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Higher power dynamics: How meaning search and self-transcendence inspire approach motivation and magnanimity☆

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ABSTRACT

Fidelity with self-transcendent values is hailed as a hallmark of mature and magnanimous character by classic psychological and philosophical theories. Dozens of contemporary experiments inspired by self-affirmation theory have also found that when people are under threat, focus on self-transcendent values can confer magnanimity by improving psychological buoyancy (less anxious and more courageous, determined, and effective) and decreasing belligerence (less defensive, extreme, and hostile). The present research was guided by the postulate that both aspects of magnanimity—its buoyancy and its freedom from belligerence—arise from the approach motivated states that self-transcendent foci can inspire. Experimental manipulations of self-transcendent foci (values, spirituality, compassion) heightened state approach motivation as assessed by electroencephalography (Study 1, $n = 187$) and self-report (Study 2, $n = 490$). Further, even though the heightened approach motivation was transient, it mediated a longer-lasting freedom from moral (Study 1) and religious (Study 2) belligerence. Importantly, self-transcendent-focus effects on approach motivation and belligerence occurred only among participants with high trait meaning search scores. Results support an interpretation of meaningful values and spiritual ideals as self-transcendent priorities that operate according to basic motivational mechanics of abstract-goal pursuit. The transient, approach-motivated state aroused by transcendence-focus causes longer lasting relief from preoccupation with threat, leaving people feeling buoyant and generous. Relevance of results for self-affirmation theory and the psychology of spirituality are discussed.

> *Magnanimity:* "*loftiness of spirit enabling one to bear trouble calmly, to disdain meanness and pettiness, and to display a noble generosity*" Merriam-Webster's online dictionary

Magnanimity is buoyant and free from defensive belligerence, even in threatening circumstances. Where does such poise come from? Sages and scholars have long proposed that magnanimity can arise from focus on self-transcendent ideals, virtues, and values (i.e., beyond personal expedience; Sagiv, Roccas, Cieciuch, & Schwartz, 2017, Wong, 2014). Research guided by self-affirmation theory has found that even briefly focusing on such-self-transcendent foci can boost magnanimity (Cohen & Sherman, 2014). Here we empirically investigate how and for whom self-transcendent foci confer magnanimity. We view them as abstract goals (Klinger, 1977; Sagiv et al., 2017) and hypothesize that they confer magnanimity via the approach-motivated states they arouse (McGregor, Prentice, & Nash, 2012).

Our two main dependent variables (DVs) in both studies assess the two main features of magnanimity: buoyant resilience and freedom from defensive belligerence. The first DV, state approach motivation, is buoyant (e.g., hopeful and tenacious; McGregor, Prentice, & Nash, 2013), and the second directly assesses belligerence (moral in Study 1 and religious in Study 2). Both studies test whether effects of self-transcendent-focus on approach motivation mediate freedom from

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belligerence. In so doing they assess whether approach motivation may be a motivational source of the "higher power" that can arise from self-transcendence. Finally, both studies test whether effects are strongest for meaning seekers, who desire transcendence.

1. Power of self-transcendence?

In *Man's Search for Meaning,* Frankl (1959/1946) held that his magnanimity while surviving a Nazi death camp arose from his commitment to self-transcendent values. This idea reflects a pervasive theme in classic psychology theory, that fidelity with self-transcendent values is a cornerstone of maturity, effectiveness, and resilience. Adler championed this theme by positioning lifestyle commitment to pro-social values (gemeinschaftsgefühl) as the cornerstone of healthy human development (Adler, 1931; Ansbacher & Ansbacher, 1956, pp. 134–162). Maslow (1970 pp. 91–96) promoted self-transcendent "Being-values" of integrity and justice as commitments required for non-defensive and reality-focused functioning. Erikson (1963) identified value-integrity and generativity as necessary criteria for adult maturity. Allport (1955, pp. 75–81; 1961, p. 572) maintained that maturity and resilience arise from commitment to "propriate striving" toward transcendent values.

Themes in Eastern philosophy similarly emphasize benefits of focus on transcendent values beyond preoccupation with personal expedience. Relief from suffering requires divestment from worldly desire so that one can prioritize disciplined focus on virtue, instead. The Hindu yoga-sutra of Patanjali, for example, proposes "cessation of the turnings of thought" by replacing "craving for sensual objects" with "dedication to … a distinct form of spirit unaffected by the forces of corruption" (Miles, 2014, pp. 133–134). In Buddhism, this theme is elaborated as a value-focused "noble search" that can "provide undefiled and supreme security from bondage" and "unshakeable deliverance" from distress (Ariyapariyesana Sutta, Miles, p. 805, 807).[1]

