Various Forms of Existential Distress are Associated with Aggressive Tendencies

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Abstract

We propose that aggressive tendencies are more (vs. less) pronounced among people who frequently (vs. less frequently) experience challenges to their perceived meaning in life. We tested this for three different forms of existential distress: loneliness, boredom, and disillusionment. The results of Study 1 confirm that loneliness is associated with aggressive tendencies and that this positive association can be partly attributed to the search for meaning that comes with loneliness. The results of Study 2 indicate that meaning search plays a similar role in the relationship between boredom proneness and aggressive tendencies. Finally, the results of Study 3 indicate that the more often people feel disillusioned, the more pronounced their aggressive tendencies are, and this association is again partly attributable to meaning search. These findings suggest that aggressive tendencies have roots in existential distress and in the motivation to find meaning in life.

*Keywords:* aggression, loneliness, boredom, disillusionment, meaning

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*I rebel—therefore we exist.* (Camus, 1951)

Previous research has linked existential challenges to aggressive responses (McGregor et al., 1998). We sought to investigate if this link generalized to different forms of existential distress. To this end, we explore individual differences in susceptibility to three different forms of negative and existential affect: loneliness, boredom, and disillusionment. While these are three distinct forms of challenge, they share an important feature: Each of these experiences signals a challenge to people's sense of meaning in life (e.g., Barbalet, 1999; Maher, Igou, & Van Tilburg, 2018a; Van Tilburg & Igou, 2011a). We investigate if the tendency to experience these forms of existential distress accompanies elevated aggressive tendencies. Crucially, in each case, we hypothesize that a search for meaning may partially explain these links.

**Striving for a Meaningful Existence**

People strive to lead a life they perceive as meaningful (Heine, Proulx, & Vohs, 2006; Steger Frazier, Oishi, & Kaler, 2006; Van Tilburg & Igou, 2011b, 2013). Some construe a sense of meaning in life through religion (Batson & Stocks, 2004; Van Tilburg, Igou, Maher, Moynihan, & Martin, 2018), political ideology (Jost, Fitzsimons, & Kay, 2004; Van Tilburg & Igou, 2016), heroism (Coughlan, Igou, Van Tilburg, Kinsella, & Ritchie, 2017; Kinsella, Igou, & Ritchie, 2017), or ritual (do Rozario, 1994); others may gain a sense of purpose in life through helping others (Schwartz, Keyl, Marcum, & Bode, 2009; Van Tilburg & Igou, 2017a), by being a moral person (King & Napa, 1998), or through close relational ties (Van Tilburg, Sedikides, Wildschut, & Vingerhoets, in press). Unfortunately, people face challenges to their perceptions of meaning: Loneliness, perhaps resulting from moving cities, the death of a loved one, or finding few commonalities with colleagues, may impair perceived meaning in life (Stillman et al., 2000). Boredom, perhaps due to an unrewarding job, a

passionless relationship, or a dull environment, challenges people's perception of living a life with purpose (Van Tilburg & Igou, 2012, 2017b). Disillusionment, perhaps caused by the realization that politicians may take away your health insurance, that worldwide economic inequality has increased over time, or that future generations will never see a living Western African black rhinoceros (declared extinct in 2011; Karsten, Van Vuuren, Goodman, & Barnaud, 2011), may make people question life's meaning (Maher, Igou, & Van Tilburg, 2018a, 2018b).

We group these experiences under the term *existential distress*, which we define as *the set of unpleasant affective experiences significantly characterized by a negated sense of meaning* (Maher, Van Tilburg, & Igou, 2018). Perceived meaning in life has three constituents: significance, purpose, and coherence (Martela & Steger, 2016). Accordingly, we examined three corresponding exemplars of existential distress: loneliness challenges *perceived personal significance* (Heinrich & Gullone, 2006), boredom involves a lack of *perceived purpose* (Van Tilburg & Igou, 2012; 2013), and disillusion threatens a *sense of coherence in life* (Maher et al., 2018a). By investigating a form of existential distress related to each, we hope to obtain converging evidence for the link between existential distress and aggression across these core domains of meaning in life. Furthermore, these three forms of existential distress can present themselves in the general population, and, as will be discussed below, are impactful.

People employ different strategies to address existential distress, for example one may commit to valued sources of meaning (e.g., political ideologies in response to boredom; Van Tilburg & Igou, 2016), more directly resolve a meaning threat (e.g., trying to constructively reappraise a source of disillusionment; Maher et al., 2018b), or seek to avoid threat altogether (e.g., snacking on food to reduce awareness of a dull situation; Moynihan, Van Tilburg, Igou, Wisman, Donnelly, & Mulcaire, 2015). We suggest that aggression tendencies may be

associated with people's proneness to existential turmoil; we propose that various forms of existential distress such as loneliness, boredom, and disillusionment, are all associated with elevated aggressive tendencies. Further, we suggest that people's search for meaning in life explains at least part of this association. We first review the relevant literature on which we base these predictions.

