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On Boredom and Perceptions of Heroes:

A Meaning-Regulation Approach to Heroism

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Abstract

We propose that boredom, a state associated with a sense of meaninglessness, leads to a psychological search for meaning in life, which in turn elevates affirmation of heroes. This hypothesis builds on the notion that heroes function, in part, as sources of meaning in life. Using a correlational model, we found that boredom proneness predicted more positive perceptions of heroes via searches for meaning in one's own life. In addition, hero perceptions seemed to prevent boredom by offering a sense of meaning in life. These findings contribute to an understanding of the psychologically existential qualities of boredom and functions of heroes. The results are consistent with the assumption that boredom triggers the existential process of searching for meaning in life. It is this search that influences perceptions of heroes as vehicles for a sense of meaning in life. Our data suggest that heroes grant a sense of meaningfulness, and in so doing, may serve as a tool to counteract the lack of meaning signaled by boredom. These findings implicate novel avenues for future research on boredom and on heroes, and more precisely, they shed light on perception and affirmations of heroes as part of existential self-regulatory processes.

Keywords: boredom, heroes, meaning, existential psychology, person perception

On Boredom and Perceptions of Heroes: A Meaning-Regulation Approach to Heroism

Humanist, social psychologist, and Neo-Freudian psychoanalyst Erich Fromm once stated that if he were to imagine Hell, it would be a situation of continuous boredom (1963/2004, p. 150). Boredom has also been described as an "experience of the emptiness that lurks at the heart of human existence, an emptiness into which each moment fades, into which all finite things pass away" (Raposa, 1999, p. 60). Recent research seems to support the notion that boredom is a particularly unpleasant state of being, synonymously marked with a state of meaninglessness, sharing close ties with a variety of physiological dysfunctions and socially undesirable behaviors (e.g., Leary, Rogers, Canfield, & Coe, 1986; Van Tilburg & Igou, 2011b; Vodanovich, Verner, & Gilbride, 1991). Yet, boredom has also been shown to trigger meaning-repair strategies (e.g., Van Tilburg, Igou, & Sedikides, 2013).

Heroes are not new to human existence (e.g., Franco, Blau, & Zimbardo, 2011; Kinsella, Ritchie, & Igou, 2017; Zimbardo, 2007). Despite this fact, academic psychology has only recently addressed characteristics of heroes and their psychological and social functions (e.g., Allison & Goethals, 2011; Kinsella, Ritchie, & Igou, 2015a, 2015b; Sullivan & Venter, 2005). In addition to the important impact that heroes have on events and society, recent research suggests that heroes play an important role in the lives of others by instilling meaning, purpose, and inspiration (Kinsella et al., 2015b; Früchtl, 2009; Ritchie & Reavis, 2016). In light of the recently established empirical link between boredom and perceptions of meaninglessness, our study was stimulated by the notion that personal and popular heroes may serve as source of meaning in people who are prone to boredom.

In our current work, we examine whether boredom relates to how heroes are perceived. We argue that given boredom's tendency to initiate meaning-repair and the ability of heroes to bestow a sense of meaning in people's lives, boredom may be associated with affirming heroes and their qualities.

Boredom: The Absence of Meaning

Early conceptualizations of boredom, for example those provided by Fromm (e.g., Fromm, 1955, 1963, 1972, 1991), Heidegger (see Thiele, 1997), and Schopenhauer (1851, 2009), emphasized its unpleasant character. Fromm, for example, argued that boredom indicated alienation from the self and others. That is, a state in which meaningful activities and relationships are lacking, often resulting in behavior that is destructive with regard to the self or others. (Fromm, 1972, 1991). The focus on boredom as an experience that conveys meaninglessness and the existential pains is largely shared with the philosophical accounts of Sartre, Kierkegaard, and Kuhn (see Martin, Sadlo, & Stew, 2006). More recently, in sociological work, Barbalet (1999) furthered our understanding of boredom as a specific state of restlessness and irritability evoked by the absence of meaningful activities and circumstances.