Themes in Western moral philosophy also champion fidelity with prosocial values and virtues beyond worldly advantage as a key to magnanimity (Armstrong, 2006; Durant, 1939; Tarnas, 1991). Pythagoras, Socrates, and Plato extolled the liberating power of focus on abstract ideals, and Aristotle promoted pursuit of virtue for optimal, Eudaimonic thriving. These early Greek ideas evolved into Stoic emphases on ascetic pursuit of transcendent values as the basis for magnanimous character (Grayling, 2003; Rasimus, Engberg-Pedersen, & Dunderberg, 2010). Even the vague "higher power" spirituality of Alcoholics Anonymous (AA) asserts that a will focused more on giving than getting is "in much less danger of excitement, fear, anger, worry, self-pity, or foolish decisions"—"we became less and less interested in ourselves…more and more interested in seeing what we could contribute to life…we felt new power flow in, as we enjoyed peace of mind, as we discovered we could face life successfully" (Alcoholics Anonymous, 2001, pp. 63, 88; cf. Kelly, 2017). The AA view succinctly summarizes a theme that pervades classic psychological and philosophical theories—self-transcendence can confer what feels like a kind of higher power that makes people more magnanimous. As poetically put by James (1958/1902), "moral enthusiasm, ontological wonder, and cosmic emotion, are all unifying states of mind, in which the sand and grit of self-hood incline to disappear, and tenderness to rule" (p. 240).

[1] This idea reflects the central Buddhist claim that concentrated ethical intention (eightfold path of focused devotion to benevolent virtue) can liberate people from suffering arising from friction (dukkha) in goals (Dhamachakkappavattana Sutta, Miles, p. 858). The power of "the Dhamma" via "concentration, when imbued with morality, brings great fruit and profit" (from the Mahaparinibbana Sutta; Miles, 2014, p. 844).

2. Contemporary research on the magnanimity-inducing power of self-transcendence

The first empirical work on how self-transcendent values can affect the motivational buoyancy aspect of magnanimity grew out of Allport's understanding of values as "generalized motives" (Allport, 1955; Vernon & Allport, 1931, p. 231). It found that after clarifying their self-transcendent values in discussion groups, delinquent boys' achieved better real-world outcomes (Ostrom, Steele, Rosenblood, & Mirels, 1971). More recently, focus on transcendent values at work increased call-center employees' revenue per shift by over 25% (Grant, 2012, Study 1). High-school students who linked their learning goals to transcendent values beyond self-advancement have college enrollment rates of >60% as compared to <35% for those who do not; and a short experimental intervention linking self-transcendent priorities to academic goals raised struggling students' overall math and science grades from C- to C (Yeager et al., 2014). Writing about guiding values for a few minutes early in the academic term also improved course grades for vulnerable middle and high-school students and for women taking a college physics course (Borman, Grigg, Rozek, Hanselman, & Dewey, 2018; Cohen, Garcia, Apfel, & Master, 2006; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustosk, 2009; Miyake et al., 2010; Sherman et al., 2013). Lab research has similarly found that value-focus can improve performance on cognitively challenging tasks unrelated to the topics of the values (Alquist et al., 2018; Harris, Harris, & Miles, 2017). Together, these results reveal that values do more than just remind people about their priorities. They also buoy a systemic surge in tenacity and effectiveness.

In addition to these effects of transcendent-value-focus on the motivational buoyancy aspect of magnanimity, effects on the freedom from defensive belligerence aspect are similarly impressive. Value-focus tunes people more closely to the truth about unpleasant realities and reduces defensive bias (Cohen, Aronson, & Steele, 2000; Correll, Spencer, & Zanna, 2004; Sherman & Cohen, 2002). This makes them more willing to acknowledge and try to change unhealthy habits (e.g., Kang et al., 2018; Sherman, Nelson, & Steele, 2000; for reviews see Cohen & Sherman, 2014; Epton, Harris, Kane, van Koningsbruggen, & Sheeran, 2015; Sherman, 2013). Value-focus also reduces defensive self-enhancement and rationalization after dissonance and self-image threats (e.g., Sherman & Kim, 2005; Steele, 1988; Steele & Liu, 1983; Steele, Spencer, & Lynch, 1993). Finally, and most relevant to the present work, value-focus softens ideological belligerence (Cohen et al., 2007; McGregor, Zanna, Holmes, & Spencer, 2001; Schmeichel & Martens, 2005). It makes partisans less hostile toward people who offend their worldviews.