**Aggression and Existential Threats**

Aggression—"behavior intended to harm another individual who is motivated to avoid that harm" (Anderson & Bushman, 2001, p. 354)—is a major challenge for society. Aggression has many antecedents, including ostracism and lack of control (Warburton, Williams, & Cairns, 2006), frustration (Burkowitz, 1989), unfair treatment (Chory-Assad & Paulsel, 2004), provocation (Taylor, Gammon, & Capasso, 1976), and intergroup conflict (Halevy, Bornstein, & Sagiv, 2008), to name a few. What role may existential distress play amongst these causes? Loneliness and alienation have been central constructs for many intellectuals in describing and understanding modern society and people's struggles with the self and others (e.g., Fromm, 1956, 1972; Marx, 1833-1834, trans. 1992). Fromm, for example, argued that loneliness is an existential threat that may breed aggression and destructiveness due to existential struggles (e.g., Fromm, 1972). Is there a basis for such a relationship, and what may be the psychological processes underlying such effects?

Indeed, there are several lines of research suggestive of a link between existential distress and aggression. People who perceive life as lacking in meaning show higher levels of aggression and hostility (Mascaro et al., 2004; Steger, Kashdan, Sullivan, & Lorentz, 2008). Furthermore, the existential threat of mortality salience triggers intergroup biases, stereotyping, materialism, and cognitive rigidity (Castano, Yzerbyt, Paladino, Sacchi, 2002; Harmon-Jones, Greenberg, Solomon, & Simon, 1996; Jost, Glaser, Kruglanski, & Sulloway, 2003; Kasser & Sheldon, 2000; Schimel et al., 1999; Van Tilburg & Igou, 2011b), alongside

acts such as outgroup derogation, racism, and hurting those who are considered to be a threat to dominant beliefs (Maher, Van Tilburg, & Van Den Tol, 2013; McGregor et al., 1998; Greenberg et al., 1990; Rosenblatt et al., 1989; Van Tilburg & Igou, 2011a; Van Tilburg & Igou, 2016).

A plausible existential mechanism that may link meaning threats to aggression is the search for meaning. In particular, aggression may be an expression of the retaliation (e.g., Chester & DeWall, 2016), outgroup derogation (e.g., Branscombe & Wann, 1992), racism (Rogers & Prentice-Dunn, 1981), or ideologies (e.g., Murnen, Wright, & Kaluzny, 2002) that existential threats can enforce or induce. Aggression may manifest in people's attempt to boost their adherence to worldviews, values, or ideologies that imbue life with meaningfulness (Heine et al., 2006; Van Tilburg & Igou, 2011b). Importantly then, the attempt to defend, establish, or re-establish meaningfulness would be the superordinate goal, with aggressive behavior serving as a conduit.

Examining whether various forms of common existential distress are associated with aggressive tendencies is important because it allows us to establish *how* aggressive behavior relates to people's quest to affirm symbolic, meaning-laden worldviews, *beyond a single existential threat*. That is, it allows us to abstract from the concrete experience, supporting the more general notion that existential motivations can underlie aggressive tendencies. There is good reason to assume that various forms of emotional distress are associated with aggression through common existential processes. Essentially, in linking aggression to existential distress, we seek to illuminate a psychological pathway that may be underdeveloped in current interventions/theoretical models. In doing so, we explore a so far somewhat overlooked source of aggression in the stereotypically 'esoteric'—but surprisingly familiar and common—domain of meaning in life perceptions.

**Loneliness and Meaning**

Loneliness is an experienced absence of intimate social relations (Wei, Shaffer, Young, & Zakalik, 2005). People who feel lonely are at risk of a number of psychological problems, including anxiety (Mijuskovic, 1986), depression (e.g., Kirkpatrick-Smith, Rich, Bonner, & Jans, 1991), alcohol abuse (Åkerlind & Hörnquist, 1992), and suicidal ideation (Stravynski & Boyer, 2001). People who are lonely are, on average, more distrusting of others (Heinrich & Gullone, 2006; Hawkley, Burleson, Berntson, & Cacioppo, 2003), and, indeed, seems to have greater aggressive tendencies (Check, Perlman, & Malamuth, 1985).

Loneliness also features an existential connotation. A sense of affiliation, social connectedness, and belongingness—negated under loneliness—are key sources of meaning in life (Heine et al., 2006; Van Tilburg, Sedikides, Wildschut, & Vingerhoets, 2018). Consistently, a key characteristic of being lonely is that it comes with a perceived lack of meaning (Hicks, Schlegel, & King, 2010; Stillman et al., 2009). Loneliness thus represents, in part, a form of existential distress: It comes with a reduced sense of meaning. Accordingly, we examined if the loneliness-aggression link may in part be attributable to a search for meaning that loneliness might inspire.

**Boredom and Meaning**

Boredom is an unpleasant affective state characterized by a negative valence and usually, but not necessarily, low arousal (e.g., Leary, Rogers, Canfield, & Coe, 1986; Harris, 2000; Merrifield & Danckert, 2014). The experience of boredom is common (Larson & Richards, 1991), and typically arises in situations that fail to yield challenge (Csikszentmihalyi, 2000), stimulation (Blaszczynski et al., 1990), or interest (Sansone, Weir, Harpster, & Morgan, 1992). Bored people perceive their activity or situation with little attention (Eastwood, Frischen, Fenske, & Smilek, 2012), interest, or involvement (e.g.,

Farmer & Sundberg, 1986; Mikulas & Vodanovich, 1993; Vodanovich, 2003), and find their

situation or activity meaningless (Van Tilburg & Igou, 2017).

