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Forgiveness as a moderator of the association between anger expression and suicidal behaviour

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Anger is often associated with poor physical and mental health, including suicidal behaviour. Anger expression is typically conceptualised as inward or outward-directed, with each mode of expression having potentially different aetiologies and health manifestations. Individual characteristics such as religion or spirituality may buffer against the effects of anger. One such characteristic, forgiveness, is the voluntary process of changing ones' beliefs, behaviours, and emotions towards a transgressor from negative to positive. We examined forgiveness of self, forgiveness of others and feeling forgiven by God as moderators of the relationship between anger expression and suicidal behaviours in a sample of 372 ethnically diverse college students. In independent and full models, we found that forgiveness of self was a significant moderator of the association between inward and outward anger and suicidal behaviour. Interventions targeting anger via the promotion of forgiveness may be useful in the prevention of suicide ideation and attempts.

Keywords: anger; forgiveness; suicide ideation; anger expression; suicidal behaviour

Suicide is a significant public health problem and the third leading cause of death for adolescents and young adults (NCHS, 2004). Developmentally, risk for suicidal behaviour is often associated with issues of transition such as life changes, disrupted social support networks, and the difficulties associated with identity formation (Goodman & Schlossberg, 2006; Hirsch, Conner, & Duberstein, 2007). Of particular importance is the role of intense negative emotions, such as anger, that occur in the context of negative life events and interpersonal relationships and that might contribute to the development of distress, hopelessness, and suicidal behaviour (Konick & Gutierrez, 2005). Although the experience of anger may occasionally be unavoidable, the ability to adaptively experience and regulate such intense emotion is a marker for overall psychological well-being (Gross et al., 1997; Phillips, Henry, Hosie, & Milne, 2006). Further, despite being generally related to poor mental and physical health, the association of anger to such outcomes, including suicidal behaviour, is not inevitable.

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Meaning-based, individual-level characteristics, such as life satisfaction, purposefulness, and religiousness or spirituality, are positively associated with physical and mental health (Koenig, McCullough, & Larson, 2001; Toussaint, Webb, & Keltner, 2010; Zullig, Valois, Huebner, & Drane, 2005), and may similarly buffer the effects of negative emotions on suicidal outcomes (Connor, Davidson, & Lee, 2003; Kendler et al., 2003). Exploration and attainment of meaningfulness, perhaps through religious coping, finding or adapting one's life-purpose, or active forgiveness, may play a constructive role in the relationship between anger and suicidal behaviour (Dervic, Grunebaum, Burke, Mann, & Oquendo, 2006; Molock, Puri, Matlin, & Barksdale, 2006; Pargament, 1997).

Definition and process of anger

As classically conceptualised, anger is a multidimensional emotional and physiological experience consisting of feelings or attitudes, ranging in intensity from mild irritation to intense rage (Spielberger, 1999; Spielberger, Reheiser, & Sydeman, 1995). Anger expression is commonly dichotomised into inward and outward-directed anger, each of which exerts independent effects on psychosocial and health-related functioning (Martin et al., 1999). Internalised anger is characterised by behavioural inhibition and defined as the tendency to suppress angry thoughts and behaviours (Deffenbacher, Oetting, Lynch, & Morris, 1996; Smits & Kuppens, 2005), which are focused instead on the ego and self and may manifest as negative emotion (Spielberger et al., 1995), such as guilt or depression. On the other hand, externalised anger is associated with behavioural activation, often manifesting as either direct or indirect, physically or verbally aggressive behaviours towards persons or objects in the environment (Bridewell & Chang, 1997; Kuppens, Van Mechelen, & Meulders, 2004; Spielberger, 1999).

Previous research suggests the existence of two independent systems for behavioural regulation and motivation (Diener & Emmons, 1984; Higgins, 1998; Watson, Clark, & Tellegen, 1988); the Behavioural Activation System (BAS), an approach-related, positive-incentive motivation system, and the Behavioural Inhibition System (BIS), which regulates sensitivity to threat and non-reward cues. Activity of the BAS system initiates or maintains goal-directed behaviour and, according to Gray, contributes to positive feelings such as hope, elation, and happiness (Gray, 1972, 1990). Recent research, however, suggests that this same left pre-frontal cortex activity that comprises the BAS is also responsible for approach-related and activated negative behaviour, including anger (Carver & Harmon-Jones, 2009; Harmon-Jones, 2003). In this way, anger activation may be considered a goal-directed characteristic which, at times, could bear some similarities or relation to positive affect activation (E. Harmon-Jones, C. Harmon-Jones, Abramson, & Peterson, 2009).

On the other hand, the BIS restrains behaviour that may lead to negative outcomes, potentially inhibiting movement towards goals, and contributes to negative emotions such as fear, anxiety, frustration, and sadness (Gray, 1972; Gray, 1990). Although findings are mixed, in the context of anger, it may be that outwardly expressed anger is, in itself, an appetitive motivational behaviour that allows resolution of anger-inducing situations, thereby ultimately resulting in increased positive emotion (Bushman, 2002; Keinan, Ben-zur, Zilka, & Carel, 1992); for example, "letting it all out" or "directly confronting a problem" may increase likelihood of goal attainment. Conversely, inwardly directed anger, characterised by an inhibitory behavioural style, contributes little to problem-resolution but may exacerbate goal-frustration and hinders treatment (Richards, Kaplan, & Kafami, 2000). Previous studies examining the association of the BIS and BAS to anger-related

behaviours are confirmatory, indicating that, in general, the BAS is related to physical aggression towards others, whereas the BIS is related to self-harm and suicidal behaviour (O'Connor & Forgan, 2007; Smits & Kuppens, 2005).