Given the prevalence of boredom in life, the academic literature addressing it has been surprisingly scarce. In the last decade, however, boredom received more thorough empirical study (for a discussion see Van Tilburg & Igou, 2016b). Besides the development of boredom measures (e.g., Leong & Schneller, 1993; Vodanovich, 2003; Fahlman et al., 2013) and the documentation of clinical and social correlates of boredom (e.g., Blaszczynski, McConaghy, & Frankova, 1990; Dahlen, Martin, Ragan, & Kuhlman, 2004; Kass, Vodanovich, & Callender, 2001; Watt & Vodanovich, 1999), research has offered various definitions and descriptions of boredom experiences. For example, Eastwood, Frischen, Fenske, and Smilek (2012) defined boredom as "the aversive experience of wanting, but being unable, to engage in satisfying activity" (p. 482). Boredom seems to be a state of low arousal (Smith & Ellsworth, 1985) and distinctive in the way it is expressed (see Walbott, 1998). In line with earlier conceptualizations, in the current study we stress that boredom is comprised of a lack of perceived meaning and challenge, and that it comes with a desire to

disengage from current activities (Van Tilburg & Igou, 2011b, 2012, 2016b; Van Tilburg et al., 2013).

Boredom proneness (Farmer & Sundberg, 1986) refers to individual differences in one's vulnerability to experience boredom. For example, some of the research on boredom proneness indicates that it is associated with a greater likelihood to suffer from severe social and psychological dysfunctions, such as eating disorders and pathological gambling (e.g., Blaszczynski et al., 1990). Other findings suggest that boredom proneness correlates with a string of negative emotions, such as depression, fear, anxiety, loneliness, and hopelessness (e.g., Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009).

Of late, one particular breakthrough has sparked curiosity to this contemporary field of enquiry. The focus of this research is on the self-regulatory processes triggered by boredom experiences, directed at counteracting the negative repercussions of its causes (e.g., Sansone, Weir, Harpster, & Morgan, 1992). In particular, through emotionally signaling a lack of challenge and meaning at hand, boredom triggers attempts directed at finding meaning in activities, and life in general (e.g., Van Tilburg & Igou, 2011, 2012, 2016a, 2016b, in press; Van Tilburg et al., 2013). That is, boredom spurs attempts aimed at overcoming an acute lack of meaning. For example, research by Sansone et al., (1992) documents that boredom inspires task variations that regulate interest in activity. In our previous work, we discovered that boredom leads to attempts to re-establish a sense of meaningfulness, for example via group identification (Van Tilburg & Igou, 2011b), nostalgic experiences (Van Tilburg et al., 2013), or political identification (Van Tilburg & Igou, in press). In the current research, we ask whether boredom proneness would likewise affect perceptions of heroes.

Heroes: Sources of Meaning

What characteristics do heroes have? Which psychological functions do they serve? How are they related to people's sense of meaning? Most commonly, heroes are defined as "representing an ideal self-image" (see Sullivan & Venter, 2010, p. 437), that is, people view their heroes as an idealized version of the self who serve their own core needs. Thrash, Elliot, Maruskin, and Cassidy (2010) documented how heroes have the ability to evoke feelings of self-responsibility and volitional control. They found that people first appreciate the exceptional efforts of the inspirational targets, which in turn translates into a personal desire to improve one's performance in life (e.g., Kinsella et al., 2015a, 2015b). Moreover, Goethals and Allison (2012) explained that doing the right thing or behaving according to the actions of one's heroes, requires inhibition, that is, restraining or overriding one response in favor of another one that is morally and socially more desirable.

