilt and shame in the study ($r = .80$) could be interpreted that the ORSGS is measuring the same construct (Boateng et al., 2018). Although the qualitative differences between guilt and shame are small (Leach & Cidam, 2015), the partial correlations revealed clear separation between ORSGS-guilt and shame, supporting the literature that they represent distinct emotional constructs (Wright & Gudjonsson, 2007).

ERAR-repair contributed less unique variance to self-forgiveness scores, contradicting H4. A methodological explanation specifically examines the first word of each question. Seen in Appendix H, the repair items (think, do, want) share similarities with shame and self-

punishment; *affective* “feel”, *behavioural* “do, “deny”, “avoid”, and *end-state* “want”.

Conversely, all moral judgement items began with “think”. Here, the theory of priming is proposed, where the affective and emotional evaluation of a stimulus precedes cognitive analysis (Klauer, 1997) and rational processing (Franks, 2006; Turner, 2000). Therefore, by asking behavioural and end-state questions, participants may be preferencing affective feelings over cognitive evaluation.

The lack of significant correlations with the GASP initially contradicted H1 and H3. Some explanation is offered between the proneness-based GASP and the state-based ERAR whereby the two measurement styles vary (see Geiser et al., 2017). Secondly, the work-based hypothetical scenarios of the GASP may introduce cultural bias and socially desirable responding. Contrastingly, the ERAR was based on a real-life event of the individual’s decision. Thirdly, the accuracy of the recalled responses may have influenced by recency effects and memory decay, something not affecting the GASP.

Outcomes and Implications

In line with extant literature, when dealing with the pain of regret, it seems that a cognitive evaluation of one’s behaviour is more adaptive than negative self-evaluations. Shame may signify a tipping point that if incorrectly processed, may worsen into self-punishing behaviour and withdrawal. To generalise, ERAR-moral judgement best predicted self-forgiveness, while ERAR-repair best predicted interpersonal repair.

The predictive validity of the ERAR could benefit the counselling and therapy fields as a screening measure. As regret has been associated with negative mental health outcomes (Chase et al., 2010; Markman & Miller, 2006; Roese et al., 2009), high scores on ERAR-shame and self-punishment may predict maladaptive outcomes, and appropriate interventions may be administered

before symptoms escalate. Conversely, high scores on moral judgement may benefit from pursuing self-forgiveness (Fisher & Exline, 2006).

A promising sign of external validity suggests the ERAR captures two forms of prosocial behaviour: self-forgiveness and interpersonal repair. Although displaying lower self-forgiveness, individuals scoring highly on ERAR-repair may still display empathy toward others (Davis, 1983). Future revisions to the repair subscale could incorporate both interpersonal (*empathy*), and intrapersonal restoration (*self-esteem*) items Woodyatt and Wenzel (2013).

The prevalent socio-adaptive perspective of guilt and shame broadly posits that responses to guilt are adaptive, whereas shame is maladaptive. However in reality, many factors contribute toward an individual's response (Cibich et al., 2016). The alternative *functionalist perspective* posits that emotional appraisal, rather than the intensity of emotion is central to determining an adaptive or maladaptive response (Dempsey, 2017). Shame occurs when the individual's social status and role is damaged from an undermining of their ideals and goals (Piedmont, 2001; Tangney & Dearing, 2002).

Shame can still motivate repair (Teroni & Deonna, 2008). Predictors of a prosocial response include the conditions of indirect reciprocity being met and presence of the witnesses to the shameful act. While the perceived repairability of the situation is understood as the strongest predictor (Leach & Cidam, 2015). Encouragingly, Woodyatt and Wenzel (2014) found self-forgiveness could be enabled by increasing the offender's shame acknowledgement via value reaffirmation.

Limitations and Future Directions

While some results were significant, the psychometric evaluation stage of this thesis warrants caution before generalising about how the wider population experiences regret and its associated emotions.

The cross-sectional nature of the study looked for associations, rather than causal factors. Prospective longitudinal studies could firstly analyse the test-retest reliability of the ERAR, while the process-based self-forgiveness and interpersonal restoration could be more accurately assessed longitudinally (Woodyatt & Wenzel, 2013). Analysing H5, the ANOVA demonstrated lower mean distress scores from regrets occurring more than five years ago. Longitudinal studies could confirm a direction to the relationship, notwithstanding participant attrition.

The homogeneity of the mainly Western, English speaking sample risks introducing cultural bias into the findings. Of note, religion and nationality did not significantly predict any outcomes (refer Appendix C). Generally, guilt is private, while shame is public, hence studies comparing individualistic to collectivist cultures could include non-social or dyadic situations, and both singular and multiple actors (Dempsey, 2017). For example, Asian collectivist cultures experience guilt and shame differently (Benedict, 1947; Stipek, 1998; Tang et al., 2008; Tracy et al., 2007; Wong & Tsai, 2007).

Another limitation concerned the majority of regrets being foundation-material (43.3%), consistent with Pink (2022). Some suggestions are offered to rationalise this occurrence. While anonymity was ensured, a degree of social desirability may have prompted participants to recall pragmatic foundational events. Secondly, the combination of the suggested 20–25-minute survey completion time, monetary reward, and numerous environmental stressors in a post COVID-19 world may be influencing participants to recall themes of safety and security, all too common to

foundational regrets. Future studies could attempt to engage deeper and more intense reflection, to elicit additional moral and connection regrets.

Another limitation concerns the antecedents behind the participant's regrets. The quantitative nature of the study excluded the detailed written responses from analysis, only utilising it for the content analysis. Future qualitative studies could elicit finer details behind participant's motivations and regrets.

The study specifically focused on action regrets. Although excluded from the data analysis, they comprised around 10% of responses. Inaction's experienced emotions of despair and melancholy are amplified by the individual's inability to change the past, and hence, their distress (Gilovich & Medvec, 1995). It remains to be seen if inaction regrets significantly differ on ERAR measures. Many regrets occurred more than five years ago (39%), and between one and five years ago (33%). A methodological challenge would be specifying what elapsed time constitutes the classification of an inaction regret.

Dichotomous measures have been proposed as superior to correlations when assessing predictive accuracy (DeVellis, 2012). This study didn't accommodate the *severe* and *extremely severe* clinical cut-offs utilised on the DASS (Lovibond & Lovibond, 1995). On observation, five participants (2.78%) scored extremely severe on all three subscales, whereas 19 participants (10.56%) scored severe on two or more. In addition to measuring distress, future studies could utilise more specific measures of self-punishment, such as the self-harm subscale of the Schedule for Adaptive and Nonadaptive Personality (Clark et al., 1993) to screen for self-harm or future risk of suicidal attempt.

A methodological limitation was the omission of a confirmatory factor analysis (CFA). A CFA could analyse the suitability of the ERAR's four-factor structure and determine whether

ERAR-repair requires a redefinition, revision of scale items, or a total redesign (Clark & Watson, 2019), regarding its lower reliability and minor indications of multicollinearity.