From a psychological and behavioural perspective, inward and outward-directed anger often have somewhat different origins and correlates. For instance, feelings of guilt are associated with the tendency to express anger in an outward manner, whereas the experience of shame is related to inward-directed anger (Lutwak, Panish, Ferrari, & Razzino, 2001); in turn, both inward and outward-anger are related to depressive symptoms (Bridewell & Chang, 1997). Outward-directed anger is associated with substance (ab)use-related consequences (Eftekhari, Turner, & Larimer, 2004), as well as self-harming behaviours (Farmer, 1987), while inward-directed anger is related to a general tendency to be emotionally inexpressive and to experience characteristics of neuroticism, such as negative affect and anxiety (Brendgen, Vitaro, Turgeon, & Poulin, 2002; Martin et al., 1999). Despite some differing associations, both inward and outward anger have been conceptually end empirically linked to self-destructive behaviours, such as suicide (Conner, Duberstein, Conwell, & Caine, 2003).

Anger and suicidal behaviour

Although some research suggests that, in a number of modalities and situations, including interpersonal relationships, anger may be beneficial (Van Kleef, 2009; Van Kleef, van Dijk, Steinel, Harinck, & van Beest, 2008), in general, anger is related to an array of poor mental and physical health outcomes, including depression and suicidal behaviour (Goldney, Winefield, Saebel, Winefield, & Tiggeman, 2009; Moreno, Fuhriman, & Selby, 1993). Furthermore, anger also distinguishes between single and multiple suicide attempters (Esposito, Spirito, Boergers, & Donaldson, 2003), suggesting its contribution to longevity of risk for suicidal behaviours.

Theoretical links also exist between anger and suicidal behaviour. Some evolutionary and psychodynamic theories posit that anger and suicide are related conceptually; both may serve an adaptive or cathartic purpose and have their origins in aggression (Apter et al., 1989; Plutchik, van Praag, & Conte, 1989). According to these theoretical perspectives, depression and suicidal behaviours derive from angry and aggressive impulses that are directed inward (Kotler, Iancu, Efroni, & Amir, 2001); however, recent research suggests that both inward and outward-directed anger are associated with reduced quality of life and suicidal behaviour (Conner et al., 2003; Dumais et al., 2005; Painuly, Sharan, & Mattoo, 2007). From a cognitive-emotional perspective, anger constitutes a pattern of judgements, attitudes, and appraisals that may result in information-processing difficulties, interpersonal conflicts, and poor psychological adjustment (Deffenbacher et al., 1996; Zoccali et al., 2007). Individuals with anger-related problems exhibit a range of cognitive and interpersonal deficits that have a deleterious effect on well-being and contribute to greater risk for suicidal behaviours, such as poor social problem-solving ability and poor social reasoning (Brendgen et al., 2002; Rudolph & Clark, 2001). For adolescents and young adults, these characteristics may manifest as conflict-based interactions with family and peers, resulting in decreased social attachment and increased emotional distress (Hannum & Dvorak, 2004; Helsen, Vollebergh, & Meeus, 2000); the resultant lack of social support may increase risk for suicidal behaviour (Bertera, 2007).

Forgiveness: motivational and meaning-based process

Religion and spirituality have long been important to most Americans (Gallup Poll, 2001, 2009), including college students (HERI, 2004), and are generally associated with better mental and physical health outcomes (American Psychologist, 2003). Whether concerned with transcendent aspects of individual-level existence or social beliefs, customs, and boundaries (Koenig, 2000; Miller & Thoresen, 2003), religion/spirituality and related constructs have in common an emphasis on meaningfulness in life and a motivational quality that promotes goal-oriented behavioural activation (Emmons, 2005; Reker, Peacock, & Wong, 1987).

One meaning-based construct, forgiveness, is often considered a specific aspect of religiousness and spirituality, but is not constrained by traditional religious and spiritual parameters and is practiced by religious and non-religious individuals alike (Witvliet, Ludwig, & Vander Laan, 2001; Worthington, Witvliet, Pietrini, & Miller, 2007). Forgiveness is conceptualised as a motivationally and volitionally unique method of coping that does not require restitution, retribution or reconciliation, and which can be dispositional and/or situational in nature. Further, forgiveness is described as a process that is voluntarily undertaken by a victim of an offence, consisting of offering, feeling or seeking a change from negative to positive cognitions, behaviours and affect towards a transgressor, including self, others, and God (Toussaint & Webb, 2005a; Worthington, 1998). Thus, forgiveness may also be described as consisting of cognitive, emotional, and behavioural elements and, as such, may have important consequences for mental health outcomes (Enright, Freedman, & Rique, 1998; Harris et al., 2006; Worthington, 2005); as an example, depression may often be the sequelae of maladaptive forms of such elements (Brown, 2003). Forgiveness may also be conceptualised as a multi-dimensional construct, in both situational and dispositional terms, and as involving varying methods (offering, seeking, and feeling) and targets (self, others, deity, community) (Toussaint & Webb, 2005a). In our study, we assessed forgiveness of self, defined as forgiveness of one's own thoughts or behaviours; forgiveness of others, or forgiveness directed towards an offender; and, forgiveness by God, or divine forgiveness (Fetzer Institute, 2003).