Research on inhibition and self-control gave rise to a number of theories about the nature of self-regulation and ways to improve it. Inspiration and self-regulation point more generally to the notion that heroes represent some of people's superordinate and primary goals and desires. As a result, heroes have the profound ability to grant people first a sense of purpose in life, or at least to contribute to it, and second, a way to attain hopefulness in the face of threats (Kinsella, Igou, & Ritchie, 2016). In essence, heroes instill meaning in people's lives by representing needs and desires that matter to them and by providing the prospect that these needs and desires may be fulfilled (e.g., Allison & Goethals, 2011; Becker & Eagly, 2004; Bronk & Riches, 2017; Green, Van Tongeren, Cairo, & Hagiwara, 2017; Kinsella, et al., 2015a, 2015b, 2017; Früchtl, 2009; Schwartz & Schwartz, 2010).

In light of boredom as an emotional signal of one's lack of purpose and the activation of self-regulatory processes directed at (re-)establishing meaning, we argue that heroes may

serve as source of meaning among people who are prone to boredom. Specifically, we propose that boredom affects perceptions of heroes as part of a meaning-regulation process.

The Process of Meaning-Regulation

Our approach rests on the notion that human beings are meaning makers (Heine, Proulx, & Vohs, 2006; Steger, Frazier, Oishi, & Kaler, 2006). Steger et al. (2006) argue that psychologically experienced meaning can be divided into two constructs: the presence of life meaning and the search for life meaning. Presence of meaning in life refers to the experienced meaning in life in general, while search for meaning in life is a psychological process that comes into play when people aim at establishing or re-establishing a sense of meaning in life.

Research exposed an association between search for meaning in life and negative experiences, such as boredom (e.g., Van Tilburg & Igou, 2011b; Van Tilburg et al., 2013), frustration, and depression (Baumeister & Vohs, 2002). Presence of meaning is, instead, related to desirable variables, including well-being and positive experiences (e.g., King, Hicks, Krull, & Del Gaiso, 2006). Search for and presence of meaning in life, themselves, correlate moderately negatively (e.g., Steger et al., 2005). Importantly, they play central roles in meaning-regulation processes. If particular events and experiences are associated with low levels of meaning in life, then events and experiences are 'searched' and pursued that serve the goal to establish or re-establish meaning in life (e.g., Van Tilburg & Igou, 2011a, 2011b, 2012, 2013; see also Heine et al., 2006).

With regard to the relationship between boredom proneness and perceptions of heroes, we reason that the capacity of heroes to inspire and instill purpose in one's life (e.g., Allison & Goethals, 2011; Bronk & Riches, 2017; Green et al., 2017; Kinsella et al., 2017) makes them a potential source of meaning for people who are bored and who subsequently search for meaning. More specifically, if people doubt the meaningfulness of their strivings

as signaled by the presence of boredom, people become drawn to heroic exemplars as they are potential resources in the self-regulatory process aimed at maintaining meaning (see Heine et al., 2006, for more on meaning maintenance). Based on these assumptions, we expect increased affirmation of heroes for people prone to boredom due to their elevated search for meaning.

Specifically, we pose that boredom proneness is associated with perceptions of heroes via search for meaning in life, as one existential psychological process. Based on the notion that heroes serve as sources of meaning, and by that serve an existential function, we also expect that perceptions of heroes positively predict people's sense of meaning in life, as an additional existential psychological process. Finally, as research suggests that boredom is associated with perceptions of meaninglessness, we expect that increased levels of meaning in life will be negatively associated with boredom proneness.

Study

Our model included boredom, search for and presence of meaning of life and perceptions of heroes. The sequence of variables of the model was based on theoretical assumptions of our meaning-regulation approach and on earlier correlational and experimental studies in which several of the partial sequences of our model have been empirically supported (e.g., Fahlman et al., 2009; Kinsella et al., 2015a, 2015b; Van Tilburg & Igou, 2011, 2012, 2016c; Van Tilburg et al., 2013). Specifically, we tested whether boredom proneness, typically associated with low presence of meaning in life (e.g., Van Tilburg & Igou, 2011b, 2012, 2016b), predicted hero affirmation positively via search for meaning in life. Further, we tested whether perceptions of heroes are positively related to presence of meaning in life (e.g., Bronk & Riches, 2017; Green et al., 2017; Kinsella et al., 2017), and whether boredom proneness would, in turn, decrease via increased presence of meaning in life.