Past boredom research shows that those easily bored are at risk of extant

psychological, physiological, and social dysfunctions. For example, people prone to feeling

bored are more likely to experience negative affective states such as depression and anxiety,

compared to their not easily bored counterparts, and they are also more likely to display

aversive behaviors such as pathological gambling and risky driving behavior (Blaszczynski,

McConaghy, & Frankova, 1990; Buss & Perry, 1992; Farmer & Sundberg, 1986; Jenkins,

Zyzanski, & Rosenman, 1979; Kass, Vodanovich, & Callender, 2001; Vodanovich, 2003;

Vodanovich, Verner, & Gilbride 1991). These various consequences of boredom stem partly

from the lack of impulse control, desire for distraction, and the need for arousal or stimulation

that is prevalent among people who are easily bored (Leong & Schneller, 1993; Moynihan,

Igou, & Van Tilburg, 2017; Moynihan et al., 2015; Rupp & Vodanovich, 1997; Watt &

Vodanovich, 1992).

Another key factor that contributes to several of boredom's consequences is the search

for meaning that boredom triggers. Specifically, boredom "emotionally registers an absence

of meaning and leads the actor in question towards meaning" (Barbalet, 1999, p. 631;

Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009). This search for meaning that

boredom triggers leads to, and mediates boredom's effect on, social identification (Van

Tilburg & Igou, 2011), appreciation of heroes (Coughlan et al., 2016), nostalgic reverie (Van

Tilburg et al., 2013), and political polarization (Van Tilburg & Igou, 2016). Some of these

responses may have detrimental consequences (e.g., outgroup derogation, commitment to

more extreme political views), but they are adopted in people's attempt to re-gain a sense of

purpose. Consistently, given that aggressive tendencies can be an expression of an underlying

pursuit of meaning, we proposed and tested if a link between boredom proneness and

aggressive tendencies (Boyle, Richards, & Baglioni, 1993; Dahlen, Martin, Ragan, &

Kuhlman, 2004; Rupp & Vodanovich, 1997; Vodanovich, 2003) can be explained by a search

for meaning.

**Disillusionment and Meaning**

Disillusionment is an affective state associated with epistemic challenges, and in

particular challenges to one's knowledge or sense of understanding. Disillusionment arises

through a discovery that contradicts treasured beliefs or assumptions about the world

(Fuchsman, 2008; Maher et al., 2018a), about oneself (Janoff-Bulman & Berg, 1998) or about

one's relation to others (Niehuis, 2007). The experience is deeply unpleasant and

characterized by thoughts of being wrong, or being wronged by others, and accompanying

feelings of loss and hopelessness (Maher, Igou, & Van Tilburg, 2018b).

Disillusioning experiences are matters of existential concern. A stable sense of

understanding is a core component of a meaningful life (Heine et al., 2006; Van Tilburg &

Igou, 2013) and disillusionment strongly challenges this understanding. In general, people

rely on assumptions about themselves and their environment to help them understand their

place in the world and ultimately provide them with a sense of significance and meaning. For

example, people may rely on political ideologies to explain how society functions and to

predict how socio-economic changes will affect themselves and others. These ideologies are a

key source of meaning (Jost et al., 2004). Consistent with the notion that disillusionment is a

meaning threat, events that strongly contradict political expectations lead people to feel

disillusioned (Fuchsman, 2008; Maher et al., 2018a). Ultimately, disillusioned people feel lost

and disconnected from systems of meaning and disillusionment in turn motivates a search for

meaning (Maher et al., 2018b).

Disillusionment can have important social consequences. For example, it is a predictor

of divorce (Huston, Caughlin, Houts, Smith, & George, 2001) and can increase commitment

to more radical political ideologies (Block, 2001; Maher et al., 2018a). This ideological commitment may manifest as increased political action tendencies (Maher et al., 2018a), including increased intentions to engage in 'risky' political activism. This finding suggests a possible link between disillusionment and aggression, which is also associated with increased ideological commitment (Kruglanski & Orehek, 2011). Importantly, the association between disillusionment and increased political commitment is explained by search for meaning and understanding (Maher et al., 1918a). As we have highlighted above, aggression can manifest as an attempt to re-establish the sense of certainty and understanding that is lost under conditions of disillusionment. We therefore tested whether disillusionment and aggression are associated, and whether this association could be partly attributed to the search for meaning that disillusionment evokes.

**An Individual Differences Approach**

The strive for meaning has previously been associated with acts of aggression (McGregor et al., 1998), violent extremism (Jasko, Lafree, & Kruglanski, 2016), and extremist attitudes (Hogg, Meehan, & Farquharson, 2010). These associations seem to be embedded within particular social and cultural contexts (Kruglanski, Chen, Dechesne, Fishman, & Orehek, 2009; Nisbett & Cohen, 1996), but it may also be possible that there are more general psychological mechanisms at play. Indeed, the hypothesis that aggression can be an expression of existential concern is a general prediction that extends across different social and cultural contexts and different forms of existential distress. We investigate this by taking an individual differences approach. Importantly, there are discernible individual differences in both aggressive responding (Anderson & Bushman, 2002) and in the proclivity to experience existential distress (Farmer & Sundenberg, 1986; Vodanivich & Kass, 1990).