Several of the above studies manipulated value focus without instructing participants to focus on specifically self-transcendent values. But it seems likely that most participants did. When asked to describe their most important values, research participants nearly always focus on self-transcendent ones that involve helping or connecting with others (Crocker, Niiya, & Mischkowski, 2008; Sagiv et al., 2017). Further, in some past research high-value-focus manipulations made people more magnanimous only if the value-focus manipulation induced self-transcendent focus (Burson, Crocker, & Mischkowski, 2012; Cook, Purdie-Vaughns, Garcia, & Cohen, 2012; Crocker et al., 2008; Layous et al., 2017; Schimel, Arndt, Banko, & Cook, 2004; Shnabel, Purdie-Vaughns, Cook, Garcia, & Cohen, 2013; Yeager et al., 2014; see Crocker & Canevello, 2012, for similar effects for self-transcendent but not for self-enhancement goals on well-being and effectiveness). For example, value-focus effects on smokers' reduced defensiveness about their habit were completely mediated by the extent to which value-focus revolved around themes of love and connection (Crocker et al., 2008). Similarly, after an exclusion threat, an experimental manipulation of self-transcendent value-focus (i.e., on values of compassion, relationships, helping, or contributing) more effectively reduced defensiveness than a manipulation of self-enhancing value-focus (i.e., focused on

power, money, intelligence, or attractiveness). Importantly, however, loving feelings did not mediate the effect, leading the authors to note that "love and connection might be one indicator of self-transcendence, but perhaps not the only one, and perhaps not the most important one" (Burson et al., 2012, p. 515). We view love/connection priorities as the usual *domain* of self-transcendence, but see basic motivational processes as the mediating *mechanism* of transcendence effects.

3. Involvement of behavioral inhibition and approach systems (BIS and BAS)

The impressive power of self-transcendent foci to affect a wide range of magnanimity-related outcomes has stimulated calls for understanding of how their effects may be modulated by basic motivational processes (Crowell, Page-Gould, & Schmeichel, 2015, p. 149). The BIS is the motivational sub-system that modulates anxious and ruminative reactions to uncertainty/ conflict-related threats (Carver & White, 1994; Gray & McNaughton, 2000). BIS-activating threats also heighten belligerent defenses (Jonas et al., 2014) and so some research has focused on whether self-transcendent focus effects on magnanimity might arise from muted BIS-activation. Value-focus does reduce several BIS-linked phenomena, including anxious distress, ruminative preoccupation, and defensive avoidance of self-threatening information (Alquist et al., 2018; Creswell et al., 2005; Critcher & Dunning, 2015; Crowell et al., 2015; Finley, Crowell, & Schmeichel, 2018; Koole, Smeets, Van Knippenberg, & Dijksterhuis, 1999; McGregor, 2006a; McGregor et al., 2001; Schmeichel & Vohs, 2009; Sherman et al., 2013; Sherman, Bunyan, Creswell, & Jaremka, 2009; Simon, Greenberg, & Brehm, 1995). It has also improved cardiovascular recovery after threatening interpersonal evaluations (Tang & Schmeichel, 2015) and lowered amygdala reactivity to threatening health messages (especially among people with trait-tendencies oriented toward self-transcendent-values; Kang et al., 2017). These findings suggest that self-transcendent foci can cause persistent reductions in defensiveness-linked BIS-activation. How might they do so?

According to self-affirmation theory, value-focus works by "untethering daily adversity from identity threat" (Sherman et al., 2013, p. 5) to leave the self "decoupled" and thereby insulated from discrete difficulties (Sherman, 2013, p. 840). A purpose of the present research is to illuminate *how* transcendence-focus might mute BIS-activation to uncouple people from anxious distress and leave them with feelings of "adaptive and moral adequacy" (Steele, 1988, p. 263). As already reviewed, self-transcendence-focus makes people more motivationally buoyant in ways that suggest involvement of approach motivation. Indeed, in their review of over 30 years of self-affirmation theory and research on value-focus effects, Cohen and Sherman (2014, pp. 339, 342) proposed that value-focus can "foster an approach orientation." Evidence for such a BAS link could help complete a comprehensive motivational understanding of how value-focus works because past theory and research have linked BAS-activation to reductions in BIS-activation (Corr, 2002, 2004; Gray & McNaughton, 2000; Harmon-Jones, Amodio, & Harmon-Jones, 2009; Jonas et al., 2014; Sleegers & Proulx, 2015).

For example, studies using left frontal asymmetry (LFA) electroencephalographic (EEG) measures of BAS-linked brain activity like the one we used in Study 1, have found that it predicts muted startle responses to unpleasant surprises, and less neural activity arising from the anterior cingulate cortex (Jackson et al., 2003; Nash, Inzlicht, & McGregor, 2012; for links between anterior cingulate cortex and BIS-linked distress see Hajcak, 2016; Proulx, Inzlicht, & Harmon-Jones, 2012; for validation LFA as a measure of BAS see Harmon-Jones & Gable, 2018). BAS-related states also predict freedom from ruminative preoccupation with task-irrelevant conflicts (Harmon-Jones et al., 2009; Harmon-Jones, Price, & Gable, 2012), and preoccupation with conflict-related cues is a cardinal symptom of BIS-activation (Gray & McNaughton, 2000; Jonas et al., 2014).