With boredom proneness being an individual difference variable, we chose a correlational design. Importantly, we included all variables in a single mediation model to examine the relationship of boredom to heroism within a cyclic meaning-regulation process.

Method

Participants and design. Ninety participants (36% male, 64% female) between the ages of 18 and 72 years ($M_{age} = 48.3$, $SD_{age} = 16.5$) took part in a correlative paper and pencil study in exchange for a non-alcoholic beverage in a café in Limerick City. To control for potential order effects of measures we chose a 2 (boredom proneness, meaning measures, hero affirmation vs. hero affirmation, boredom proneness, meaning measures) × 3 (order of 3 evaluated heroes) between-subjects design. Participants with incomplete data ($n = 6$) were excluded from the analyses, leaving an effective sample of $N = 84$.

Procedure and materials. After giving informed consent, participants provided demographic information (age, gender). Participants completed the boredom proneness scale (BPS; Farmer & Sundberg, 1986) a 28-items scale (e.g., ''Much of the time I just sit around doing nothing'') with 10 reversed items (e.g., ''I find it easy to entertain myself'') by indicating their agreement on 7-point Likert-like scales ranging from 1 (*highly disagree*) to 7 (*highly agree*).

Participants completed the meaning in life questionnaire (MLQ; Steger et al., 2006). The MLQ consists of 10 items with 5 items for two subscales: presence of meaning in life (MLQ-P) (e.g., 'I understand my life's meaning') and search for meaning in life (MLQ-S) (e.g. 'I am looking for something that makes my life feel meaningful'). Respondents indicated their agreement to these statements on 7-point Likert-like scales from 1 (*strongly agree*) to 7 (*strongly disagree*).

To measure affirmation of heroes, 3 historic heroes were evaluated: Martin Luther King Jr., Mahatma Gandhi, and Neil Armstrong. These were derived from an earlier pilot

study, which indicated that these exemplars qualified as heroes. The heroic exemplars were presented separately, with their picture and name. Participants rated the exemplars based on the following questions: 1) How special is this person to you?; 2) How much does this person inspire you?; 3) Do you see this person as a regular individual? (reversed scored); 4) How much do you admire him or her?; 5) How important is this person to you?; 6) How much does this person give you purpose? Participants' responses were measured using 10-point Likert-like scales ranging from 0 (*not at all*) to 9 (*very much*).

Using the Latin square technique, the order of presentation differed: one third of the participants evaluated heroes as presented above, another third evaluated first Gandhi, then Neil Armstrong, then Martin Luther King Jr., while the remaining participants, evaluated Neil Armstrong first, Martin Luther King second, and Gandhi last. Half of the participants received the measures in the order BPS, MLQ and hero affirmation, while the other half received them in the order hero affirmation, BPS, MLQ. A short debriefing concluded the session and participants were thanked for their participation.

Results

Boredom proneness (α = .93), the MLQ-S (α = .93), and the MLQ-P (α = .93) were each reliable in this sample. Both meaning scales were recoded so that high scores represented high search for and high presence in meaning in life. Each hero scale was segregated and each also yielded internal consistency: King (α = .93), Gandhi (α = .95), Armstrong (α = .95). Hero scales were aggregated to establish a total hero affirmation scale, which reflected all scores for all of the heroes. This scale constitutes a valid indicator of hero perceptions (α = .96). Given that presentation order of materials had no systematic effects on responses, we excluded it from our analyses.

Model. We tested our hypotheses via specific mediational sequences and a corresponding *saturated non-recursive mediation model* (Figure 1) that best represented our

theoretical assumptions. Given the focus of this research, our model we specified *boredom* as predictor of *meaning search*. *Hero affirmation* was predicted by *meaning search* and in turn predicted *presence of meaning*. Perceived *presence of meaning* was specified as predictor of *boredom*. In addition, direct (partial) paths were included from *boredom* to *hero affirmation*, as well as from *meaning presence* to *meaning search*. We included the former path (boredom to hero affirmation) to allow for the possibility that boredom's potential association with hero affirmation was *not* (entirely) mediated by meaning search. Likewise, the path from meaning presence to meaning search was included to allow for the possibility that an association between meaning presence and meaning search was not entirely due to boredom. We tested this model with AMOS and displayed the results below using unstandardized *B*s.