People prone to existential distress, who perpetually search for meaning, are unlikely to have developed adaptive meaning regulation strategies (Maher et al., 2018b). Indeed, those

who search for meaning typically have a low sense of meaning in life (Steger et al., 2008). Such people may therefore rely on aggression to alleviate existential distress. In support of this claim, both trait aggression and meaning threats are associated with activation of the behavioral approach system (Harmon-Jones, 2003; Harmon-Jones & Allen, 1998). As outlined above, boredom, loneliness, and disillusionment are affective states that share existential features and therefore, a proclivity toward experiencing any of these states should be associated with more meaning search and ultimately, higher aggressive tendencies. A similar pattern of findings across proneness to experiencing three different states would help validate the proposal that aggressive responses can arise from existential concerns.

### The Current Research

We conducted three studies to examine if individual differences in loneliness, boredom, and disillusionment were each associated with aggressive tendencies. Furthermore, we tested if these associations were in part attributable to the search for meaning that characterizes these forms of existential distress. We examined these hypotheses by testing (a) if loneliness, boredom, and disillusionment indeed correlated with aggressive tendencies; (b) if loneliness, boredom, and disillusionment correlated with (less) perceived meaning and (more) search for meaning; and (c) if the expected associations between loneliness, boredom, and disillusionment with aggressive tendencies could be explained by meaning search.

This final step warrants some further explanation: To attribute the association between the three forms of existential distress and aggressive tendencies to search for meaning, the association between the existential threats and meaning search must explain a proportion of variance in aggressive tendencies. This, statistically, resembles an indirect effect where the existential distress is treated as initial predictor ('X'), meaning search is treated as mediator ('M'), and the criterion variable is aggressive tendencies ('Y'; Hayes 2009). To be clear, the mediational framework we adopted tested correlational, not causal, relationships that are

consistent with our theoretical framework. That is, we used a statistical tool to test if proclivities to experience different forms of existential distress are associated with individual differences in aggressive tendencies, and whether each of these associations can be partly attributed to people's search for meaning. In Study 1, we tested this for loneliness; Study 2 examined it for boredom; Study 3 examined it for disillusionment.

We ran three separate studies for three main reasons: First, three independent studies allowed us to essentially replicate the associations between shared variables (perceived meaning in life, search for meaning in life, aggression) in context of different forms of existential distress. Second, separate studies allowed us to limit the duration of each study, preventing participant fatigue and disengagement. Third, a clear empirical basis for treating disillusion as a form of existential distress (examined in Study 3) emerged only recently (Maher, Igou, & Van Tilburg, 2018a; Maher, Van Tilburg, & Igou, 2018), and after Study 1 and 2 were conducted.

### Study 1: Loneliness

We measured individual differences in loneliness, aggression, and search for meaning in life. We predicted that higher levels of loneliness would be associated with higher levels of aggression, and that this association could be partly attributed to search for meaning in life. The study was approved by the [Author 2 Institution] Research Ethics Committee.

**Method**

Participants in this online correlational study were 124 people (68 men, 56 women; $M_{age} = 33.92$, $SD = 11.20$) recruited through the online platform MTurk (www.MTurk.com) for monetary compensation. After giving informed consent, participants completed the UCLA Loneliness Scale (Version 3; Russell, 1996), which consists of 20 self-report items (e.g., "How often do you feel that you lack companionship?"; 1 = *never*, 4 = *often*). We computed average loneliness scores after recoding reversed items ($\alpha = .94$). Participants then completed

the 10-item meaning in life questionnaire (Steger et al., 2006). Five of these items measure people's perceived presence of meaning in life (e.g., "My life has a clear sense of purpose"; 1 = *strongly disagree*, 7 = *strongly agree*) and five measure people's search for meaning in life (e.g., "I am searching for meaning in my life"; 1 = *strongly disagree*, 7 = *strongly agree*). We computed average scores for each subscale (presence of meaning in life: α = .89; search for meaning in life: α = .96). Participants then completed Buss and Perry's (1992) aggression questionnaire. This measure consists of 29 items (e.g., "Given enough provocation, I may hit another person"; 1 = *extremely uncharacteristic of me*, 5 = *extremely characteristic of me*). We computed an overall average on this aggression measure (α = .96). Finally, participants reported demographics, and were debriefed, thanked, and compensated.

**Results and Discussion**

Zero-order correlations (Table 1) confirmed that loneliness was indeed associated with elevated aggressive tendencies, $r = .579$, $p < .001$. Loneliness was also negatively associated with presence of meaning in life, $r = -.574$, $p < .001$. Furthermore, the lonelier participants were, the more elevated their search for meaning was, $r = .328$, $p < .001$. A greater search for meaning in life was further associated with higher levels of aggression, $r = .407$, $p < .001$. Is the association between loneliness with aggression explained by the search for meaning that loneliness features? We tested whether there was support for this proposed indirect statistical association between loneliness and aggression through the search for meaning in life using a mediation analysis (Hayes, 2012; Figure 1). Indeed, 5,000 bias-corrected and accelerated bootstraps (Hayes, 2009) evidenced a significant indirect association, $B = 0.234$, $SE = 0.095$, 95% CI = [0.089, 0.481]. This suggests that the relationship between loneliness and aggressive tendencies may indeed be partly attributable to the meaning that those who are lonely seek. This indirect association remained significant after controlling for the perceived presence of meaning in life, $B = 0.229$, $SE = 0.107$, 95% CI = [0.071, 0.508].