Conclusion

As a measure of regret, the ERAR brings additional layers of understanding to this complex emotion. It seems easy to assume that most would acknowledge the pain of regret, yet many factors suggest that one may avoid doing so (Fisher & Exline, 2006). It is strongly encouraged to accept the initial pain of regret, but more so, to cognitively engage with one's decision to understand the how and why. Regret is both cognitive and affective. Ignoring the voice of regret in the present may provide temporary solace, yet feeling future pain, one will ruefully look back to see regret as another thing, a teacher.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.). American Psychiatric Association.
- Belsley, D. A., Kuh, E., & Welsch, R. E. (1980). *Regression diagnostics: Identifying influential data and sources of collinearity*. Wiley.
- Benedict, R. (1947). *The chrysanthemum and the sword: Patterns of Japanese culture*. Secker & Warburg.
- Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quinonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, 6, Article 149. <https://doi.org/10.3389/fpubh.2018.00149>
- Brehaut, J. C., O'Connor, A. M., Wood, T. J., Hack, T. F., Siminoff, L., Gordon, E., & Feldman-Stewart, D. (2003). Validation of a decision regret scale. *Medical Decision Making*, 23(4), 281–292. <https://doi.org/10.1177/0272989x03256005>
- Broomhall, A. G., & Phillips, W. J. (2018). Self-referent upward counterfactuals and depression: Examining regret as a mediator. *Cogent psychology*, 5(1), Article 1416884. <https://doi.org/10.1080/23311908.2017.1416884>
- Buchanan, J., Summerville, A., Lehmann, J., & Reb, J. (2016). The regret elements scale: Distinguishing the affective and cognitive components of regret. *Judgment and Decision Making*, 11(3), 275–286. <https://doi.org/10.1017/S1930297500003107>
- Camille, N., Coricelli, G., Sallet, J., Pradat-Diehl, P., Duhamel, J. R., & Sirigu, A. (2004). The involvement of the orbitofrontal cortex in the experience of regret. *Science*, 304(5674), 1167–1170. <https://doi.org/10.1126/science.1094550>

- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, *56*(2), 81–105.
<https://doi.org/10.1037/h0046016>
- Chase, H. W., Camille, N., Michael, A., Bullmore, E. T., Robbins, T. W., & Sahakian, B. J. (2010). Regret and the negative evaluation of decision outcomes in major depression. *Cognitive, Affective, & Behavioral Neuroscience*, *10*(3), 406–413.
<https://doi.org/10.3758/CABN.10.3.406>
- Cibich, M., Woodyatt, L., & Wenzel, M. (2016). Moving beyond “shame is bad”: How a functional emotion can become problematic. *Social and Personality Psychology Compass*, *10*(9), 471–483. <https://doi.org/10.1111/spc3.12263>
- Clark, L. A., Simms, L., Wu, K., & Casillas, A. (1993). *Manual for the schedule for nonadaptive and adaptive personality*. University of Minnesota Press.
- Clark, L. A., & Watson, D. (2019). Constructing validity: New developments in creating objective measuring instruments. *Psychological Assessment*, *31*(12), 1412–1427.
<https://doi.org/10.1037/pas0000626>
- Cohen, T. R., Wolf, S. T., Panter, A. T., & Insko, C. A. (2011). Introducing the GASP scale: A new measure of guilt and shame proneness. *Journal of Personality and Social Psychology*, *100*(5), 947–966. <https://doi.org/10.1037/a0022641>
- Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2nd ed.). L. Erlbaum Associates.
- Connolly, T., & Zeelenberg, M. (2002). Regret in decision making. *Current Directions in Psychological Science*, *11*(6), 212–216. <https://doi.org/10.1111/1467-8721.00203>

- Coricelli, G., Dolan, R. J., & Sirigu, A. (2007). Brain, emotion and decision making: The paradigmatic example of regret. *Trends in Cognitive Sciences*, *11*(6), 258–265.
<https://doi.org/10.1016/j.tics.2007.04.003>
- Courvoisier, D. S., Cullati, S., Haller, C. S., Schmidt, R. E., Haller, G., Agoritsas, T., & Perneger, T. V. (2013). Validation of a 10-item care-related regret intensity scale (RIS-10) for health care professionals. *Medical Care*, *51*(3), 285–291.
<https://doi.org/10.1097/MLR.0b013e318280f02c>
- Creyer, E. H., & Ross, W. T., Jr. (1999). The development and use of a regret experience measure to examine the effects of outcome feedback on regret and subsequent choice. *Marketing Letters*, *10*(4), 379–392.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. <https://doi.org/10.1037/0022-3514.44.1.113>
- Davvetas, V., & Diamantopoulos, A. (2017). “Regretting your brand-self?” The moderating role of consumer-brand identification on consumer responses to purchase regret. *Journal of Business Research*, *80*, 218–227. <https://doi.org/10.1016/j.jbusres.2017.04.008>
- Dempsey, H. (2017). A comparison of the social-adaptive perspective and functionalist perspective on guilt and shame. *Behavioral Sciences*, *7*(83).
<https://doi.org/10.3390/bs7040083>
- DeVellis, R. F. (2012). *Scale development: Theory and applications* (3rd ed., Vol. 26). Sage Publications.

- Enright, R. D. (1996). Counseling within the forgiveness triad: On forgiving, receiving forgiveness, and self-forgiveness. *Counseling and Values, 40*(2), 107–126.
<https://doi.org/10.1002/j.2161-007x.1996.tb00844.x>
- Field, A. P. (2017). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage.
- Fisher, M. L., & Exline, J. J. (2006). Self-forgiveness versus excusing: The roles of remorse, effort, and acceptance of responsibility. *Self and Identity, 5*(2), 127–146.
<https://doi.org/10.1080/15298860600586123>
- Franks, D. D. (2006). The neuroscience of emotions. In J. E. Stets & J. H. Turner (Eds.), *Handbook of the sociology of emotions* (pp. 38–62). Springer US.
https://doi.org/10.1007/978-0-387-30715-2_3
- Geisen, E. (2022, May 10). *Improve data quality by using a commitment request instead of attention checks*. Qualtrics. <https://www.qualtrics.com/blog/attention-checks-and-data-quality/>
- Geiser, C., Götz, T., Preckel, F., & Freund, P. A. (2017). States and traits. *European Journal of Psychological Assessment, 33*(4), 219–223. <https://doi.org/10.1027/1015-5759/a000413>
- Gilovich, T., & Medvec, V. H. (1994). The temporal pattern to the experience of regret. *Journal of Personality and Social Psychology, 67*(3), 357–365. <https://doi.org/10.1037/0022-3514.67.3.357>
- Gilovich, T., & Medvec, V. H. (1995). The experience of regret: What, when, and why. *Psychological Review, 102*(2), 379–395. <https://doi.org/10.1037/0033-295X.102.2.379>
- Gilovich, T., Medvec, V. H., & Kahneman, D. (1998). Varieties of regret: A debate and partial resolution. *Psychological Review, 105*(3), 602–605. <https://doi.org/10.1037/0033-295X.105.3.602>

Hall, J. H., & Fincham, F. D. (2005). Self-forgiveness: The stepchild of forgiveness research.