We accordingly postulate that some of the magnanimity-fostering power of self-transcendent foci arises from their capacity to spur transient BAS-activation, thereby quelling threat-activated BIS and relieving need for defensive belligerence. Evidence that self-transcendent foci can cause approach motivated states that mute defenses would help fill in a more complete motivational account. It would provide evidence for what self-transcendence adds (i.e., a boost to transient state-BAS activation during transcendence-focus) to compliment what is already known about what it relieves (i.e., the longer lasting relief from BIS-related rumination and reactivity, as described above).

Some evidence already supports the approach motivation hypothesis. Transcendent values are inspiring, and inspiration is an approach-motivated emotion (Thrash & Elliot, 2004). Self-transcendent foci can activate brain areas associated with approach and reward processing, such as the striatum and ventromedial prefrontal cortex (Bartra, McGuire, & Kable, 2013; Cascio et al., 2015; Dutcher et al., 2016; Falk et al., 2015; Kang et al., 2018). They also buoy motivation and magnanimity on subsequent tasks especially well among the participants who are most enthusiastically committed to their values (Borman et al., 2018; Kang et al., 2017) and enthusiasm is an approach-motivated state (Harmon-Jones et al., 2012; Harmon-Jones, Harmon-Jones, & Price, 2013). Here we further probe the approach motivation hypothesis by testing whether approach motivation (measured with LFA in Study 1 and self-report in Study 2) is caused by value-focus, and whether it mediates transcendence-focus effects on reduced belligerence.

4. Motivational mechanics of threat, defense, transcendence, and belligerence

Joint mediating roles of BAS and BIS in value-focus effects on magnanimity are compatible with a general process model of how belligerent reactions to threats are jointly mediated by BAS and BIS (Jonas et al., 2014). As depicted in Fig. 1a, past research has found that threats activate state BIS, which in turn arouses defensive belligerence to activate state BAS as a palliative maneuver to reduce the BIS (because BAS activation mutes BIS activation). Use of extreme or belligerent defenses to accomplish this kind of motivational palliation is referred to as reactive approach motivation (McGregor, 2006b; McGregor, Nash, Mann, & Phills, 2010; McGregor, Nash, & Prentice, 2010; McGregor, Prentice & Nash, 2013; Nash, McGregor, & Prentice, 2011).

The present research piggybacks on this understanding of threat and motivation for defensive belligerence. As depicted in Fig. 1b, we hypothesize that self-transcendence focus activates an initial, transient surge in BAS, which confers longer-lasting freedom from belligerence by muting the BIS. The pathways involving BIS have been found in prior research (reviewed in Jonas et al., 2014). The present research accordingly focuses on the darker gray pathways in Fig. 1b (simplified on the right). In Studies 1 and 2, we measured BAS during transcendence-focus, and assessed belligerence several minutes later. Further, Study 2 experimentally manipulated whether BAS was assessed during or after transcendence-focus, to show that it is specifically the initial surge in BAS activated by the self-transcendence-focus that is what mediates the longer lasting reduction in belligerence. (See Study 2 for more theoretical rationale for why we expected BAS activation to be transient).

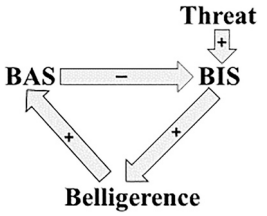

Fig. 1a. Reactive approach motivation dynamics of threat and defensive belligerence.

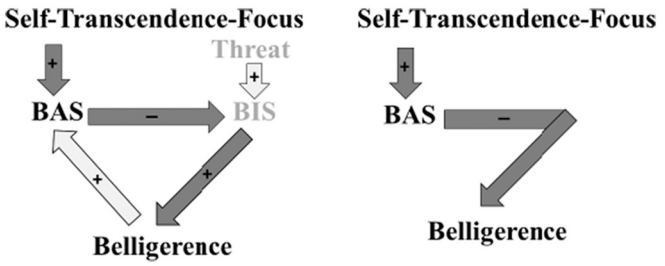

Fig. 1b. Predicted self-transcendence effects on BAS and belligerence-reduction (full model on left, reduced model tested in present research on right).