## Study 2: Boredom

We measured individual differences in boredom, aggression, and search for meaning in life. We predicted that levels of boredom would be positively associated with levels of aggression and that this association could be partly attributed to the increased search for meaning that boredom provokes (Van Tilburg & Igou, 2011). The study received ethical approval from the [Author 2 Institution] Research Ethics Committee.

**Method**

Two-hundred and fifty-two students (83 men, 165 women, 4 undisclosed; $M_{age}$ = 23.14, $SD$ = 8.76) participated in this paper-and-pencil study. The procedure of Study 2 was identical to that of Study 1 but with the loneliness measure substituted for a measure of people's tendency to get bored. Developed by Farmer and Sundberg in 1986 (see also Vodanivich & Kass, 1990), this boredom proneness scale consists of twenty-eight statements (e.g., "Much of the time I just sit around doing nothing"; 1 = *highly disagree,* 7 = *highly agree*). We computed average boredom proneness scores after reverse coding counter-indicative items ($\alpha$ = 0.85). After the study, participants were thanked and debriefed.

**Results and Discussion**

Table 2 summarizes the zero-order correlations between boredom proneness, presence of meaning in life, search for meaning in life, and aggressive tendencies. As hypothesized, participants prone to boredom reported more aggressive tendencies, $r$ = .519, $p < .001$. Boredom was negatively associated with presence of meaning in life, $r$ = -.552, $p < .001$, and positively associated with search for meaning in life, $r$ = .264, $p < .001$. As in Study 1, search for meaning in life correlated positively with aggressive tendencies, $r$ = .285, $p < .001$. We tested if the association between boredom and aggressive tendencies could be partly explained by meaning search. Indeed, a mediation analysis (Figure 2) indicated a significant indirect association between boredom and aggressive tendencies, $B$ = 0.050, $SE$ = 0.022, 95% CI =

[0.016, 0.104] (5,000 bias-corrected and accelerated bootstraps; Hayes, 2009). This indirect association remained significant after controlling for perceived meaning in life, $B = 0.031$, $SE = 0.018$, 95% CI = [0.003, 0.075]; the association between boredom and aggressive tendencies is plausibly partly attributable to the search for meaning that boredom rouses.

## Study 3: Disillusionment

We measured individual differences in disillusionment, aggression, and search for meaning in life. We predicted that levels of disillusionment would be associated with levels of aggression, and that this association is explained by search for meaning. The study received ethical approval from the [Author 1 Institution] Research Ethics Committee.

**Method**

Four-hundred and nineteen participants were recruited on MTurk (164 men, 244 women, 3 gender-fluid, 1 transgender, 2 unspecified; $M_{age} = 37.29$, $SD = 12.44$) in exchange for monetary compensation. The procedure and method of Study 3 were identical to that of the previous studies, except that the loneliness/boredom measure was replaced by a measure of disillusionment. This measure was loosely based on the Southampton nostalgia scale (Barrett, Grimm, Robins, Wildschut, Sedikides, & Janata, 2010; Routledge, Arndt, Sedikides, & Wildschut, 2008).

First, we provided a definition of disillusionment that read: "Disillusionment is an emotion that arises from the realization that something you thought was true wasn't, or that something you thought was good is not as good as you believed it was. It can also be associated with failure to achieve long-term goals." The measure featured the following four items: "How prone are you to feeling disillusioned?", "How often do you experience disillusionment?", "Generally speaking how often do you experience realizations like those described above?", and "Specifically, how often do you experience disillusionment?" These items were rated on seven-point scales (item 1: 1 = *not at all*, 7 = *very much*; items 2 & 3: 1 =

*very rarely*, 7 = *very frequently*; item 4: 1 = *at least once a week*, 7 = *once a year or less*

[reversed]). An exploratory factor analysis with direct oblimin rotation confirmed a one-factor

solution, $\lambda = 2.673$, $R^2 = 66.817$. All absolute factor loadings exceeded, $B = .4$, and the four

items had high internal reliability ($\alpha = .87$; after recoding the contra-indicative item). Given

the high face-validity of items, clear factor structure, and excellent internal reliability this first

measure of individual differences in disillusionment—which we hereby name the Roquentin

Disillusionment Index (RDI)[1]—seemed appropriate. We computed average scores on the RDI

for each participant.

**Results and Discussion**

We give the zero-order correlations between disillusionment, meaning in life presence

and search, and aggression in Table 3. Disillusionment was correlated with aggressive

tendencies, $r = .394$, $p < .001$. It was also negatively associated with presence of meaning in

life, $r = -.348$, $p < .001$. As predicted, disillusionment was positively correlated with meaning

search, $r = .295$, $p < .001$. That is, more frequently disillusioned participants searched more

for meaning in life and reported more aggressive tendencies. As in the previous studies,

search for meaning in life was again positively correlated with aggressive tendencies, $r = .194$, $p < .001$.

We tested our model by investigating if meaning search explained the association

between disillusionment and aggressive tendencies. A mediation analysis (Figure 3)

confirmed an indirect effect of disillusionment on aggressive tendencies through meaning

search, $B = 0.013$, $SE = 0.007$, 95% CI = [0.001, 0.029] (5,000 bias-corrected and accelerated

bootstraps; Hayes, 2009). Controlling for the presence of meaning in life rendered this

indirect effect marginally significant instead, $B = 0.007$, $SE = 0.006$, 95% CI = [-0.002,

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[1] In honor of Sartre's fundamentally disillusioned protagonist *Antoine Roquentin* (1938, trans. 2013).