Consistent with our predictions, *boredom* contributed to a greater *search for meaning,* $B = 0.71$, $SE = 0.26$, $p = .006$. *Meaning search* predicted increased levels of *hero affirmation,* $B = 0.82$, $SE = 0.26$, $p = .001$, while higher *hero affirmation* was associated with greater *presence of meaning,* $B = 0.24$, $SE = 0.12$, $p = .035$. Further, increased perceived *presence of meaning* was associated with lower levels of *boredom*, $B = -0.23$, $SE = 0.06$, $p < .001$. Moreover, the direct (and partial) association between *boredom* and *hero affirmation* was non-significant, $B = -0.51$, $SE = 0.43$, $p = .233$. Further, *presence of meaning in life* had a direct partial association with *search for meaning in life*, $B = -0.69$, $SE = 0.20$, $p < .001$.

We then turned to the analysis of indirect effects based on 5,000 bias-corrected bootstrap estimates of their 95% confidence intervals. Crucially, the full model's '4-step' indirect effect (boredom to search for meaning, to hero affirmation, to presence of meaning, to boredom) was significant, $B = -0.03$, $SE = 0.07$, $p = .027$, 95% Cl = [-.301; -.001]. Next, we tested for another theoretically important indirect effect: As predicted, the effect of *boredom proneness* on *hero affirmation* mediated through *meaning search* was significant, $B = 0.58$, $SE = 0.41$, $p = .019$, 95% Cl = [.086; 1.705].

Additional analyses. A number of other indirect effects were significant, including the following '3-step' sequential mediations: Through *meaning search* and then *hero affirmation*, *boredom* predicted a re-established *presence of meaning*, $B = 0.14$, $SE = 0.24$, $p = .030$, 95% Cl = [0.004; 0.973]. Those highly *searching for meaning* indirectly prevented boredom through *hero affirmation* and a greater *perceived meaning*, $B = -0.05$, $SE = 0.07$, $p = .016$, 95% Cl = [-0.263; -0.004]. Further, the *affirmation of heroes* resulted in a declined *meaning search* through enhanced *meaning presence* and reduced *boredom*, $B = -0.04$, $SE = 0.05$, $p = .026$, 95% Cl = [-0.217; -0.002]. Those who had high *perceived meaning* also evidenced less *affirmation of heroes* through their lower *boredom* and deflated *meaning search*, $B = -0.13$, $SE = 0.13$, $p = .015$, 95% Cl = [-0.551; -0.022].

Most of the simple indirect effects (i.e., including only a single mediator, or '2 steps') were significant: *Search for meaning* led to higher *perceived meaning* through *hero affirmation*, $B = 0.20$, $SE = 0.25$, $p = .020$, 95% Cl = [0.012; 0.888], and *hero affirmation* predicted, through *presence of meaning*, lower *boredom*, $B = -0.06$, $SE = 0.05$, $p = .016$, 95% Cl = [-0.190; -0.009]. Further, higher *presence of meaning* was associated with a reduced *search* for it via mitigated *boredom*, $B = -0.16$, $SE = 0.10$, $p = .020$, 95% Cl = [-0.401; -0.025].

Discussion

Given that boredom proneness is associated with a lack of meaning in life (e.g., Van Tilburg & Igou, 2012), we examined whether boredom instigates attempts to meaning re-attainment, and in turn fosters increased levels of hero affirmation; as heroes may serve as a tool to re-establish meaningfulness. We tested our hypothesis by examining the associations between people's perceived presence of meaning in life, boredom proneness, people's search for meaning in life, and hero affirmation.