Although previous research suggests a link between anger and forgiveness (Worthington, 1998), and between forgiveness and both physical and mental health (Harris & Thoresen, 2005; Toussaint & Webb, 2005b; Worthington et al., 2007), we know of no other published data examining the inter-relationships between anger, forgiveness, and suicidal behaviour. Experts in the psychology of forgiveness argue that the positive associations between forgiveness and health operate through both direct and indirect effects (Worthington, Berry, & Parrott, 2001). The direct effect of forgiveness is thought to function, in part, through rumination and its association with negative emotions such as anger, bitterness, hostility, hatred, fear, and resentment. If unresolved, such negative emotions, described by Worthington et al. (2001) as unforgiveness, may have a deleterious effect on mental and physical health via increased allostatic load, which is a sustained physiological response to stressors (Seeman, McEwen, Rowe, & Singer, 2001). The indirect effect may operate through mediating relationships with health behaviour, social support, interpersonal functioning, and mental health (Webb, Robinson, & Brower, 2009; Worthington et al., 2001). It should be noted, however, that forgiveness and unforgiveness ultimately are distinct constructs (Worthington & Wade, 1999; Worthington et al., 2001) and may have different origins and correlates (Worthington et al., 2007).

Anger, suicidal behaviour, and forgiveness

Just as anger is associated with poor psychological and physical health outcomes, so too is a lack of forgiveness or unforgiveness (Conner et al., 2003; Goldney et al., 2009; Harris et al., 2006; Toussaint & Webb, 2005b; Toussaint, Williams, Musick, & Everson-Rose, 2008; Worthington & Scherer, 2004); yet, the role of forgiveness in the association between anger and suicidal behaviour has not been investigated. It is unknown whether or not suicidal individuals are able to forgive themselves or others, or whether they do or do not feel forgiven by God. To the extent that forgiveness counterbalances some aspects of anger, it may buffer the effect of anger on psychopathological outcomes such as suicidal behaviour. Conceptually, the constructs of anger and (un)forgiveness appear to be closely intertwined; both are multidimensional, target-based, prone to ruminative maintenance and associated with poor mental health outcomes, including depression (Gilbert, Cheung, Irons, & McEwan, 2005). Indeed, the feeling and expression of anger is often driven by a sense of resentment, holding a grudge, or unforgiveness (Spielberger et al., 1995; Worthington et al., 2007).

As such, we hypothesised that anger would be significantly positively associated with greater suicidal behaviour, and that forgiveness would moderate this relationship, over and above the effects of covariates, such that individuals with greater levels of forgiveness would report less suicidal behaviour associated with anger expression. We explored the independent effects of forgiveness of self and others, and feeling forgiven by God, on this relationship, in separate and combined models.

Method

Participants

Our diverse sample of 372 college students comprised 155 Hispanic (41%), 96 Black (26%), 70 White (19%), 21 Asian (6%), 27 Other (7%), and 3 Native American/American Indian (1%) individuals. The average age of the sample was 19.60 ($SD = 3.14$) years old, and 260 participants (70%) were female. Participants were largely freshman (62%; $n = 234$) or sophomore (28%; $n = 108$) students recruited from a psychology subject pool at an urban Northeastern U.S. university, as part of a larger study on college suicide (Hirsch, Chang, & Jeglic, 2010). Participation was voluntary and informed consent was obtained, subjects received extra credit, and the study was approved by an Institutional Review Board. Participants' responses were screened, and students endorsing current suicidal ideation were contacted and scheduled to meet with the principal investigator (ELJ), a licensed psychologist, for risk assessment, provision of resources and appropriate referral; at-risk students were retained in final analyses.

Measures

Forgiveness of self and of others, and forgiveness by God, were assessed using the *Brief Multidimensional Measure of Religiousness/Spirituality* (Fetzer Institute, 2003).

Three single-item dispositional measures of forgiveness were used in this study: forgiveness of self (''I have forgiven myself for things that I have done wrong''), forgiveness of others (''I have forgiven those who hurt me''), and feeling forgiven by God (''I know that God forgives me''). Each item was answered on a 4-point Likert scale anchored by 1 ''Never'' and 4 ''Almost Always.'' Bivariate correlation coefficients (r) among these dimensions of forgiveness for this sample range from 0.35 to 0.43, $p < 0.01$,

and these items have been successfully used in health research with college student samples (Webb & Brewer, 2010).

The *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996), a 21-item self-report measure, was used to assess the presence and severity of cognitive, affective, somatic, and motivational symptoms of depression, as a covariate. The BDI-II is scored using a 4-point Likert scale ranging from 0 (absence of symptom) to 3 (severe symptom presence). The BDI-II predicted depression in a clinical college sample, and has exhibited adequate test-retest reliability (0.93) (Beck et al., 1996). In the current study, Cronbach's $\alpha = 0.88$.

We utilised to subscales of the *Multidimensional Anger Inventory* (MAI; Siegel, 1986) to assess mode of expression of anger. The MAI is a 38-item self-report measure; we used a subset of 11 items to assess mode of anger expression, inward (6 items) or outward-directed (5 items). Each of the statements is rated in terms of how descriptive each is of the respondent, on a Likert scale ranging from 1 (completely undescriptive) to 5 (completely descriptive). An example of an item assessing inward-directed anger is "I harbor grudges that I don't tell anyone about"; and for outward-anger, "When I am angry with someone, I let that person know." The MAI has adequate reliability and validity in use with college students (Hoglund & Nicholas, 1995), and scores on the MAI are associated with increased depression and suicidal behaviour (Kotler et al., 1993). In our study, Cronbach's alpha was somewhat low but adequate for the internal ($\alpha = 0.65$) and external anger subscales ($\alpha = 0.58$), perhaps as a result of a small item pool.