Journal of Social and Clinical Psychology, 24(5), 621–637.

<https://doi.org/10.1521/jscp.2005.24.5.621>

Hall, J. H., & Fincham, F. D. (2008). The temporal course of self-forgiveness. *Journal of Social*

and Clinical Psychology, 27(2), 174–202. <https://doi.org/10.1521/jscp.2008.27.2.174>

JASP Team. (2023). JASP (Version 0.17.2). <https://jasp-stats.org/>

Kahneman, D., & Tversky, A. (1982a). The psychology of preferences. *Scientific American,*

246(1), 160–173. <https://doi.org/10.1038/scientificamerican0182-160>

Kalafat, J., & Lester, D. (2000). Shame and suicide: A case study. *Death Studies, 24*(2), 157–162.

<https://doi.org/10.1080/074811800200621>

Kedia, G., & Hilton, D. J. (2011). Hot as hell! The self-conscious nature of action regrets.

Journal of Experimental Social Psychology, 47(2), 490–493.

<https://doi.org/10.1016/j.jesp.2010.10.017>

Klauer, K. C. (1997). Affective priming. *European Review of Social Psychology, 8*(1), 67–103.

<https://doi.org/10.1080/14792779643000083>

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical

data. *Biometrics, 33*(1), 159–174. <https://doi.org/10.2307/2529310>

Landman, J. (1987). Regret: A theoretical and conceptual analysis. *Journal for the Theory of*

Social Behaviour, 17(2), 135–160. <https://doi.org/10.1111/j.1468-5914.1987.tb00092.x>

Landman, J. (1993). *Regret: The persistence of the possible*. Oxford University Press.

Leach, C. W., & Cidam, A. (2015). When is shame linked to constructive approach orientation?

A meta-analysis. *Journal of Personality and Social Psychology, 109*(6), 983–1002.

<https://doi.org/10.1037/pspa0000037>

- Lee, J., Lee, E.-H., & Moon, S. H. (2019). Systematic review of the measurement properties of the Depression Anxiety Stress Scales–21 by applying updated COSMIN methodology. *Quality of Life Research, 28*(9), 2325–2340. <https://www.jstor.org/stable/48705117>
- Lester, D. (1997). The role of shame in suicide. *Suicide and Life-Threatening Behavior, 27*(4), 352–361. <https://doi.org/doi/pdfdirect/10.1111/j.1943-278X.1997.tb00514.x>
- Liu, Z., Cheng, X., Liu, S., Zhang, Z., Li, S., Li, L., & Guo, X. (2020). Attentional deployment training impacts neural responses to subsequent regret. *International Journal of Psychophysiology, 157*, 23–31. <https://doi.org/10.1016/j.ijpsycho.2020.08.002>
- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Psychology Foundation.
- Marcatto, F., & Ferrante, D. (2008). The regret and disappointment scale: An instrument for assessing regret and disappointment in decision making. *Judgment and Decision Making, 3*(1), 87–99. <https://doi.org/10.1017/s193029750000019x>
- Marchiori, D., & Warglien, M. (2008). Predicting human interactive learning by regret-driven neural networks. *Science, 319*(5866), 1111–1113. <https://doi.org/10.1126/science.1151185>
- Markman, K. D., McMullen, M. N., & Elizaga, R. A. (2008). Counterfactual thinking, persistence, and performance: A test of the reflection and evaluation model. *Journal of Experimental Social Psychology, 44*(2), 421–428. <https://doi.org/https://doi.org/10.1016/j.jesp.2007.01.001>
- Markman, K. D., & Miller, A. K. (2006). Depression, control, and counterfactual thinking: Functional for whom? *Journal of Social and Clinical Psychology, 25*(2), 210–227. <https://doi.org/10.1521/jscp.2006.25.2.210>

Mokros, H. B. (1995). Suicide and shame. *American Behavioral Scientist*, 38(8), 1091–1103.

<https://doi.org/10.1177/0002764295038008005>

Monroe, M. R., Skowronski, J. J., Macdonald, W., & Wood, S. E. (2005). The mildly depressed experience more post-decisional regret than the non-depressed. *Journal of Social and Clinical Psychology*, 24(5), 665–690.

<https://doi.org/10.1521/jscp.2005.24.5.665>

Mróz, J., & Sornat, W. (2023). Shame- and guilt-proneness and self-compassion as predictors of self-forgiveness. *Journal of Beliefs & Values*, 44(2), 188–202.

<https://doi.org/10.1080/13617672.2022.2076455>

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Papé, L., & Martinez, L. F. (2017). Past and future regret and missed opportunities: An experimental approach on separate evaluation and different time frames. *Psicologia: Reflexão e Crítica*, 30(1), 20–29.

<https://doi.org/10.1186/s41155-017-0074-8>

Piedmont, R. L. (2001). Cracking the plaster cast: Big five personality change during intensive outpatient counseling. *Journal of Research in Personality*, 35(4), 500–520.

<https://doi.org/10.1006/jrpe.2001.2326>

Pink, D. (2022). *The power of regret: How looking backwards helps move us forward*. A&U Canongate Books.

Proeve, M. (2001). *Remorse: Its description and its interpersonal effects* [Unpublished master's thesis]. University of South Australia.

Proeve, M., & Tudor, S. (2010). *Remorse: Psychological and jurisprudential perspectives* (1st ed.). Routledge. <https://doi.org/10.4324/9781315605234>

Roese, N. J., Epstude, K., Fessel, F., Morrisson, M., Smallman, R., Summerville, A., Galinsky, A. D., & Segerstrom, S. (2009). Repetitive regret, depression, and anxiety: Findings from a

- nationally representative survey. *Journal of Social and Clinical Psychology*, 28(6), 671–688. <https://doi.org/10.1521/jscp.2009.28.6.671>
- Roese, N. J., Park, S., Smallman, R., & Gibson, C. (2008). Schizophrenia involves impairment in the activation of intentions by counterfactual thinking. *Schizophrenia research*, 103(1-3), 343–344. <https://doi.org/10.1016/j.schres.2007.05.006>
- RStudio Team. (2020). *RStudio: Integrated Development for R*. RStudio, PBC, Boston, MA. <http://www.rstudio.com/>
- Saffrey, C., Summerville, A., & Roese, N. J. (2008). Praise for regret: People value regret above other negative emotions. *Motivation and Emotion*, 32(1), 46–54. <https://doi.org/10.1007/s11031-008-9082-4>
- Schwartz, B. (2004). *The paradox of choice: Why more is less* (1st ed.). Ecco.
- Schwartz, S. H., Melech, G., Lehmann, A., Burgess, S., Harris, M., & Owens, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology*, 32(5), 519–542. <https://doi.org/10.1177/0022022101032005001>
- Shahid Sameeni, M., Ahmad, W., & Filieri, R. (2022). Brand betrayal, post-purchase regret, and consumer responses to hedonic versus utilitarian products: The moderating role of betrayal discovery mode. *Journal of Business Research*, 141, 137–150. <https://doi.org/10.1016/j.jbusres.2021.12.019>
- Shani, Y., Danziger, S., & Zeelenberg, M. (2015). Choosing between options associated with past and future regret. *Organizational Behavior and Human Decision Processes*, 126, 107–114.