0.022]. Overall, while meaning search played a role in the link between disillusionment and aggression, this role was smaller than in the case of boredom and loneliness, evident from a relatively small indirect effect that became marginal after controlling for presence of meaning in life.

## General Discussion

We explored whether the association between aggressive tendencies and three different existential experiences—loneliness, boredom, and disillusionment—could be attributed to the search for meaning that these experiences entail. We evaluated this proposition by testing (a) if individual differences in loneliness, boredom, and disillusionment were each correlated with aggressive tendencies; (b) if these experiences involved a lack of perceived meaning (rendering them forms of existential distress) and involved a search for meaning; and (c) if the associations of loneliness, boredom, and disillusionment with aggression could be explained by search for meaning in life.

In Study 1, we tested this mediational model in the context of individual differences in loneliness. In Study 2, we investigated it for boredom, and in Study 3, we tested it for disillusionment. Indeed, loneliness, boredom, and disillusionment were each associated with elevated aggressive tendencies, as well as a lack of perceived meaning in life and the search for meaning in life. Meaning search statistically mediated the links between three different forms of existential distress and aggressive tendencies, suggesting that these links are in part rooted in existential processes. Overall, we interpret these findings as support for the idea that loneliness, boredom, and disillusionment are associated with human aggression, and that this association is in part explained by existential qualities of these common experiences: aggressive tendencies can arise from existential motivations.

**Contributions, Limitations, and Future Directions**

Our findings relate to the major theories on aggression, such as the general aggression model (GAM; Anderson & Bushman, 2002; Bushman & Anderson, 2002), or the $I^3$ theory (Denson, DeWall, & Finkel, 2012; Finkel, DeWall, Slotter, McNulty, Pond Jr, & Atkins, 2012). Specifically, according to GAM, repeated exposure to violence strengthens aggression-related scripts and schemas, by for example increasing their accessibility and resistance to change. Repeated exposure to violence subsequently results in a tendency to interpret ambiguous events as more hostile, which each representing "one more trial to learn that the world is a dangerous place, that aggression is an appropriate way to deal with conflict and anger, and that aggression works" (Bushman & Anderson, 2002, p. 1680). Applying this theory to our findings, this may mean that the violation of social cohesion standards (in loneliness), violation one's commitment towards purposeful engagement (in boredom), and violations of cohesion in worldviews (in disillusionment) may be more than 'merely' challenges to meaning in life: They antagonize the individual in a comparable—but not necessarily equally impactful—manner as do media violence (Bushman & Anderson, 2001), violence between intimate partners, or intergroup violence (DeWall, Anderson, & Bushman, 2011).

$I^3$ theory takes a self-regulatory perspective in explaining triggers of aggressive behavior. It proposes that an interaction of three processes determine if an individual acts aggressively (Denson et al., 2012): *instigation* (potential triggers of an aggressive urge, such as interpersonal provocation), *impellance* (situational or dispositional factors that "psychologically prepare the individual to experience a strong urge to aggress" [p. 20]), and *inhibition* (dispositional or situational availability of self-regulatory resources to exert self-control). Aggression is especially likely when aggressively 'impelled' individuals find themselves in the presence of instigating factors without the necessary inhibition to act as

counterweight to the resultant aggressive urge. Our findings can have various implications for this perspective. For example, existential distress could be interpreted as instigators that frustrate people's general wish to perceive life as meaningful. Alternatively, these forms of existential distress, and in particular the lack of perceived meaning that they mark, might undermine people's ability to exert self-control (Garfield, 1973; Steger, 2013). Possibly, people faced with a lack of perceived purpose or meaning in their lives will find it difficult to identify, let alone commit to, long-term goals that aid self-control (Baumeister, 2002; Rehm, 1977).

The theoretical contribution of our findings, in light of these models of aggression, is broader than merely suggesting that loneliness, boredom, and disillusionment could reinforce aggression-related knowledge structures, or that they each serve as instigators or undermine inhibition. Rather, the consistency in their associations with aggressive tendencies suggests that the experience of existential distress in general might serve these roles. Thus, models of aggression might benefit from adding existential distress and its causes as antecedents of aggression. Consistently, future research may focus specifically on perceived lack of meaning in life or being in search of meaning as causal breeding grounds of aggressive dispositions or behavior.

The present research has potentially important implications for everyday life. Although loneliness, boredom, and disillusionment are a natural part of life (e.g., Hawkley, Burleson, Berntson, & Cacioppo, 2003; Maher et al., 2017; Van Tilburg & Igou, 2012b), there has been relatively little research conducted to examine their role in motivating everyday behavior. The present investigation contributes to the understanding of why loneliness, boredom, and disillusionment can increase aggressive tendencies, in addition to already known causes. This provides an avenue for developing interventions that may ultimately alleviate aggressive tendencies or even to divert them towards more desirable acts.

A range of sources of meaning might serve these functions, ideally those that are personally and socially acceptable and desirable such as heroism (Coughlan et al., 2017; Igou, Van Tilburg, Kinsella, & Buckley, in press) or charitable intensions (Van Tilburg & Igou, 2017a).