Suicidal thoughts and behaviours were assessed utilising the *Suicidal Behaviours Questionnaire – Revised* (SBQ; Linehan, Goodstein, Nielsen, & Chiles, 1983; Linehan & Nielsen, 1981; Osman et al., 2001). The SBQ consists of four items assessing lifetime suicide ideation and attempt, frequency of suicide ideation in the past year, threat of suicidal behaviour, and self-reported likelihood of future suicidal behaviour. The items include: "Have you ever thought about or attempted to kill yourself?" "How often have you thought about killing yourself in the past year?" "Have you ever told someone that you were going to commit suicide, or that you might do it?" and "How likely is it that you will attempt suicide someday?" Items are scored on a Likert-scale, with between three and six response choices per item, and are summed for a total score (range = 0–16). The SBQ-R has excellent reliability and validity in use with college students, as well as clinical samples (Osman et al., 2001). Cronbach's α for our sample = 0.80.

Statistical analyses

Study variables were assessed for independence using bivariate correlations (see Table 1); no correlation coefficients reached recommended thresholds for multicollinearity (Tabachnick & Fidell, 2001). Predictor and moderator variables were centred prior to hierarchical, multiple linear regression, and moderator analyses (Aiken & West, 1991; Baron & Kenny, 1986). Covariates included age, gender, ethnicity, religiousness and spirituality, and depressive symptoms. For graphing, high and low status on moderator variables was derived using cut-offs of one standard deviation above or below the mean.

Results

Twenty-three per cent of respondents in our collegiate sample reported at least some suicide ideation in the past year, and 6% ($n = 22$) had made a previous suicide attempt in their lifetime. At the bivariate level (Table 1), inward anger was significantly positively

Table 1. Demographic characteristics and bivariate correlations.

Mean [*SD*] *N* [%]	Age	Sex	Religious	Spirituality	Depression		Forgiveness of self	Forgiveness of others	Forgiven by God	Inward Anger	Outward anger	Suicidal behaviour
Age	19.60 [3.12]	–	−0.08	0.01	0.10*	−0.04	0.07	0.07	−0.00	−0.03	0.07	0.01
Sex [F]	267 [69%]	−0.08	–	0.06	0.03	0.26**	−0.01	0.05	0.15**	0.11*	0.08	0.10*
Religious	2.13 [0.79]	0.01	0.06	–	0.60***	−0.08	0.26***	0.29***	0.47***	−0.12*	−0.05	−0.12*
Spirituality	2.28 [0.93]	0.10*	0.03	0.60***	–	−0.06	0.19***	0.29***	0.36***	−0.08	0.01	−0.07
Depression	12.76 [8.53]	−0.04	0.26**	−0.08	−0.06	–	−0.30***	−0.11*	−0.07	0.46***	−0.19***	0.55***
Forgiveness of self	2.29 [0.94]	0.07	−0.01	0.26***	0.19***	−0.30***	–	0.36***	0.43***	−0.19***	0.07	−0.27***
Forgiveness of others	2.37 [0.89]	0.07	0.05	0.29***	0.29***	−0.11*	0.36***	–	0.35***	−0.28***	−0.03	−0.15**
Forgiven by God	1.80 [0.98]	−0.00	0.15**	0.47***	0.36***	−0.07	0.43***	0.35***	–	−0.15**	0.11*	−0.16**
Inward anger	13.08 [4.78]	−0.03	0.11*	−0.12*	−0.08	0.46***	−0.19***	−0.28***	−0.15**	–	0.01	0.35***
Outward anger	7.20 [1.92]	0.07	0.08	−0.05	1.01	−0.19***	−0.07	−0.03	0.11*	0.01	–	−0.07
Suicidal behaviour	1.73 [3.25]	0.01	0.10*	−0.12*	−0.07	0.55***	−0.27***	−0.15**	−0.16**	0.35***	−0.07	–

Note: Depression = Beck Depression Inventory–II Total Score; Forgiveness Items = Fetzer Brief Multidimensional Measure of Religiousness and Spirituality; Inward and Outward Anger = Multidimensional Anger Inventory Subscale Scores; Suicidal Behaviour = SBQ Total Score
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

associated with depressive symptoms ($r = 0.46$, $p < 0.001$) and suicidal behaviours ($r = 0.35$, $p < 0.001$), and was significantly negatively associated with religiousness, ($r = -0.12$, $p < 0.05$), forgiveness of self ($r = -0.19$, $p < 0.001$), others ($r = -0.28$, $p < 0.001$) and feeling forgiven by God ($r = -0.15$, $p < 0.01$).

Outward anger was significantly negatively associated with depressive symptoms ($r = -0.19$, $p < 0.001$) and significantly positively associated with feeling forgiven by God ($r = 0.11$, $p < 0.05$).

In an independent model, excluding the effect of outward anger, we found that having an inwardly directed mode of anger expression was associated with increased suicidal thoughts and behaviours, and that forgiveness of self was a significant moderator of this relationship, $t = -2.08$, $p < 0.05$. Individuals who tend to internalise their anger may be at less risk for suicidal behaviour if they are able to forgive themselves (See Table 2 and Figure 1).

Externally directed anger was associated with decreased self-harm in an independent model, and forgiveness of self significantly moderated this relationship as well, $t = 2.12$, $p < 0.05$. For those high in self-forgiveness, there is little effect of outward anger on suicidal behaviour. Interestingly, individuals with low levels of self-forgiveness are at increased risk for self-harm at low levels of outward anger, but this association weakens with increasing outward anger (See Table 2 and Figure 2).