Stipek, D. (1998). Differences between Americans and Chinese in the circumstances evoking pride, shame, and guilt. *Journal of Cross-Cultural Psychology*, 29(5), 616–629.

<https://doi.org/10.1177/0022022198295002>

Sugden, R. (1985). Regret, recrimination and rationality. *Theory and Decision*, 19(1), 77–99.

<https://doi.org/10.1007/bf00134355>

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson.

Tang, M., Wang, Z., Qian, M., Gao, J., & Zhang, L. (2008). Transferred shame in the cultures of interdependent-self and independent self. *Journal of Cognition and Culture*, 8(1-2), 163–

178. <https://doi.org/10.1163/156770908x289260>

Tangney, J. P. (1995). Recent advances in the empirical study of shame and guilt. *American*

Behavioral Scientist, 38(8), 1132–1145. <https://doi.org/10.1177/0002764295038008008>

Tangney, J. P., Boone, A. L., & Dearing, R. (2005). Forgiving the self: Conceptual issues and empirical findings. In E. L. Worthington Jr. (Ed.), *Handbook of forgiveness* (pp. 143–158). Routledge.

Tangney, J. P., & Dearing, R. L. (2002). *Shame and guilt* (2nd ed.). Guilford Press.

Tangney, J. P., & Salovey, P. (1999). Problematic social emotions: Shame, guilt, jealousy, and envy. In *The social psychology of emotional and behavioral problems: Interfaces of social and clinical psychology* (pp. 167–195). American Psychological Association.

<https://doi.org/10.1037/10320-006>

Teroni, F., & Deonna, J. A. (2008). Differentiating shame from guilt. *Consciousness and*

Cognition, 17(3), 725–740. <https://doi.org/https://doi.org/10.1016/j.concog.2008.02.002>

Tracy, J. L., Robins, R. W., Tangney, J. P., & Campos, J. J. (2007). *The self-conscious emotions: Theory and research*. Guilford Publications.

- Turner, J. (2000). *On the origins of human emotions: A sociological inquiry into the evolution of human affect*. Stanford University Press.
- Wang, Y., Jones, B. F., & Wang, D. (2019). Early-career setback and future career impact. *Nature Communications*, *10*(1), Article 4331. <https://doi.org/10.1038/s41467-019-12189-3>
- Warr, M. (2015). Crime and regret. *Emotion Review*, *8*(3), 231–239.
<https://doi.org/10.1177/1754073915586818>
- Wong, Y., & Tsai, J. (2007). Cultural models of shame and guilt. In J. L. Tracy, R. W. Robins, & J. P. Tangney (Eds.), *The self-conscious emotions: Theory and research* (pp. 209–223). Guilford Press.
- Woodyatt, L., & Wenzel, M. (2013). Self-forgiveness and restoration of an offender following an interpersonal transgression. *Journal of Social and Clinical Psychology*, *32*(2), 225–259.
<https://doi.org/10.1521/jscp.2013.32.2.225>
- Woodyatt, L., & Wenzel, M. (2014). A needs-based perspective on self-forgiveness: Addressing threat to moral identity as a means of encouraging interpersonal and intrapersonal restoration. *Journal of Experimental Social Psychology*, *50*, 125–135.
<https://doi.org/https://doi.org/10.1016/j.jesp.2013.09.012>
- Woodyatt, L., Worthington, J. E. L., Wenzel, M., & Griffin, B. J. (Eds.). (2017). *Handbook of the psychology of self-forgiveness* (1st ed.). Springer International Publishing.
<https://doi.org/10.1007/978-3-319-60573-9>.
- Wright, K., & Gudjonsson, G. H. (2007). The development of a scale for measuring offence-related feelings of shame and guilt. *The Journal of Forensic Psychiatry & Psychology*, *18*(3), 307–316. <https://doi.org/10.1080/14789940701292810>

- Wright, K., Gudjonsson, G. H., & Young, S. (2008). An investigation of the relationship between anger and offence-related shame and guilt. *Psychology, Crime & Law, 14*(5), 415–423.
<https://doi.org/10.1080/10683160701770369>
- Zeelenberg, M. (1999). Anticipated regret, expected feedback and behavioral decision making. *Journal of Behavioral Decision Making, 12*(2), 93–106.
- Zeelenberg, M., Beattie, J., van der Pligt, J., & de Vries, N. K. (1996). Consequences of regret aversion: Effects of expected feedback on risky decision making. *Organizational Behavior and Human Decision Processes, 65*(2), 148–158.
<https://doi.org/10.1006/obhd.1996.0013>
- Zeelenberg, M., & Breugelmans, S. M. (2008). The role of interpersonal harm in distinguishing regret from guilt. *Emotion, 8*(5), 589–596. <https://doi.org/10.1037/a0012894>
- Zeelenberg, M., van Dijk, W. W., Manstead, A. S. R., & van der Pligt, J. (2000). On bad decisions and disconfirmed expectancies: The psychology of regret and disappointment. *Cognition and Emotion, 14*(4), 521–541. <https://doi.org/10.1080/026999300402781>
- Zeelenberg, M., van Dijk, W. W., van der Pligt, J., Manstead, A. S. R., van Empelen, P., & Reinderman, D. (1998). Emotional reactions to the outcomes of decisions: The role of counterfactual thought in the experience of regret and disappointment. *Organizational Behavior and Human Decision Processes, 75*(2), 117–141.
<https://doi.org/10.1006/obhd.1998.2784>

Appendix A: Sociodemographic Characteristics of Survey Participants*Sociodemographic Characteristics Original N = 200 Participants*

Baseline characteristic	<i>N</i>	%
Gender		
Male	8	42
Female	113	56.5
Non-binary / transgender	3	1.5
Nationality		
UK	135	67.5
Australian	0	0
European	6	3
North American	35	17.5
South American	4	2
Indian	0	0
Chinese	3	1.5
African	5	2.5
Mixed	5	2.5
Other*	7	3.5
Marital status		
Married	82	41
Widowed	4	2
Divorced	23	11.5
Separated	4	2
Never Married	83	41.5
Defacto	4	2
Educational attainment		
Postgraduate	37	18.5
Undergraduate	84	42
Completed High School	69	34.5
Did not complete high school	1	0.5
Trade/apprenticeship	9	4.5
Religious beliefs		
Christian	71	35.5
Catholic	12	6
Muslim	10	5
Buddhist	2	1
Jewish	2	1
Hindu	0	0
Atheist/Agnostic	90	45
Other (text response)	13	6.5

Note. *N* = 200. Participants were on average 40.33 years old (*SD* = 12.72). *Other nationalities included: Zimbabwean, Bulgarian, Middle Eastern, Caucasian, Poland, Italian, Latino.