For example, research shows that engaging in nostalgic reverie re-establishes a sense of meaning among those who are bored (Van Tilburg et al., 2015) and can counteract loneliness (Zhou, Sedikides, Wildschut, & Gao, 2008). Indeed, one of nostalgia's key psychological consequences is an increased sense of meaning in life (Routledge, Wildschut, Sedikides, Juhl, & Arndt, 2012) by strengthening social cohesion and self-continuity (Van Tilburg et al., in press). Perhaps encouraging people to frequent nostalgic life events, as part of occupational practice or in educational settings, helps to reduce aggression associated with existential distress. Moreover, nostalgia has ancillary benefits such as enhanced inspiration (Stephan, Sedikides, Wildschut, Cheung, Routledge, & Arndt, 2015) and creativity (Van Tilburg, Sedikides, & Wildschut, 2015) making this a particularly promising remedy for existential distress.

We want to be clear that we do not propose that meaning search is the only, or even primary, response to loneliness, boredom, and disillusionment. Nor do we claim that search for meaning in life is the main source of aggression. Aggression is a multi-causal and complex phenomenon (e.g., Burkowitz, 1989; Chory-Assad, & Paulsel, 2004; Halevy et al., 2008; Taylor et al., 1976; Warburton et al., 2006). We likewise do not contend that the only or primary correlate of loneliness, boredom, and disillusionment is aggression. For example, loneliness can also involve social withdrawal (Beadle, Keady, Brown, Tranel, & Paradiso, 2012). Boredom can have different consequences, including becoming nostalgic about momentous, pleasant past social events (Van Tilburg, Sedikides, & Wildschut, 2013), or turning towards unhealthy food (Moynihan et al., 2015). While research on disillusionment is still in its infancy, recent discoveries indicate that it predicts depressed affect (Maher et al.,

2018b) and can cause political polarization (2018a). Clearly, aggression is not the sole correlate of these three existential experiences. Our studies focused solely on individual differences in these experiences and in aggressive tendencies. Nonetheless, by establishing the role of meaning search as a variable that links three different forms of emotional distress to aggressive tendencies, we highlight a mechanism that demonstrates how aggression may serve existential motivations.

By solely focusing on individual differences in common existential experiences and aggressive tendencies, our research did not include contextual features that have the potential of moderating the associations between loneliness, boredom, and disillusionment with aggressive tendencies. For example, situations in which people can easily address or escape from their loneliness, boredom, or disillusionment are unlikely to cause aggression. Perhaps aggression is particularly likely to follow from these existential stressors if alternative responses are relatively inaccessible. Further, aggressive behavior is more likely if contextual information supports the impression that this behavior serves a valuable purpose and is thus meaningful (e.g., Van Tilburg & Igou, 2011). Likewise, it could be that cultural differences exist regarding the degree to which these experiences are existentially distressing. Future research should examine causal relationships between these experiences and aggression, and the role of search for meaning, possibly in the context of cultural moderators. Furthermore, it would be interesting to test if such aggressive acts are actually helpful in restoring a sense of meaning, or that they merely add insult to injury. We hope that our present research offers the fundament for such further investigations.

**Conclusion**

People differ with respect to existential experiences, such as loneliness, boredom, and disillusionment. We found that individual differences regarding these experiences are associated with individual differences in aggressive behavior tendencies. Our results also

indicate that it is the search for meaning in life of people experiencing these existential threats more than others that in part accounts for the heightened levels of aggression. That is, aggression can be a manifestation of the struggle to experience life as meaningful. Our findings contribute to an appreciation of the role that meaning in life perceptions play in people's aggressive tendencies. They suggest that models of aggression might benefit from conceptualizing existential psychological processes, for example, by treating existentially distressing events as instigating factors (Denson et al., 2012) or potential reinforcements of aggressive schema (Anderson & Bushman, 2002). We hope that this research contributes to a greater understanding of existential experiences, meaning-regulation processes, and aggressive tendencies, and that our findings contributes to exchanges between these areas of research to produce methods of reducing aggression and galvanize emotional well-being in the face of existential distress.

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Table 1

*Descriptive Statistics and Zero-Order Correlations Study 1*

| Measure | α | *M* | *SD* | *Range* | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| 1. Loneliness | .94 | 2.14 | 0.61 | [1.00, 3.75] | - | | |
| 2. Presence of Meaning | .89 | 5.03 | 1.49 | [1.00, 7.00] | -0.574*** | - | |
| 3. Search for Meaning | .96 | 4.60 | 1.71 | [1.00, 7.00] | 0.328*** | -0.203* | - |
| 4. Aggressive Tendencies | .96 | 3.44 | 1.24 | [1.21, 6.17] | 0.579*** | -0.171 | 0.407** |

*Note: * $p < .05$, ** $p < .01$, *** $p < .001$*

Table 2

*Descriptive Statistics and Zero-Order Correlations Study 2*

| Measure | α | *M* | *SD* | *Range* | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| 1. Boredom | .85 | 2.74 | 0.45 | [1.64, 4.00] | - | | |
| 2. Presence of Meaning | .85 | 4.24 | 1.27 | [1.40, 7.00] | -0.552*** | - | |
| 3. Search for Meaning | .88 | 4.23 | 1.32 | [1.00, 7.00] | 0.264*** | -0.285*** | - |
| 4. Aggressive Tendencies | .82 | 2.66 | 0.54 | [1.44, 4.32] | 0.519*** | -0.272*** | 0.285*** |