Confirming our hypothesis, we found that boredom proneness, a state negatively associated with presence of meaning in life, predicted search for meaning in life, engendering more positive perceptions of heroes. That is, we found a significant indirect effect of boredom proneness on hero affirmation. The effect was limited to increased levels of meaning search, as a function of boredom proneness. Consistent with our meaning-regulation approach, this finding indicates that the effect of boredom proneness on hero affirmation is explained via the effects that boredom proneness has on search for meaning in life. Put differently, boredom proneness does not seem to affect perceptions of heroes outside of the existential meaning search process.

Importantly, we also found that enhanced affirmation of heroes positively predicted presence of meaning in life, and that via this particular process, levels of boredom proneness are reduced. This indicates that positive perceptions of heroes, stemming from boredom and search for meaning, enhance a sense of meaning in life and, in turn, reduce boredom proneness. These results confirm that hero perceptions contribute to meaning in life and that heroes, as a source of meaning, reduce proneness to the aversive state of boredom.

Aside from the findings mentioned above, results also suggest that individuals, who already possess a sense of meaningfulness, place high values on heroes, when search for meaning in life and proneness to boredom are controlled for statistically. Our mediation model suggests that people who do not engage in meaning search, but harbor a sense of meaning in life, still value heroes. One conceivable explanation for this may be that heroes are also used as a tool to *reinforce* meaningfulness for individuals who already possess it; thus they are acquitted of *further* meaning search.

Boredom signals meaning threat. Evidence strongly suggests that people perceive boring activities as a threat to their meaning system, which leads the individual to neglect the meaning of activities and life in general or at least leads them to cast doubt over the

meaningfulness of their endeavors (e.g., Van Tilburg & Igou, 2011b, 2016b). The current

research indicates how people could cope with such a meaning threat, here boredom

proneness, by deriving meaning from historic heroic exemplars. In earlier research, we could

demonstrate that the boredom increases nostalgic memories (Van Tilburg et al., 2013), social

identification with ingroups rather than outgroups (Van Tilburg & Igou, 2011b), and

adoptions of more extreme political attitudes (Van Tilburg & Igou, 2016c), and increased

pro-social behavior (Van Tilburg & Igou, 2016a). Recently, it was also found that boredom

increases unhealthy eating (Koball, Meers, Storfer-Isser, Domoff, & Musher-Eizenman,

2012) as a means to reduce the salience of the meaning threat caused by boredom (Moynihan,

Van Tilburg, Igou, Wisman, Donnelly, & Mulcair, 2015). The converging evidence that

boredom serves as an existential threat is consistent with our current findings and such

evidence validates the notion that a sense of meaning in life is a central human need,

associated with psychological processes that cope with meaning threats in order to establish

and re-establish meaning in life. The current findings shed light on positive solutions to

perceptions of lack of meaning, by turning to heroes, inspirational figures can make a

difference for the self, as part of the meaning-regulation process, but, of course, also for other

individuals and society as a whole.

   Heroes as source of meaning. A crucial characteristic of heroes is that they inspire

others and offer purpose in people's lives (e.g., Allison & Goethals, 2011; Kinsella et al.,

2016; Kinsella et al., 2015b; Früchtl, 2009; Ritchie & Reavis, 2016). Our current study

supports our hypothesis that boredom proneness and perceptions of heroes are related via an

existential meaning search process. By serving as sources of meaning in life, elevated

affirmation of heroes counter the meaninglessness provided by boredom. The present study

thus delivers insights into the relationship between boredom, one's need for meaning in life,

and how fondly people evaluate inspirational, heroic figures.

Given that heroes counteract the impact of a particular meaning threats, the question arises whether this characteristic is specific to boredom or whether the rationale is transferable to other meaning threats such as uncertainty, lack of self-esteem, lack of belongingness, or mortality salience (e.g., Heine et al., 2006, for discussion of meaning threats). We argue that this characteristic of heroes, that is, providing a source of meaning for meaning re-establishment and buffering against meaning threats, can be applied to an array of threats. We do not argue that the hero effects we report are specific to the context of boredom. Further, past research findings on hero functions seem to support this position (see also Kinsella et al., 2016).