5. Self-transcendence and approach motivation

BAS-related approach motivation is the "impulse to go toward" (Harmon-Jones et al., 2013 p. 291). It is a dopamine-mediated, wanting state (Berridge & Robinson, 1998; Depue & Collins, 1999; DeYoung, Peterson, & Higgins, 2005; Panksepp, 1998) that can eagerly latch onto diverse cues, concrete or abstract, positive or negative (e.g., even in anger or hate; Carver & Harmon-Jones, 2009; Elnakouri, Hubley, & McGregor, 2022; Harmon-Jones & Gable, 2018), and confer energy, confidence, and tenacity (Harmon-Jones et al., 2013; McGregor et al., 2010, b, Study 3). It is intuitive to link relatively approach-motivated states to concrete desires for sensual pleasure (e.g., "I want pie!"). Such eager states can also arise from abstract values and commitments, however (e.g., "I want social justice!" "I love my worldview!" Lydon & Zanna, 1990; McGregor, Gailliot, Vasquez, & Nash, 2007; McGregor et al., 2010, b, Study 3; Sheldon, 2014; Thrash & Elliot, 2004; Yeager et al., 2014). Various theories of goal regulation characterize ideal values as general action-identifications (Vallacher & Wegner, 1987), system concepts (Carver & Scheier, 1998; Powers, 1973), personal project meanings (Little, 1993), ideal self-guides (Higgins, 1997), trans-situational goals (Schwartz, 1992), or spiritual strivings (Emmons, 1999; Schnitker & Emmons, 2013) that orient people toward meaningful priorities they yearn to abide by (McGregor & Little, 1998). If so, focusing on them should activate the same buoyant BAS states that more concrete desires activate. Indeed, traits and states related to focus on values, meaning, and meaning search correlate with traits and states linked to approach motivation (e.g., McGregor et al., 2007, Study 3; McGregor et al., 2010, b, Study 3; McGregor et al., 2012; see also Amodio, Shah, Sigelman, Brazy, & Harmon-Jones, 2004; Pennington & Roese, 2003; Thrash & Elliot, 2004).[2]

6. Self-transcendence and meaning search

Fidelity with guiding values predicts meaning in life (McGregor & Little, 1998), and when experimental research on values began 50 years ago 80% of young adults reported that a major life goal was to seek meaningful purpose in life. That percentage has now dropped to under 50%, with self-advancement and status goals filling the balance (Twenge, Campbell, & Freeman, 2012; cf. Allport, 1955). If self-transcendent focus on guiding values is a form of meaning-seeking (Heine, Proulx, & Vohs, 2006; McGregor & Little, 1998) then it should most powerfully activate BAS (and cause subsequent BIS-relief and magnanimity) among people with trait tendencies toward meaning search. Trait meaning search "behaves like a schema increasing the salience of meaning relevant information" and items on the scale we used refer to committed pursuit of transcendence-related phenomena such as high purpose and mission in life (Steger, Frazier, Oishi, & Kaler, 2006; Steger, Kashdan, Sullivan, & Lorentz, 2008; Steger, Oishi, & Kesebir, 2011, p. 173). People with high Meaning Search scale scores look for ways to engage in goals related to their values, and report higher well-being when their goals align with them (Steger & Dik, 2009). Further evidence that meaning searchers are inclined to approach values and transcendent ideals comes from evidence that the Meaning Search scale correlates positively with scales that assess BAS, hope, and idealistic approach motivation[3] (McGregor et al., 2012; Steger et al., 2006; Steger et al., 2008). We accordingly predicted that focus on self-transcendent values would produce strongest effects on BAS and freedom from belligerence among meaning seekers.

7. Study 1

We randomly assigned participants to write about their most important (vs. least important) values while we assessed an EEG-LFA marker of approach motivation. To asses dispositional meaning search tendencies we used a trait meaning search scale. To assess belligerence at the end of the study we measured gratuitously punitive reactions to moral violators.[4] We predicted that for meaning searchers, focus on their most important values would boost approach motivation, which would mediate low belligerence.

7.1. Method

7.1.1. Participants and procedure

We gave credit to 247 undergraduates[5] in a second-year personality psychology course. They came to the lab for a "Personality and EEG" session after having completed the trait Meaning Search scale along with dozens of others in a pretest session. Our data collection stop rule was

[2] A central role for BAS activation in transcendent-value-focus effects on magnanimity would also be consistent with early speculation in self-affirmation theory that defensiveness-eliminating effects of value-focus might arise from neural processes related to "left hemisphere functioning that fosters coherence-sustaining beliefs" (Steele, 1988, p. 299). This speculation was based on evidence that the brain's left hemisphere is relatively specialized for imposing top-down meanings to make sense of reality, even if doing so requires defensive distortion and belligerent rationalization (e.g., Gazzaniga, 1995; Ramachandran, 1995). If this could be accomplished either proactively (via transcendent value-focus) or reactively (via defensive belligerence), then proactive value-focus should be able to supplant the need for defensive belligerence, which could account for the magnanimity value focus can confer. In the 35 years since this early speculation about the role of cerebral asymmetry in defensive responding and value-focus, LFA has been robustly linked to approach-motivated states characterized by feelings of strength, confidence, and enthusiasm (Harmon-Jones & Gable, 2018).

[3] High Meaning Search scale scores also correlate with traits related to distress e.g., neuroticism, rumination, stress, BIS, avoidance motivation, uncertainty aversion, low self-acceptance, low relatedness, low self-esteem. Meaning searchers thus have traits conducive to despair and are in contact with suffering, but also have tendencies toward hope for relief via their determined commitment to self-transcendent values (see the OSD for correlations between meaning search and other trait scales). Their reliable access to resilient BAS states afforded by self-transcendent inspiration may be what deepens meaning searchers' capacity to notice and tolerate suffering with magnanimity (cf. Wong, 2014). In contrast, their more neurotic nature may be what motivates their attraction to palliative transcendence in the first place.