The effects of forgiveness persisted in a full model including both types of anger, all types of forgiveness, and their interactions. Forgiveness of self was a significant moderator of the association between inward-directed, $t = -2.36$, $p < 0.05$, and outward-directed anger, $t = 2.21$, $p < 0.05$, and suicidal thoughts and behaviours (See Table 3).

Discussion

Our broad hypothesis regarding higher levels of anger, in general, being positively associated with suicidal behaviour and that forgiveness would moderate this relationship, received partial support. Upon examination of main effects, we found that inward-anger was significantly positively associated, and outward-anger was significantly negatively associated, with suicidal behaviour, suggesting that harbouring anger may contribute to risk for suicidal behaviour, whereas releasing anger externally may reduce risk for suicidal behaviour. We also found that forgiveness of self was a significant moderator of the association between inward and outward-directed anger and suicidal behaviours, in independent models, and this effect persisted in a full model including both inward and outward-anger and all forgiveness subscales. No other types of forgiveness were significant moderators. Perhaps, due to the intensely personal nature of the anger-suicide relationship, which may involve feelings of self-loathing, guilt, and helplessness, as well as ''psychache'', the role of others and God becomes less meaningful than one's ability to forgive the self (Joiner, Rudd, Hastings, Northman, & Tangney, 2002; Shneidman, 1993). Indeed, preliminary research suggests that if an individual feels they have committed an offence too large to be forgiven by themselves, others or by God, suicide risk is increased (Exline, Yali, & Sanderson, 2000).

Outward-Anger

It appears that outward-directed anger, as opposed to inward-directed anger, is a somewhat more adaptive mode of anger-expression, perhaps providing a mechanism for ''working through'' anger (Horwitz, 2005). We found that outward-directed anger was

Table 2. Independent linear regressions – Forgiveness as a moderator of the association between anger expression and suicidal behaviour.

Inward-directed anger				Outward-directed anger				
t	*p*-value	*β*	Standard error		*t*	*p*-value	*β*	Standard error
Constant	−2.81	0.01	−5.97	2.07	1.96	0.05	4.86	2.49
Age	0.18	0.86	0.01	0.04	0.20	0.84	0.01	0.05
Gender	−0.13	0.89	−0.04	0.32	−0.21	0.84	−0.07	0.33
Ethnicity	0.09	0.93	0.01	0.11	−2.00	0.98	−0.00	0.11
Religiousness	−0.36	0.72	−0.09	0.23	−0.45	0.65	−0.11	0.24
Spirituality	−0.02	0.98	−0.01	0.19	0.43	0.67	0.08	0.20
Depressive symptoms	8.60	0.00	0.17	0.02	10.36	0.00	0.19	0.02
Forgiveness of self	1.36	0.18	0.64	0.47	−2.36	0.02	−1.58	0.67
Forgiveness of others	1.30	0.19	0.62	0.47	0.47	0.64	0.32	0.67
Forgiven by God	0.66	0.51	0.29	0.44	−1.40	0.16	−0.86	0.61
Inward anger	3.98	0.00	0.47	0.12	–	–	–	–
Inward anger × forgiveness of self	−2.10	0.04	−0.07	0.03	–	–	–	–
Inward anger × forgiveness of others	−1.41	0.16	−0.05	0.03	–	–	–	–
Inward anger × forgiven by God	−1.02	0.31	−0.03	0.03	–	–	–	–
Outward anger	–	–	–	–	−1.99	0.04	−0.59	0.30
Outward anger × forgiveness of self	–	–	–	–	2.12	0.04	0.18	0.09
Outward anger × forgiveness of others	–	–	–	–	−0.62	0.54	−0.06	0.09
Outward anger × forgiven by God	–	–	–	–	1.17	0.24	0.09	0.08

Note: Depressive symptoms = Beck Depression Inventory–II Total Score; Forgiveness, Religiousness and Spirituality Items = Fetzer Brief Multidimensional Measure of Religiousness and Spirituality; Inward and Outward Anger = Multidimensional Anger Inventory Subscale Scores; Suicidal Behaviour = SBQ Total Score.

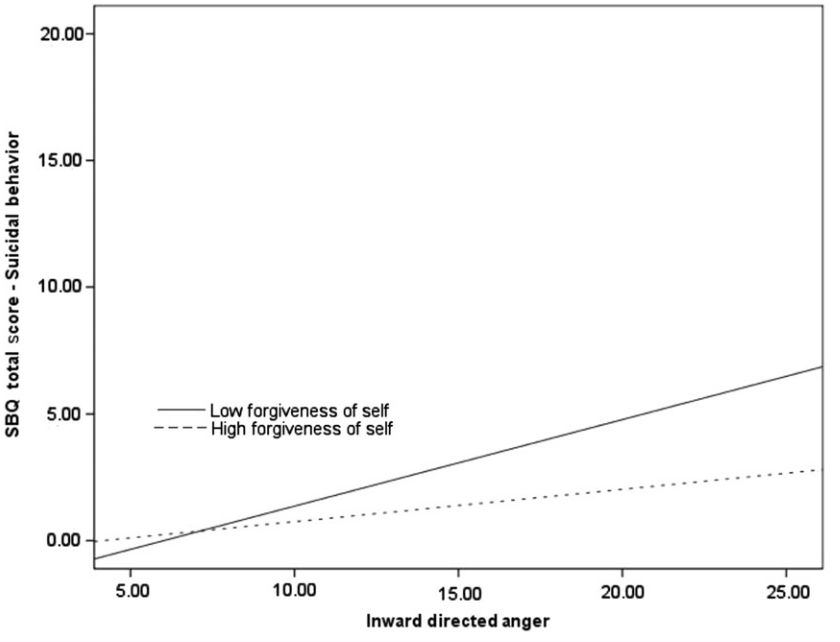

Figure 1. Interaction of forgiveness of self as a moderator of association between inward anger expression and suicidal behaviour.