Implications, limitations, and future research. Our findings suggest that the pursuit for meaning boosts hero affirmation, supporting our hypothesis that heroes become more important in the face of meaning threats, here, signaled by boredom. Our research adds a novel contribution to the relationship between boredom and the meaning-regulation process. Specifically, heroes may serve to restore meaning when people are bored and motivated to engage in self-regulation. More specifically, we propose this motivation is at least in part owing to human dedication to live a meaningful life. According to Heine et al. (2009), humans find it problematic to be correspondingly robbed of meaning, or otherwise confronted with meaningfulness. Therefore, they seek to reconstruct a sense of meaning whenever their meaning frameworks are disrupted. Our findings support claims by the meaning maintenance model that proposes a fluid compensation process (see also McGregor, Zanna, Holmes, & Spencer, 2001), in assuming that meaning can be sought in domains that are most easily recruited, rather than solely in the domain under threat (Heine et al., 2006).

One important limitation of our research is that it relates to boredom proneness and not to situational boredom. Would situational boredom be similarly related to search for meaning and its effect on hero perceptions? Future research needs to address situational

boredom. Strictly speaking, our findings on the psycho-existential functions of both boredom and perceptions of heroes are limited to boredom proneness.

Relatedly, boredom proneness, which conceptualizes frequent experiences of boredom across a wide range of situations (Elpidorou, 2014; Farmer & Sundberg,1986), differs from other boredom concepts. Bargdill (2000), for example, discusses *life boredom* as a construct and argues that it is a source of boredom proneness. We agree to this argument and add to this that life boredom could be an existential basis for boredom proneness. Clive (1965) takes a slightly different angle by proposing that habitual boredom is linked to conditions of modern society. We do not deny such a relationship; however, it would go beyond our current framework to address such societal influences. Interestingly, *profound boredom* has been characterized as a primordial mood that reflects indifference towards reality and that seems to be related to major depression (see Sinaikin, 2007). Although, some studies show that boredom proneness seems to be related to negative affective states and depression (e.g., Fahlman et al., 2009), it is beyond the scope of our current framework to address depression in greater detail. Possibly, our meaning-regulation model is unrelated to a psychological disorder, such as major depression. However, it is possible that affirmation of heroes is generally uplifting and impacts positively on dysphoria, sub-clinical and minor depression by reducing meaninglessness. Additional research is required to establish related conclusions about the clinical applications of this initial research.

Our research adds to the literature on heroes and heroism (e.g., Allison & Goethals, 2011; Allison & Goethals, 2013; Allison & Goethals, 2015; Kinsella et al., 2015b; Bronk & Riches, 2016; Green, Tongeren, Cairo, & Hagiwara, 2016), as we demonstrate that hero perceptions are associated with people's search for meaning and that these perceptions are in turn associated with a sense of meaning in life. We chose a particular set of historic exemplars as heroes (King, Gandhi, & Armstrong). The question arises whether these

represent the wide range of historical heroic figures and whether the same rational can be applied to other types of heroes, such as personal heroes (e.g., one's mother, father, or PhD student) rather than cultural heroes (see Kinsella et al., 2017).

The question of whether heroes are 'used' as a source of meaning depends on the availability of heroes, their cognitive accessibility in the moment, and the beliefs that people hold about heroes: whether they exist and whether they represent meaningfulness and are thus instrumental for the meaning-regulation process. This list of variables highlights that there are situational but likely also individual and cultural differences in the function of heroes to serve as source of meaning when one is bored. From this perspective, we would conclude that there is no natural link between boredom and heroism. However, in particular cultures and especially for people who believe that heroes represent meaningful behavior and values, heroes may be chronically linked to boredom experiences. Future research should address these questions more closely.