[4] In both studies we report all manipulations, all data exclusions, and how we determined our sample. Both studies included other variables for exploratory and comparison purposes. Full transcripts of all materials in each study are presented in the OSD along with additional and comparative analyses.

[5] Ethnicity data were not collected in either study, but mass-testing data from this undergraduate-student cohort, at a liberal arts, public university in Canada's most multicultural city, revealed ethnic identification percentages of: 35% white, 8% black, 15% east Asian, 23% south Asian, 14% middle eastern, 3% Hispanic, and 2% multiracial, with 46% of participants reporting that they were born in a country other than Canada, and 88% having at least one parent born in a country other than Canada.

simply to invite all students in the class to participate. We excluded 23 participants who self-reported responding unconscientiously (criteria described below, same as in Study 2). For EEG analyses, 37 additional participants provided no EEG data either because they were uncomfortable with having the EEG headsets placed on their heads or due to being unable to wear them over religious headdress or hair that was too thick or slippery. This left 187 participants for the EEG analyses (64 male, 123 female; *M*age = 22.37, *SD* = 5.70, age range: 18–57). A sensitivity power analysis for the predicted interaction conducted in G*Power (Faul, Erdfelder, Lang, & Buchner, 2007; multiple regression R^2 increase, alpha = 0.05, power = 0.80, total predictors = 4) indicated that, given this sample size, the study was powerful enough to detect a minimum effect size $f^2 = 0.04$.

Upon arrival participants were greeted by an experimenter who introduced the session and positioned the EEG headset electrodes on their scalps. Next, they were taken down the hall to a room with six private testing booths where computerized research materials were administered. We controlled for baseline-state approach motivation by using the average of the two separate, minute-long baseline LFA scores as a covariate in our analyses.[6] For the LFA DV we similarly averaged the two LFA scores from minute-long EEG recordings assessed in the middle of the value-focus manipulation and immediately afterward while participants had been instructed to keep thinking about what they wrote. After the last EEG recording participants completed the manipulation check and DV of punitive moral belligerence.

7.1.2. Trait meaning search (moderator variable)

We assessed the five-item Meaning Search subscale of the Meaning in Life questionnaire (MILQ; Steger et al., 2006) in a pretest session several days before the main study. Participants were asked to "take a moment to think about what makes your life feel important to you…please answer according to the following scale" (from 1 = *absolutely untrue* to 7 = *absolutely true*). MILQ Meaning Search items refer to the ongoing quest for meaning, purpose, significance, and mission in life, e.g., "I am seeking a purpose or mission for my life." Cronbach's α reliability of the Meaning Search scale was 0.89.

7.1.3. Independent Variable: Value-focus manipulation (adapted from McGregor et al., 2001)

Participants randomly assigned to the high-value-focus condition had 2 min to:

> Select the personal value from the list that is MOST important to you. Business/ Economics/Making money; Social life/ Relationships; Art/ Music/Theatre; Social action/ Helping others; Science/Pursuit of knowledge; Religion/Spirituality…describe WHY [the selected value] is important to you, and HOW you've acted according to this value in the past and plan to in the future.

Participants in the low-value-focus condition instead were instructed to select their least important value from the same list and had 2 min to:

> Describe WHY [the selected value] could be important to someone else. Note: Do not describe why it is not important to you, just describe how you can imagine it might be important to other people, and how others would act according to that value.

After participants selected their highest or lowest value, according to the condition they were randomly assigned to, they wrote about it for a minute before an onscreen prompt interrupted them to instruct them to sit motionless with their eyes closed while we recorded EEG for a minute, after which participants in both conditions continued to write about the focal value they had selected for another minute. Finally, participants were instructed to "continue to think about whatever is on your mind at the moment" while a second EEG minute was recorded. Results of the EEG pilot study (described in the OSD) indicated that immediately after value-affirmation participants continue thinking about values until other instructions divert attention.

7.1.4. Manipulation check

After the last EEG recording participants completed a manipulation check of the extent to which the value they wrote about was meaningful to them. In reference to what they wrote in the value-focus exercise, participants rated their agreement on a 5-point scale (from 1 = *not at all true* to 5 = *extremely true*) with the following statements: "This value is of great importance to my life," "This value matters a lot to me," "This value affects my daily behavior in many ways," "This value is central to my identity," "This value defines me as a person," and "This value makes me who I am." The average of responses on these six questions served as the value-focus manipulation check (Cronbach's α was 0.96).

7.1.5. First dependent variable: Approach motivation (EEG-LFA)

For our approach motivation DV we averaged LFA scores from the two, minute-long EEG recordings taken while participants were writing or thinking about values. Before each, participants were instructed to sit as still as possible without moving their upper body, head, or face muscles. Audio delivered through earphones instructed participants to close their eyes during each recording segment and to open them afterwards (pictures of closed and open eyes reinforced this instruction on the screen).