Appendix B: Mean ERAR Scores by Gender and Demographics*Mean ERAR scores by Gender, Education level, Religion, Regret type & Time Since*

	<i>N</i>	Shame		Moral Judgement		Self-Punishment		Repair	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender									
Male	74	45.96	17.53	40.92	9.27	18.39	7.64	39.89	8.08
Female	104	49.25	15.85	41.81	9.98	19.80	8.16	40.34	8.03
Regret type									
Connection	40	48.38	18.07	40.30	8.81	18.95	6.82	39.90	7.43
Found. health	24	50.42	16.02	43.33	10.06	21.00	8.72	41.38	8.20
Found. mat	78	45.60	16.55	40.26	9.53	18.65	7.74	39.10	7.87
Moral high	8	43.00	18.50	36.00	13.83	14.63	5.07	40.38	9.15
Moral low	30	51.93	13.95	46.30	7.79	20.90	9.20	42.03	8.60
Time since regret									
Less than 3 mo.	18	44.17	15.40	36.89	12.31	18.39	9.38	39.17	7.99
3-6 mo.	13	55.08	16.39	42.92	12.88	20.31	8.31	40.77	11.40
6-12 mo.	19	48.90	18.36	40.74	12.87	20.63	9.98	39.16	9.75
1-5 yrs	59	46.75	15.51	42.44	6.80	20.14	7.68	40.39	6.53
> 5 yrs	71	47.97	17.21	41.89	9.19	18.11	7.00	40.30	8.07
Who involved									
No-one	46	44.72	15.91	42.63	8.46	20.37	7.55	40.54	7.00
Family	49	48.69	16.86	41.20	9.47	19.59	8.42	40.37	8.33
Friend	22	53.64	16.03	45.55	7.60	20.91	8.04	42.46	7.24
Colleague	20	44.75	17.96	36.60	10.82	14.65	7.08	38.35	8.31
Organisation or group	24	52.71	13.80	41.21	11.76	19.88	7.27	39.58	8.52
Other	19	43.21	17.78	40.32	9.29	17.58	7.71	38.37	9.31
Religion / belief									
Christian	63	47.98	16.61	40.40	10.35	19.24	7.97	39.78	9.00
Catholic	11	42.09	14.80	41.55	7.08	17.23	5.57	39.36	7.41
Buddhist	2	25.00	4.24	46.00	1.41	13.00	2.83	37.50	9.19
Muslim	10	54.20	16.90	42.60	8.98	19.60	9.47	42.30	7.45
Jewish	2	32.00	9.90	28.00	21.21	19.00	15.56	28.00	1.41
Other	2	43.50	6.36	40.50	9.19	24.50	3.54	40.50	3.54
Spiritual	2	65.50	6.34	54.00	2.83	19.50	0.71	46.50	4.95
Atheist	88	48.23	16.61	42.09	9.21	19.39	8.08	40.41	7.42

Note. $N = 178$. (men = 74, women = 104, transgender / non-binary = not counted). Responses ranged from 1 (very unlikely) to 7 (very likely), with higher scores indicating stronger endorsement of the construct. Found. health = Foundation health, Found. mat = Foundation material. ERAR = Emotional Responses to an Action Regret scale.

Appendix C: ANOVA of ERAR and Study Measures Against Study Measures*ANOVA of ERAR Subscales, Distress and Self-Forgiveness Against Ordinal Variables*

Measure	<i>F</i>	df	η^2	<i>p</i> -value
ERAR Shame				
Religion	1.60	(7, 172)	.06	.14
Nationality	.01	7, 172	.00	.10
Regret type	1.15	4, 175	.03	.34
Time since regret	.93	4, 175	.021	.45
Parties involved	.81	5, 174	.02	.55
Marital status	.62	(5, 174)	.02	.69
Education	.87	3, 175	.02	.46
ERAR Moral Judgement				
Religion	1.31	7, 172	.05	.25
Nationality	.49	7, 172	.02	.85
Regret type	3.38	4, 175	.07	.011*
Time since regret	1.33	4, 175	.03	.26
Who / parties involved	2.07	5, 174	.06	.07
Marital status	1.22	5, 174	.03	.30
Education	.01	3, 175	.00	.96
ERAR Self-Punishment				
Religion	.36	7, 172	.01	.92
Nationality	1.27	7, 172	.05	.27
Regret type	1.45	4, 175	.03	.22
Time since regret	.81	4, 175	.02	.52
Parties involved	2.01	5, 174	.06	.08
Marital status	2.50	5, 174	.07	.033*
Education	.34	3, 175	.01	.80
ERAR Repair				
Religion	1.03	7, 172	.04	.42
Nationality	.87	7, 172	.03	.53
Regret type	.90	4, 175	.02	.46
Time since regret	.18	4, 175	.00	.95
Parties involved	.81	5, 174	.02	.55
Marital status	1.87	5, 174	.05	.10
Education	.18	3, 175	.00	.91
DASS – total distress				
Religion	.75	7, 172	.03	.63
Nationality	.82	7, 172	.03	.57
Regret type	.68	4, 175	.02	.61
Time since regret	2.89	4, 175	.06	.024*
Parties involved	.13	5, 174	.00	.99
Marital status	1.12	5, 174	.03	.35
Education	.07	3, 175	.00	.98

Measure	<i>F</i>	df	η^2	<i>p</i> -value
DPSSF genuine self-forgiveness				
Religion	.91	7, 172	.04	.50
Nationality	.95	7, 172	.04	.47
Regret type	2.36	4, 175	.05	.06
Time since regret	1.63	4, 175	.04	.17
Parties involved	.48	5, 174	.01	.79
Marital status	1.81	5, 174	.05	.11
Education	.08	3, 175	.00	.97

Note. $N = 179$. For purposes of the ANOVA, the education response category “Did not complete high school” was omitted due to only $N = 1$ response for that category. $*p < .05$

Appendix D: Regressions of Individual ERAR Subscales*Individual Regressions of ERAR onto Validation Measures and Demographics*