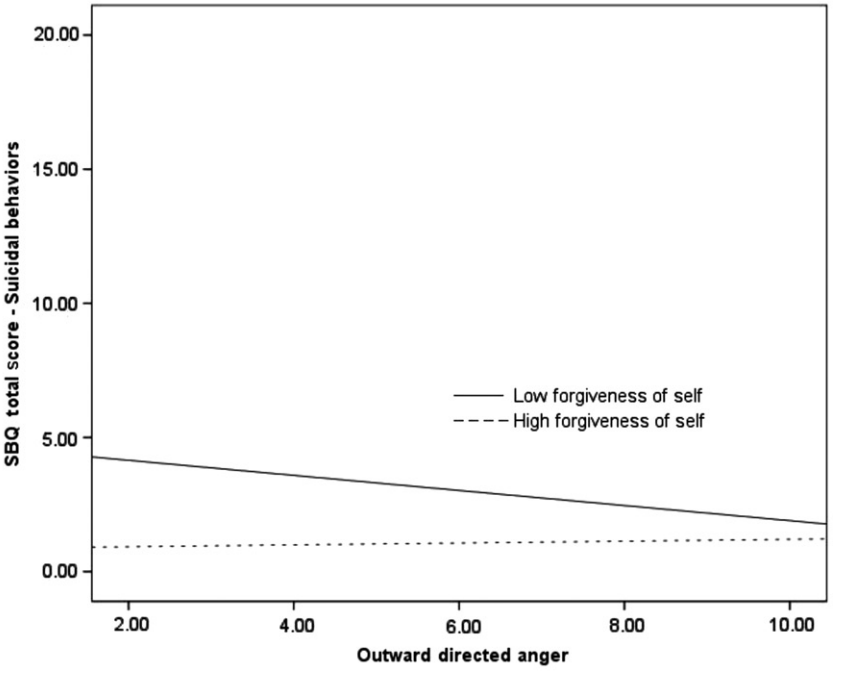

Figure 2. Interaction of forgiveness of self as a moderator of association between outward anger expression and suicidal behaviour.

Table 3. Full model – Forgiveness as a moderator of the association between anger expression and suicidal behaviour.

Full model including inward and outward-directed anger				
t	*p*-value		*β*	Standard error
Constant	−0.22	0.82	−0.62	2.77
Age	0.03	0.98	0.01	0.04
Gender	−0.29	0.77	−0.09	0.32
Ethnicity	0.27	0.79	0.03	0.11
Religiousness	−0.23	0.82	−0.06	0.24
Spirituality	0.04	0.97	0.01	0.19
Depressive symptoms	8.38	0.00	0.17	0.02
Forgiveness of self	−0.78	0.43	−0.59	0.75
Forgiveness of others	0.93	0.35	0.72	0.77
Forgiven by God	−0.60	0.55	−0.41	0.69
Inward anger	4.27	0.00	0.51	0.12
Outward anger	−2.71	0.01	−0.79	0.29
Inward anger × forgiveness of self	−2.36	0.02	−0.07	0.03
Inward anger × forgiveness of others	−1.56	0.12	−0.05	0.03
Inward anger × forgiven by God	−1.05	0.29	−0.03	0.03
Outward anger × forgiveness of self	2.21	0.03	0.19	0.09
Outward anger × forgiveness of others	−0.15	0.89	−0.01	0.09
Outward anger × forgiven by God	1.39	0.16	0.11	0.08

Notes: Depression = Beck Depression Inventory–II Total Score; Forgiveness, Religiousness and Spirituality Items = Fetzer Brief Multidimensional Measure of Religiousness and Spirituality; Inward and Outward Anger = Multidimensional Anger Inventory Subscale Scores; Suicidal Behaviour = SBQ Total Score.

negatively related to suicidal behaviour and forgiveness of self was a significant moderator of this association. As expected, individuals with greater levels of self-forgiveness reported fewer suicidal behaviours in the context of outward-anger than those with less self-forgiveness. For these individuals, level of suicidal behaviour remained relatively stable across levels of outward-anger, suggesting that self-forgiveness may ameliorate some of the deleterious effects of outward anger, despite its magnitude (Fitzgibbons, 1986).

Individuals with lower levels of self-forgiveness also appear to benefit from outward anger – as outward anger increases, risk for suicidal behaviour decreases; however, we found that those with less self-forgiveness were at greater risk for suicidal behaviour than individuals with high levels of self-forgiveness at low levels of outward-anger. This effect may occur because level of forgiveness can interact with magnitude of anger to predict outcome (Worthington & Scherer, 2004).