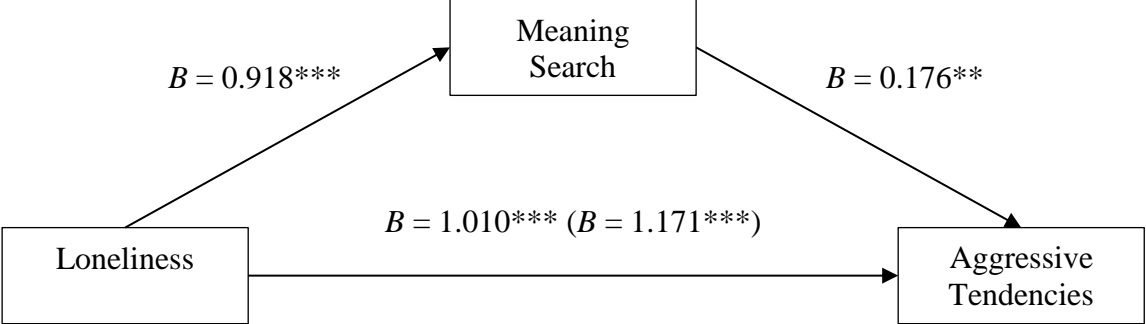*Note: * p < .05, ** p < .01, *** p < .001*

Table 3

*Descriptive Statistics and Zero-Order Correlations Study 3*

| Measure | α | *M* | *SD* | *Range* | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| 1. Disillusionment | .88 | 3.17 | 1.42 | [1.00, 7.00] | - | | |
| 2. Presence of Meaning | .92 | 4.58 | 1.45 | [1.00, 7.00] | -0.348*** | - | |
| 3. Search for Meaning | .96 | 4.77 | 1.66 | [1.00, 7.00] | 0.291*** | -0.246*** | - |
| 4. Aggressive Tendencies | .93 | 2.25 | 0.69 | [1.00, 4.59] | 0.390*** | -0.289*** | 0.194** |

*Note: * $p < .05$, ** $p < .01$, *** $p < .001$*

Figure 1: *Loneliness, Meaning Search, and Aggressive Tendencies (Study 1)*



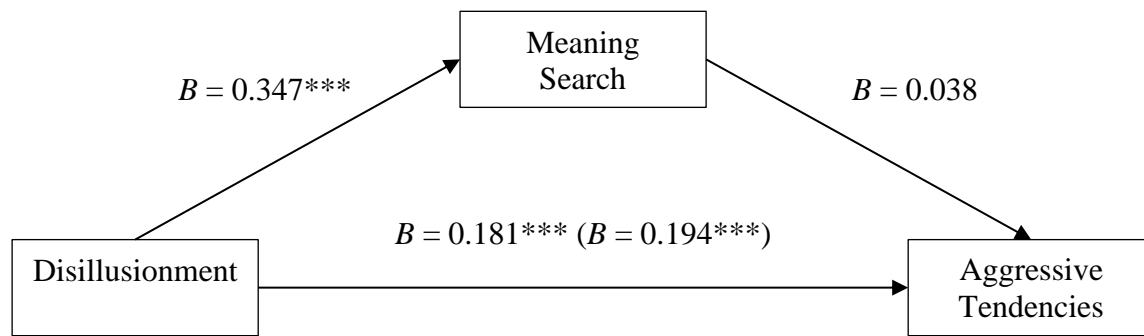*Note: * $p < .05$, ** $p < .01$, *** $p < .001$; indirect effect: $B = 0.234$, $SE = 0.095$,

Figure 2: *Boredom, Meaning Search, and Aggressive Tendencies (Study 2)*
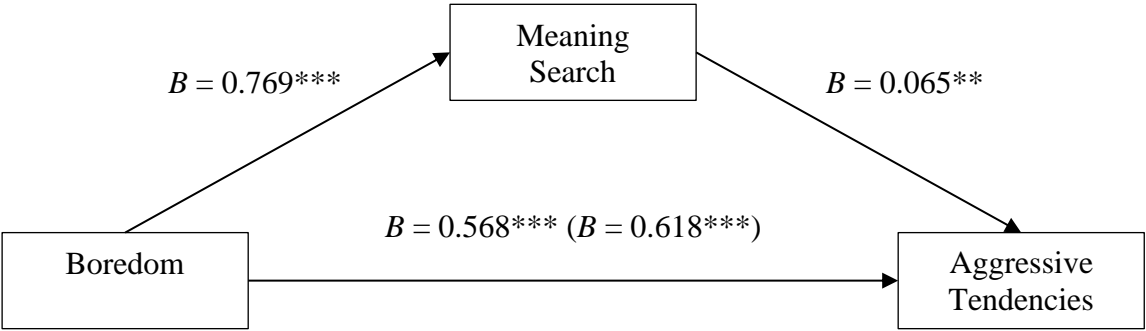


*Note:* * $p < .05$, ** $p < .01$, *** $p < .001$; indirect effect: $B = 0.050$, $SE = 0.022$,

Figure 3: *Disillusionment, Meaning Search, and Aggressive Tendencies (Study 3)*



*Note: * $p < .05$, ** $p < .01$, *** $p < .001$; indirect effect: $B = 0.013$, $SE = 0.007$,