	β	<i>B</i>	<i>SE</i>	95% CI	<i>p</i>
Shame regressed on...					
Age	-.07	-.09	.07	-.23, .06	.24
Shame (ORSGS)	.55	.95	.16	.63, 1.26	<.001***
Guilt (ORSGS)	-.26	-.52	.20	-.90, -.13	.009**
Genuine Self-forgiveness	.01	.02	.12	-.22, .25	.90
Pseudo Self-forgiveness	.12	.27	.12	.04, .50	.02*
Self-punitive	.16	.26	.12	.02, .50	.03*
Interpersonal restoration	-.09	-.41	.27	-.95, .13	.14
RES Affect	.33	.73	.17	.15, .44	<.001***
RES Cognitive	-.04	-.11	.16	-.43, .20	.48
DASS total overall	.23	.30	.08	.15, .44	<.001***
Moral Judgement regressed on...					
Age	-.02	-.01	.04	-.09, .06	.71
Shame (ORSGS)	.02	.02	.08	-.14, .18	.82
Guilt (ORSGS)	.07	.08	.10	-.12, .27	.45
Genuine Self-forgiveness	.22	.21	.06	.09, .33	<.001***
Pseudo Self-forgiveness	-.13	-.17	.06	-.28, -.05	.005**
Self-punitive	.05	.05	.06	-.07, .17	.42
Interpersonal restoration	.04	.11	.14	-.16, .39	.43
RES Affect	.39	.49	.09	.32, .66	<.001***
RES Cognitive	.21	.32	.08	.16, .48	<.001***
DASS total overall	.04	.03	.04	-.04, .11	.42
Self-punishment regressed on...					
Age	-.13	-.08	.03	-.15, -.02	.01*
Shame (ORSGS)	.07	.06	.07	-.09, .20	.42
Guilt (ORSGS)	.00	.00	.09	-.17, .17	.99
Genuine Self-forgiveness	-.01	-.01	.05	-.12, .09	.84
Pseudo Self-forgiveness	.04	.05	.05	-.06, .15	.39
Self-punitive	.42	.32	.06	.21, .43	<.001***
Interpersonal restoration	-.12	-.27	.12	-.51, -.03	.03*
RES Affect	.26	.27	.08	.12, .42	<.001***
RES Cognitive	.10	.13	.07	-.01, .27	.07
DASS total overall	.23	.14	.03	.07, .21	<.001***

	β	<i>B</i>	S.E.	95% CI	<i>p</i>
Repair regressed on...					
Age	-.01	-.00	.04	-.08, .07	.91
Shame (ORSGS)	.00	.00	.08	-.16, .17	.97
Guilt (ORSGS)	.09	.09	.10	-.11, .29	.40
Genuine Self-forgiveness	.20	.15	.06	.03, .27	.01**
Pseudo Self-forgiveness	.01	.01	.06	-.11, .13	.83
Self-punitive	-.08	-.06	.06	-.19, .06	.32
Interpersonal restoration	.24	.53	.14	.25, .81	<.001***
RES Affect	.30	.31	.09	.14, .49	<.001***
RES Cognitive	.17	.21	.08	.05, .38	.01*
DASS total overall	.15	.09	.04	.02, .17	.02*

Note. $N = 180$. Shame-NSE (negative self-evaluation), Shame-withdraw, Guilt-NBE (negative behavioural evaluation), and guilt-repair are from Guilt And Shame Proneness scale. Shame and guilt are from Offence Related Shame and Guilt Scale (ORSGS). Genuine self-forgiveness, pseudo self-forgiveness, self-punitive, and interpersonal restoration are from the Differentiated Process Scales of Self-Forgiveness (DPSSF). RES = Regret Elements Scale. DASS = Depression Anxiety Stress Scale. * $p < .05$. ** $p < .01$. *** $p < .001$. β effect sizes: $\beta = .10-.29$ = small, $\beta .30-.49$ = medium, $\beta = >.50$ = large, values in **bold** indicate a significant result. *SE* = standard error

Appendix E: Gender Differences on Test Measures*Gender Differences on Test Measures*

Base measure	Male		Female		<i>t</i>	df	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
ERAR								
Shame	45.96	17.53	49.25	15.85	-1.28	147.28	.20	-.20
Moral Judgement	40.92	9.27	41.81	9.98	-.61	164.00	.54	-.09
Self-punishment	18.39	7.60	19.80	8.16	-1.18	163.80	.24	-.18
Repair	39.89	8.08	40.34	8.03	-.36	156.85	.72	-.06
GASP								
Guilt-NBE	21.20	5.07	22.13	4.76	-1.23	151.06	.22	-.19
Guilt-Repair	22.37	3.94	23.42	3.63	-1.82	149.24	.07	-.28
Shame-NSE	22.26	4.44	24.01	3.87	-2.74	143.51	.08	-.42
Shame-Withdraw	13.87	4.97	15.18	4.94	-1.75	156.79	.08	-.27
ORSGS								
Guilt	19.53	8.37	21.31	8.26	-1.41	156.11	.16	-.21
Shame	17.89	10.21	19.18	9.40	-.86	149.21	.39	-.13
DPSSF								
Genuine SF	34.16	10.80	34.26	10.26	-.06	152.36	.95	-.01
Pseudo SF	18.93	7.78	21.72	7.42	-2.40	152.79	.02	-.37
Self-punitive	20.87	10.61	20.99	10.09	-.08	152.44	.94	-.01
Interpersonal repair	8.32	3.61	8.79	3.52	-.85	154.85	.39	-.13
RES								
Affective	23.87	7.31	25.45	7.78	-1.39	163.06	.17	-.21
Cognitive	29.88	6.38	29.79	6.23	.09	155.17	.93	.01
DASS								
Depression	5.28	4.84	6.56	5.65	-1.61	169.91	.11	-.24
Anxiety	3.81	4.10	4.92	4.30	-1.75	161.84	.08	-.27
Stress	6.41	4.01	8.31	5.14	-2.77	174.50	.01	-.41
Overall distress	15.50	11.50	19.79	13.60	-2.27	170.75	.02	-.34

Note. *N* = 178, Male = 74, Female = 104. *N* = 2 Transgender / non-binary participants were not counted in the *t*-test analysis. Due to differences in group sizes, Welch's *t*-test was used. Shame-NSE (negative self-evaluation), shame-withdraw, Guilt-NBE (negative behavioural evaluation), and guilt-repair are from GASP = Guilt And Shame Proneness scale. Shame and guilt are from ORSGS (Offence Related Shame and Guilt Scale). Genuine self-forgiveness, pseudo self-forgiveness, self-punitive, and interpersonal restoration are from the DPSSF (Differentiated Process Scales of Self-Forgiveness). RES = Regret Elements Scale. DASS = Depression Anxiety Stress Scale.