Evidence from hundreds of experiments have linked state-activated approach motivation with LFA (reviewed in Harmon-Jones & Gable, 2018). LFA markers of approach motivation arising from experimental manipulations have been assessed at inconsistent frontal locations in past research, however. LFA related to angry and defensive reactions to provocations and threats has usually been found at the F3F4 or F7F8 locations according to the international 10–20 system (Harmon-Jones & Allen, 1997; Henriques & Davidson, 1991; Harmon-Jones, 2003; McGregor, Nash, & Inzlicht, 2009; Sobotka, Davidson, & Senulis, 1992). Non-defensive LFA activated by reward and self-related cues (values and power) and measured via fMRI and EEG has been found more centrally, however, closer to AF3AF4 (Boksem, Smolders, & DeCremer, 2009; Pizzagalli, Sherwood, Henriques, & Davidson, 2005; see also Dutcher et al., 2016, and Falk et al., 2015, for bilateral effects). Together, previous findings suggest approach states aroused by value affirmation cause LFA located at more anterior frontal sites than the reactive LFA that is caused by threats and anger.

To test this reasoning about where the headsets would best detect LFA arising from value-focus, we ran an EEG pilot study with 80 participants and compared Meaning Search × Value Affirmation interaction effects on LFA at frontal electrode pair sites that have been associated with approach motivation in past research: F3F4, F7F8, FC5FC6 and AF3AF4 according to the international 10–20 system. The pilot study description and results are reported in the OSD. The only significant interaction effect in this pilot study was at the most anterior frontal site on our headsets, at the AF3AF4 location. This finding is consistent with recent fMRI findings indicating that affirmations increase blood flow to brain areas around the medial prefrontal cortex (Cascio et al., 2015; Falk et al., 2015). AF3AF4 is closer to the medial prefrontal cortex than any of the other frontal electrode sites assessed by our headsets. Moreover, experimentally manipulated social reward has caused significant increases in LFA at AF3AF4 in past research (Boksem et al., 2009), and the transcendent values people spontaneously nominate are usually socially

[6] Immediately before the present study, in the same data collection session, participants completed an unrelated study that tested effects of cooperation, competition, religion, and desire primes on allocation of points and resources to self vs. other in a simple game. One of the two minute-long baseline EEG recordings was taken during this session (see OSD for materials). The present study then began with the introduction, "Welcome to the second study you will be completing in today's lab session." The second LFA baseline recording segment was taken before the value-focus manipulation at the very beginning of the present study.

themed (Burson et al., 2012; Crocker et al., 2008; Schnabel, Purdie-Vaughns, Cook, Garcia, & Cohen, 2013). In Study 1 we accordingly used LFA at AF3AF4 as the dependent variable (and the same data extraction procedures as in the pilot study).

7.1.6. EEG recording

We used Emotiv™ EPOC wireless EEG neuroheadsets (San Francisco, CA) that measure electrical potentials on the scalp through 16 gold-plated electrodes at international 10–20 system locations AF3/4, F3/4, F7/8, FC5/6, T7/8, P7/8, O1/2. Each electrode has a cavity that holds a small felt pad soaked in sterile, isotonic solution to increase conductance. We used the headsets' default referencing scheme that uses the left mastoid for an absolute voltage reference, and the right mastoid for feedback cancellation.[7] Recordings were taken while participants had their eyes closed to minimize noise from blinks and to allow them to become immersed in their thoughts with fewer distractions.

Data were recorded using TestBench™ software that sampled at a rate of 128 Hz and applied an online bandpass filter of 0.1–100 Hz. EEG signals were sent wirelessly from each headset to its recording computer via Bluetooth (2.4 GHz, TestBench™). EEG triggers were sent to the TestBench software via TTL markers from the stimulus software MediaLab (v2012).

7.1.7. EEG data processing

All processing was done using Brain Vision Analyzer 2 (Brain Products, Germany). EEG data were filtered with a 0.1 Hz cut-off high pass filter, a 30 Hz cut-off low pass filter, as well as a 60 Hz notch filter. Ocular correction for blinks was not applied because data were collected with eyes closed. Artifact rejection was based on step increase, amplitude, and slope criteria. EEG data were marked as artifactual if any portion changed more than 100 μV over a 100 s window; had an absolute amplitude greater than 75 μV; had a slope greater than 35 μV/ms; or was within 100 ms of a TTL marker.

During processing, data were segmented into 2-s epochs, overlapping by 75% and the power spectra were computed using fast Fourier transform (FFT) method with a 10% Hamming window. The 2-s epochs that did not contain artifacts were averaged together. The α band (8-12 Hz) was extracted from the spectral decomposition across the remaining epochs, and its power was natural log (Ln) transformed to normalize values. LFA was calculated such that higher values reflect greater left hemispheric cortical activity (Ln AF4 α power – Ln AF3 α power in microvolts; higher α power is an inverse indicator of cortical activity). The data processing decisions were the same as those used in the EEG pilot study (n = 80, results described in the OSD) that we used to determine the AF3AF4 electrode sites.