The pattern of our findings suggests that overall, while those with less ability to self-forgive may benefit from expressing anger outwardly, they may also experience distress as a result. These individuals may regret their other-directed angry thoughts or actions, particularly those also high in shame and guilt (Hall & Fincham, 2005, 2008; Tangney, Boone, & Dearing, 2005); as such, risk for suicidal behaviour may be greater initially before an ameliorative effect occurs through actual or more intense expression. Previous research suggests that angry individuals are more likely to be self-critical and have greater shame and lower self-worth (Shanahan, Jones, & Thomas-Peter, 2010); further, individuals low in self-forgiveness are susceptible to feelings of depression and anxiety, whereas

individuals able to engage in self-forgiveness experience less disturbance of mood and better quality of life, in the context of anger-related stressors (Romero et al., 2006; Toussaint & Webb, 2005a). When unable to sufficiently forgive ones' self, minimal or moderate outward expressions of anger may result in feelings of guilt or shame that contribute to risk for suicide (Ross et al., 2004), whereas more intense outward expressions of anger may occur in the context of feelings of justification that do not result in remorse (Harris & Thoresen, 2005). Importantly, outward anger is often targeted and goal-directed (e.g., anger towards an offender) and, therefore, related to the same system of activation responsible for positive affect (Harmon-Jones et al., 2009). Volitional and outward-directed anger may, thus, contribute less to feelings of self-punishment and more towards feelings of resolution and satisfaction (Van Kleef et al., 2008).

Inward-anger

Our other major finding, that the relationship between inward-anger and suicidal behaviour is moderated by forgiveness of self, is supportive of historical theoretical perspectives; the literature in this area has long asserted that anger turned inward towards the self is a destructive force (Bushman, 2002), although research findings are mixed. Individuals in our sample with greater levels of self-forgiveness were less likely to report suicidal behaviour in the context of inward anger, than individuals with less self-forgiveness. Said in another way, for those low in self-forgiveness, inward anger is associated with greater risk for suicidal behaviours.

When anger is turned inward, arousal and activation still occur but are directed towards the self-cognitively, emotionally, and physically (Smits & Kuppens, 2005; Spielberger et al., 1995). Individuals who suppress anger and harbour resentment may continue to feel victimised, helpless or hopeless, and may experience poor self-worth as a result of an anger-provoking event (Brody, Haaga, Kirk, & Solomon, 1999); in addition, these individuals may be unable to garner adequate social resources to assist in coping with anger-related experiences (Palfai & Hart, 1997). Such types of internal cognitive-emotional distress are well-established risk factors for suicidal behaviour (Abramson et al., 2002; Heikkinen, Aro, & Lonnqvist, 1994). Behavioural and physiological arousal is also activated in individuals responding with inward-directed anger, perhaps manifesting as agitation, irritability, and impulsivity (Hodapp, Bongard, & Heiligtag, 1992; Kerr & Schneider, 2008; Laude, Girard, Consoli, Mounier-Vehier, & Elghozi, 1997), characteristics associated with increased risk for self-harm and suicidal thoughts and attempts (Conner, Meldrum, Wieczorek, Duberstein, & Welte, 2004; Corruble, Damy, & Guelfi, 1999). The ability to engage in self-forgiveness appears to buffer this association, and may be an important target for suicide prevention efforts.

Relative importance of dimensions of forgiveness

At the bivariate level of analysis, significance was observed among nine of 12 possible associations between the three dimensions of forgiveness and the four health-related variables (depression, inward and outward anger, and suicidal behaviour), suggesting a robust association between forgiveness and health, in general. However, in multivariable analyses, only self-forgiveness was a moderator of the association between anger and suicidal behaviour, suggesting it to be the most important dimension of forgiveness measured in this study. Consistent with emerging health-related research examining multiple dimensions of forgiveness (Webb & Brewer, 2010; Webb et al., 2009;

Webb, Toussaint, Kalpakjian, & Tate, 2010), our results: (1) strengthen the argument that the association between forgiveness and health depends on the dimension of forgiveness and the aspect of health under consideration and (2) suggest that, cross-sectionally, forgiveness of self may be more salient for health than other dimensions. In sum, no longer can we simply state that forgiveness is associated with health but must further clarify which dimension and which aspect.

Limitations

Although novel, our findings must be considered within the context of minor limitations. Despite inclusion of age and gender as covariates, differences in level, expression and correlates of anger may exist between these groups (Clay, Hagglund, Kashani, & Frank, 1996; Daniel, Goldston, Erkanli, Franklin, & Mayfield, 2009; Phillips et al., 2006). Indeed, our measure of anger, the MAI, exhibited somewhat low internal consistency, perhaps contributing spuriously to observed differences between groups or to less robust correlations; a measure of anger with better psychometric properties should be used in future studies. Age and gender differences in forgiveness should also be considered (Miller & Worthington, 2010; Toussaint, Williams, Musick, & Everson-Rose, 2001), and our use of single-item assessments of dispositional forgiveness is less than ideal. Future investigative efforts should incorporate multi- dimensional measurement of forgiveness, including situational forgiveness (McCullough, 2000); however, previous research, including factor analyses, focused on single versus multiple-item analyses of religious and spiritual beliefs suggest that these approaches yield similarly sensitive results (Dollinger & Malmquist, 2009; Gorsuch & McFarland, 1972).

While the ordering of variables in our analyses is grounded in theory, our study design is cross-sectional and bi-directionality of our data may also exist. As an example, an alternative explanation of our findings may be that, for those low in self-forgiveness, greater outward anger is associated with reduced, and greater inward-anger is associated with increased, risk for suicidal behaviour. There was also no association between outward anger and suicidal behaviour in our sample, perhaps due to suppression effects resulting from other variables included in our analytic models. Further, in this secondary analysis, we were restricted to measures administered, and alternative explanations may be possible. As an example, the effects of anger expression on depression and suicide may be partially attributable to feelings of ''righteous anger'', a lack of insight about the impact of one's actions on others, or a lack of behavioural responsibility (Bjorkly, 2007; Tripp & Bies, 2010). Prospective experimental and intervention-based studies of diverse community and clinical samples, using a more comprehensive survey of individual-level characteristics, are necessary to inform the directional, causal, and inter-relational nature of these associations.