We recorded responses to measures of boredom proneness, meaning in life and hero affirmation, included the measures in a meditational process model, and found support for this model. However, given that this research is correlative, it is limited because causal inferences cannot be drawn. Our results suggest initial evidence for the processes that we hypothesized. Given the limitations that are inherent to correlative research designs, we suggest that future research examines parts of the model experimentally, to garner evidence of their validity and predictive utility. For example, we are not aware of experimental work that demonstrates the reduction of boredom by affirmations of heroes via perceived presence of meaning in life.

We tested a particular model that suggests a chain of processes within a loop, a cyclic meaning-regulation model. Although our research was not designed to test several iterations of this cyclic process, we do not rule out that for some or even many people one or more

iterations follow an initial cyclic process. For any model of that kind, one would need to make assumptions about a resting versus an active state, thresholds of activation, feedback processes and so forth. We hope that this interesting question will be addressed by future research.

Another research question of particular practical relevance is whether our supported meaning-regulation process is limited to people with beliefs in meaning in life and heroes, but also whether it is limited to people who are resilient, or to people who have shown some self-regulatory success in the face of meaning threats. These questions go beyond the scope of our current research but are important for future research and applications.

Conclusions. We proposed a theoretical model according to which heroes can be utilized as a source of meaning when people are prone to boredom experiences. Consistently, we found that boredom proneness affected positive perceptions of heroes via the crucial self-regulatory process of search for meaning in life. Further, our research confirmed that heroes function as source of meaning by increasing levels of presence of meaning in life and by reducing proneness to experiencing the aversive state of boredom. On a more general level, this research demonstrates a meaning-regulation process involving a meaning threat, boredom proneness, and an antidote to such a meaning threat, namely heroes, who serve as a profound source of meaning in life.

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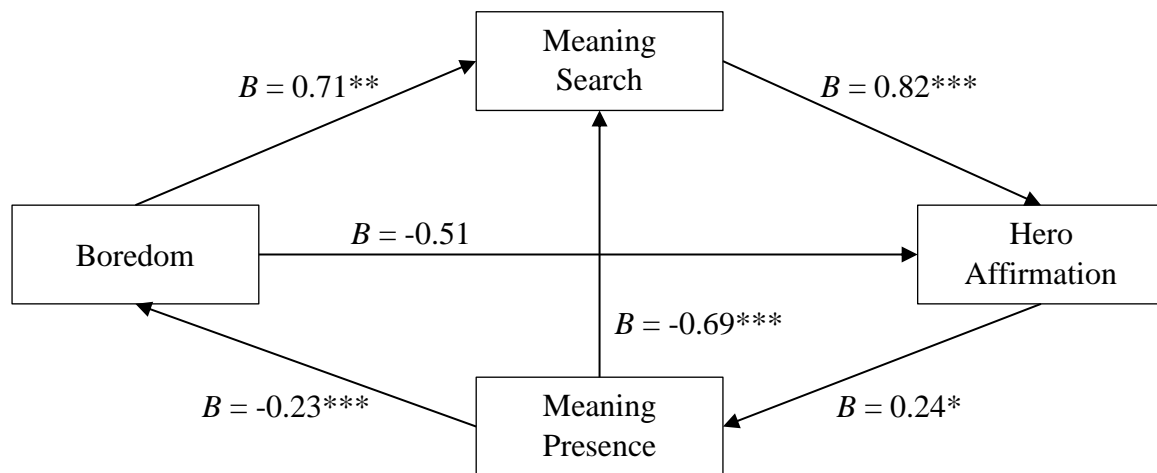Zimbardo, P. (2007). *The Lucifer effect.* New York, NY: Random House.

Figure 1: Non-recursive mediation model on boredom, meaning, and heroes. *$p \leq .05$,
**$p \leq .01$, ***$p \leq .001$; indirect effect of boredom through meaning search, hero

endorsement, and meaning presence: $B = -0.03$, $SE = 0.07$, $p = .027$, 95%CI = [-.301;

-.001]; indirect effect of boredom on hero endorsement through meaning search: $B =$

0.58, $SE = 0.41$, $p = .019$, 95%Cl = [.086; 1.705].