Appendix F: Plots of Predicted Values Against Residuals

Figure 1

QQ Plot and Residuals against Predicted Plot for Distress Regression Model

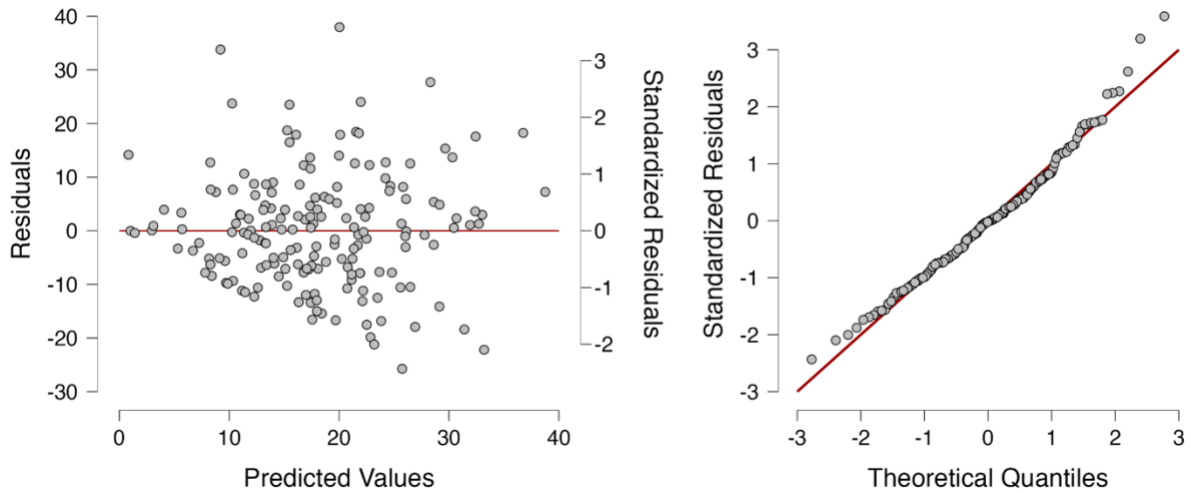
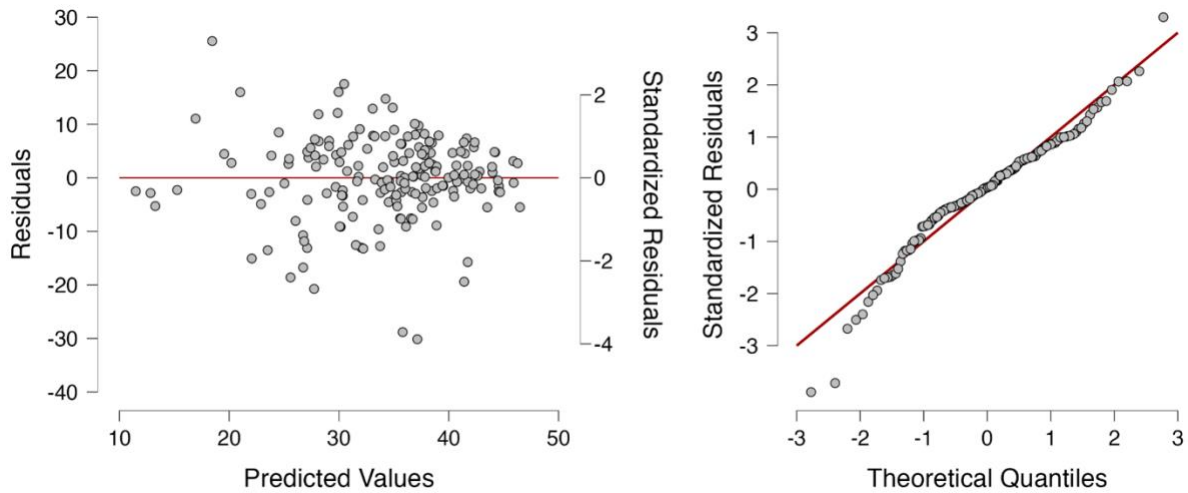


Figure 2

QQ Plot and Residuals against Predicted Plot for Self-Forgiveness Regression Model



Appendix G: Tests for Multicollinearity*Collinearity Diagnostics for Distress and Self-Forgiveness Regression Models*

Measure	<i>p</i>	Shame	Moral judgement	Self-punishment	Repair	Age
Durbin-Watson						
Distress	.053					
Self-forgiveness	.18					
Collinearity statistics						
Tolerance		.56	.41	.50	.51	.93
VIF		1.79	2.44	2.00	1.96	1.07
Collinearity diagnostics						
Dimension	CI	Variance proportions				
1	1.00	.002	.001	.002	.001	.002
2	5.81	.05	0	.13	0	.25
3	10.81	.01	.05	.54	.09	.43
4	11.37	.932	.04	.23	.02	.04
5	17.14	.01	.28	.03	.01	.26
6	21.84	.001	.63	.07	.88	.03

Note. CI = Condition Index. For collinearity statistics and diagnostics, a tolerance of greater than .20, a VIF of less than 10, and a Condition Index value of less than 30 is considered an adequate for collinearity. Variance proportions in **bold** indicate values >.50, hence potential signs of multicollinearity.

Appendix I: Full Definitions of Regret Categories

Foundation. Is separated into material and physical, however they share the similarities of occurring from to a lack research or future planning, ignoring obvious consequences, warnings, and advice. Events are justified at the time by a need for excitement, escape, fun, convenience, ease, or peer pressure. The negative behaviour must apply directly to the individual, any harm occurring to others, or a third party must be unintentional, otherwise may classify as a moral-low-ground regret.

Foundation material. Initial desire for financial safety, progression, or growth that leads to a negative outcome. This includes but is not limited to rushed and impulsive decisions, outcomes include asset and financial loss, lost opportunities, and career prospects. Examples of foundation material regret include career, employment, financial loss, gambling, education, living and housing arrangement.

Foundation physical. Similar to foundation material, however negative outcomes usually concern the physical health, wellness and mental health of the individual. Examples include drug and alcohol addiction, bad diet, and dangerous or reckless behaviour.

Moral low ground. Participating in an action that goes against the moral fibre, is immoral, unjust, when intentions are dishonourable. Intentions for this action can be either good or sinister. Occurs when a choice is presented, and the rules are not followed. Examples include cheating on a spouse or partner, extortion, stealing, or scandalous actions. The result is a critical view of the self that one made the wrong choice, with descriptions of self-punishment, shame, and guilt.

Moral high ground. Good intentioned, good moral values with prosocial intentions, usually interpersonal of nature. This choice still leads to a negative outcome for the either individual or third party. Example of moral high ground is usually when someone gets involved in a situation that does not include them attempt to assist or help a third party.

Connection. Decisions and outcomes that affect the strength of or continuation of relationships with other people, usually caused by a lack of reaching out or connection. Also results in decreased, minimal, or loss of contact with the member(s) in that relationship or network. Any decisions that lead to relationships suffering in any way or caused animosity or distancing between two parties. Examples include violent, disrespectful or ill-advised relationships, broken or damaged friendships, family, marriage, partners, neighbours, and colleagues.