Implications

Despite these limitations, our findings may have clinical implications for suicide prevention in individuals experiencing anger. Indeed, some researchers have suggested that suicidal behaviours, as well as hopelessness and depression, may be inextricably intertwined with anger, and that interventions designed to conjointly address depressogenic and anger-based symptomology may be important (Moreno et al., 1993; Riley, Treiber, & Woods, 1989). The reduction of anger has been successfully accomplished using, for example, cognitive or cognitive-behavioural therapy to reduce anger-related

arousal and improve emotion regulation skills (Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000; Sukhodolsky, Solomon, & Perine, 2000). Therapeutic facilitation of acceptable and appropriate anger may also be somewhat cathartic (Weber, 2004), often resulting in a greater sense of control and self-insight and improved relationships (Averill, 1983; Van Kleef, 2009); our results suggest this approach may have ameliorative effects on suicidal behaviour.

Treatments designed to bolster levels of forgiveness have also resulted in reduced anger, greater self-esteem and hopefulness, positive emotions towards others, less depression and anxiety and improved resistance against drug use (Al-Mabuk, Enright, & Cardis, 1995; Hebl & Enright, 1993; Lin, Mack, Enright, Krahn, & Baskin, 2004; Webb, Toussaint, & Conway-Williams, 2010). Additionally, forgiveness is associated with a reduced stress response and a greater sense of perceived control, which is often lacking in both anger-situations and in hopeless and suicidal individuals (Witvliet et al., 2001). Therapeutically, forgiveness may allow someone to release feelings of anger and to emotionally progress beyond painful and anger-related experiences or persons from their past, and can facilitate the reconciliation of relationships (Fitzgibbons, 1986; Worthington, 2006). As an example, Worthington's REACH model (Worthington, 2006), which includes both psycho-educational and therapeutic process components, involves the recall and cognitive-emotional exploration of an offence, altruistic offering of and commitment to the forgiveness process, and efforts to hold on to forgiveness.

To successfully facilitate forgiveness as a component of treatment, clinicians may need to analyse contextual issues related to the development of anger, including severity of offence (Toussaint et al., 2010), relationship of the offender (Witvliet et al., 2001), and even the gender of the client (Toussaint & Webb, 2005b; Toussaint et al., 2008). As an example, detachment, guilt-proneness, and the ability to reduce anger levels are associated with forgiveness for females, whereas for males, proneness to shame and pride in behaviours are associated with forgiveness (Konstam, Chernoff, & Deveney, 2001). Client characteristics, such as the ability to take the perspective of and feel empathetic towards another [which may differ based on gender in predicting forgiveness (Toussaint & Webb, 2005b)], are also associated with differential levels of forgiveness and anger reduction (Mohr, Howells, Gerace, Day, & Wharton, 2007; Takaku, 2001), and can be targeted in treatment.

Our results suggest that self-forgiveness is particularly relevant for treatment of anger and suicidal behaviour, although it may also be the most difficult type of forgiveness to promote (Worthington, Scherer, & Cooke, 2006); indeed, from some sociocultural or religious/spiritual perspectives, self-forgiveness may be impossible (Vitz & Mango, 1997). Personality variables, such as narcissism or entitlement, neuroticism, or a lack of remorse or sense of responsibility, may affect the self-forgiveness process (Exline, Baumeister, Bushman, Campbell, & Finkel, 2004; Strelan, 2007; Walker & Gorsuch, 2002); if an individual is less than conscientious about the impact of their behaviour on others, they may more easily forgive themselves or fail to see the need for self-forgiveness. Feelings of guilt and low self-esteem may also affect the ability to self-forgive, and may be targeted in treatment as a means of facilitating self-forgiveness, along with the enhancement of emotion regulation and empathetic ability (Hodgson & Wertheim, 2007). Finally, addressing memories related to anger-inducing incidents may be important, as they often play a crucial role in rumination and inability to self-forgive (Barber, Maltby, & Macaskill, 2005).

Such efforts to promote self-forgiveness may be complicated by the potential distinction between religious/spiritual and secular forms of self-forgiveness, as well as the prospect that they may be inseparable (Rogers & Loewenthal, 2003); theoretical

explorations and research findings are mixed. Many studies and scholars suggest that greater religious/spiritual beliefs and behaviours are linked to increased self-forgiveness, and that forgiveness of self may only be possible once one is forgiven by God (Rogers & Loewenthal, 2003), whereas others posit that self-forgiveness may be impossible and that self-acceptance may be a more feasible outcome (Vitz & Meade, 2010). It has also been suggested that the ability to forgive ones' self is inextricably linked to the ability to forgive others, and vice-versa (Halling, 1994). Despite such discrepancies and complexities, our findings suggest that greater attention to the role of self-forgiveness as it relates to anger and suicidal behaviour is warranted.

Yet, clinicians must be aware that, like other protective factors, forgiveness is not a panacea and may not be a clinical intervention for all anger-related issues. For instance, in a study of victims of violent crime, forgiveness was not related to physical and mental health, trauma-related distress and post-traumatic symptom severity, suggesting that some sources of anger may not be amenable to forgiveness-based interventions (Connor et al., 2003). Similarly, clinicians must remember that not all dimensions of forgiveness are associated with any particular aspect of health and that it is important to accurately and efficiently focus on relevant points of intervention. However, promotion of self-forgiveness may be a complementary approach to direct anger-resolution efforts, and may contribute to suicide prevention.

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