Appendix J: Full Participant Survey from Qualtrics Hosted on Prolific*Qualtrics Survey Hosted on Prolific***Reactions to a negative outcome of your own doing – survey**

Q1. Do you give consent to participate in this survey?

Yes (1)

No (2)

Please enter your Prolific ID:

Please note that this response should auto-fill with the correct ID.

Thank you for taking part in this survey.

If completing this study has caused you distress in any way please discuss any matters with a trusted friend, family member, or medical practitioner. If you require immediate support please call a support line or in an emergency please call your local emergency services number.

If you have any queries or complaints about this survey please contact either:

Student 1 at namewithheld @adelaide.edu.au

Student 2 at namewithheld@student.adelaide.edu.au

Supervisor namewithheld @adelaide.edu.au.

For any questions about the ethical conduct of the research, please contact Professor HREC (namewithheld @adelaide.edu.au) chair of the low risk Human Research Ethics Committee in the School of Psychology.

Please provide your demographic information below.

Please select your gender:

- Male (1)
- Female (2)
- Non-binary / transgender (3)
- Prefer not to say (4)

How old are you?

What is your marital status?

- Married (1)
- Widowed (2)
- Divorced (3)
- Separated (4)
- Never married (5)
- Defacto (6)

What is your highest level of educational attainment?

- Post graduate (1)
- Undergraduate (2)
- Completed high school (3)

Did not complete high school (4)

Trade/apprenticeship (5)

Do you have any religious beliefs?

Christian (1)

Catholic (2)

Muslim (3)

Buddhist (4)

Jewish (5)

Hindu (6)

Atheist/agnostic (7)

other (please specify) (8) _____

What nationality do you identify with?

United Kingdom (1)

Australian (2)

European (3)

Asia (4)

- North American (5)
- South American (6)
- Indian (7)
- Chinese (8)
- African (9)
- Mixed (10)
- Other (please specify) (11)
-

(Written regret)

In this questionnaire please write about out a past event in your life in which you made an active, committed choice or decision, which you had control over, where the outcome was negative in some way. Additionally, when looking back, describe whether you were aware, or believed a better outcome could have resulted, or you wish you could have changed your choice, decision or behaviour at that time. Picture this situation in your mind. Try to remember it as vividly as you can what this situation was like. When you have this memory clearly in mind, please write about the situation, answering the following questions in your description.

1. Please tell us in as much detail as possible what happened:

Q4 2. Regarding the event you recalled, please tell us in as much detail as possible about what you were feeling and thinking:

Q5 3. Regarding the event, please tell us about what you did and said:

Q6 4. Regarding the event, please tell us how that situation has had an impact on you emotionally, in your thinking, and physically:

Q7 Who else was involved in the situation?

- no-one (1)
- Friend (2)
- Family (3)
- Colleague (4)
- Organisation or group (5)
- Object (please specify) (6) _____
- Other (please specify) (7) _____

Q8 How long ago did the event occur?

- Less than 3 months ago (1)
- 3-6 months ago (2)
- 6-12 months ago (3)
- 1-5 years ago (4)
- More than 5 years (5)

DASS**How you've felt in the last week:**

Please read each statement and choose a numbered option, 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all - NEVER

1 Applied to me to some degree, or some of the time - SOMETIMES

2 Applied to me to a considerable degree, or a good part of time - OFTEN 3 Applied to me very much, or most of the time - ALMOST ALWAYS

	NEVER (1)	SOMETIMES (2)	OFTEN (3)	ALMOST ALWAYS (4)
I found it hard to wind down (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was aware of dryness of my mouth (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I couldn't seem to experience any positive feeling at all (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found it difficult to work up the initiative to do things (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tended to over-react to situations (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I experienced trembling (e.g., in the hands) (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I felt that I was using a lot of nervous energy (8)

I was worried about situations in which I might panic and make a fool of myself (9)

I felt that I had nothing to look forward to (10)

I found myself getting agitated (11)

I found it difficult to relax (12)

I felt down-hearted and blue (13)

I was intolerant of anything that kept me of getting on with what I was doing (14)

I felt I was close to panic (15)

I was unable to become enthusiastic about anything (16)

I felt I wasn't worth much as a person (17)

I felt that I was rather touchy (18)

I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart

discovers what you did and tells the librarian and your entire class.

What is the likelihood that this would make you would feel like a bad person? (3)

After making a big mistake on an important project at work in which people were depending on you, your boss criticizes you in front of your co-workers.

What is the likelihood that you would feign sickness and leave work? (4)

You reveal a friend's secret, though your friend never finds out.

What is the likelihood that your failure to keep the secret would lead you to exert extra effort to keep secrets in the future? (5)

You give a bad presentation at work. Afterwards your boss tells your co-workers it was your fault that your company lost the contract.

What is the likelihood that you would feel incompetent? (6)

A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend? (7)

Your home is very messy and unexpected guests knock on your door and invite themselves in. What is the likelihood that you would avoid the guests until they leave? (8)

You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law? (9)

You successfully exaggerate your damages in a lawsuit. Months later, your lies are discovered and you are charged with perjury. What is the likelihood that you would think you are a despicable human being? (10)

You strongly defend a point of view in a discussion, and though nobody was aware of it, you realize that

you were wrong.

What is the likelihood that this would make you think more carefully before you speak? (11)

You take office supplies home for personal use and are caught by your boss. What is the likelihood that this would lead you to quit your job? (12)

You make a mistake at work and find out a co-worker is blamed for the error.

Later, your co-worker confronts you about your mistake. What is the likelihood that you would feel like a coward? (13)

At a co-worker's housewarming party, you spill red wine on their new cream-colored carpet. You cover the stain with a chair so that nobody notices your mess. What is the likelihood that you would feel that the way you acted was pathetic? (14)

While discussing a heated subject with friends, you suddenly realize you are shouting

caused the people involved (4)							
After what I did, I feel less worthy than other people (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can't help worrying about what people must think of me after what I did (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will never forgive myself for what I have done (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's very unpleasant for me when I think of how other people see me now (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My conscience is troubled by what I have done (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would do anything to undo what I did (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Regret Elements Scale (RES)

How you felt after the event:

Think about the event you described above when consider when answering the questions below. Please consider how you felt about the whole event and situation, your role in it, and if applicable, anything or anyone that was involved in the situation or was affected by your decisions and actions. For the questions below rate your answers according to: 1 = Strongly disagree, 4 = Neither agree or disagree, and, 7 = Strongly agree.

	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Neither disagree or agree (4)	Slightly agree (5)	Agree (6)	Strongly agree (7)
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I am experiencing self-blame about the way I made my decision (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel sorry (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am experiencing self-blame (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel guilty (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like kicking myself (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Things would have gone better if I had chosen another option (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wish I had made a different decision (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I should have decided differently (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would have been better off if I had decided differently (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Before I should have chosen differently (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thankyou for taking part in this study. Please click the button below to be redirected back to Prolific and register your submission.