7.1.8. Second dependent variable: Punitive moral belligerence

Participants rated the extent to which seven moral transgressors should be harshly punished for their violations. To ensure that ratings reflected gratuitous belligerence and not just desire for protection against repeated crimes, we created a measure based on a scenario in which the criminals had been caught at age 72, long after they had committed their crimes, and had already been sentenced to a lifetime of surveillance to ensure they could not reoffend. The criminals were described to participants as: "A corporate criminal who cheated millions from trusting investors," "A religious evangelist who stole and used people's charitable donations for his own lavish lifestyle," "A terrorist who had killed people with car-bombs," "An official who had ordered torture of political prisoners," "An exiled leader convicted of war crimes," "A parent convicted of neglect leading to the death of children," and "A convicted pedophile." We used such odious criminals to arouse distress and the reactive urge for punitive moral belligerence.

We computed Belligerence scores by averaging scores across the six questions about the seven criminals (i.e., across 42 questions; on a scale from 1 = *strongly disagree* to 5 = *strongly agree;* with the clemency items reverse-coded): "This criminal should be jailed for life with no chance of parole," "This criminal should have to live in uncomfortable circumstances for life," "If wealthy, this criminal should have most of his or her financial assets/net worth taken away by the justice system," "As much money as necessary should be spent by the state on therapy to help rehabilitate this criminal (reverse coded)," "Forgiveness and a second chance should be offered if this criminal apologized and showed sincere remorse (reverse coded)," and "In order to set an example, it is important for the good of society and social order that this criminal be punished severely." Cronbach's α reliability of Belligerence was 0.93.

7.1.9. Unconscientious responding

We excluded participants with average scores of 2.0 or less out of 5.0 on the following items: "I tried my best to answer all of the questions honestly," "I gave this survey my undivided attention while I was completing it," "I sometimes just clicked random responses in order to get through this survey as quickly as possible (reverse coded)," "I conscientiously attempted to follow instructions to the best of my ability," and "I completed this survey in a single uninterrupted sitting." Response options were: 1 = none of the time, 2 = some of the time, 3 = about half the time, 4 = most of the time, 5 = all of the time). We used this same exclusion criterion in Study 2. The questions were asked (and exclusion criterion applied) for the online pre-test session (where Meaning Search was assessed) and again for the in-lab EEG data collection session a few days later, during which the dependent variable was assessed (the fifth question was irrelevant to the in-lab session so was not asked there). We further excluded participants who, in either the pre-test or lab session admitted that "most of the time," or "all of the time" they "just clicked random responses to get through the study as quickly as possible."

7.2. Results and discussion

7.2.1. Value categories and manipulation check

Participants in the high-value condition selected one of the three more explicitly self-transcendent category labels 76% of the time: 51.04% relationships, 20.83% helping, and 5.21% spirituality (11.46% chose knowledge, 8.33% chose making money, and 3.13% chose art). The manipulation check measure of value meaning was higher in the high-value-focus condition (M = 3.97, SD = 0.69) than in the low-value-focus condition (M = 2.13, SD = 1.04; t(152.87) = −14.12, p < .001, Cohen's d = 2.10).

7.2.2. Meaning Search × Value-Focus effect on approach motivation (LFA)

We used PROCESS Model 1 (Hayes, 2013, Version 3) to test the Meaning Search × Value-Focus (1 = high value-focus; 0 = low value-focus) effect on LFA, controlling for baseline LFA. As shown in Fig. 2, at AF3AF4 there was a significant interaction effect, b = 0.07, SE = 0.03, t(182) = 2.51, p = .013, 95% bootstrap CI [0.02, 0.13]. At high meaning search (+1SD) the conditional effect of value-focus increased transient approach motivation, b = 0.07, SE = 0.03, t(182) = 2.16, p = .032, 95% CI [0.01, 0.13]. (At low meaning search (-1SD) the conditional effect of value-focus was not significant, b = −0.04, SE = 0.03, t(182) = −1.41, p = .160, 95% CI [−0.11, 0.02].) Importantly, the significant effects on LFA were specific to the AF3AF4 electrode pair site, as also found in our pilot study. Interaction effects at the other sites were non-significant: F3F4 b = 0.06, SE = 0.04, t(182) = 1.41, p = .161, 95% bootstrap CI [−0.02, 0.15]; F7F8 b = −0.04, SE = 0.10, t(179) = −0.34, p = .731, 95% bootstrap CI [−0.24, 0.17]; and FC5FC6 b = −0.02, SE = 0.04, t(181) = −0.44, p = .664, 95% bootstrap CI [−0.10, 0.06].

[7] Our focus was on relative changes in LFA as a function of our experimental manipulation. For the sake of the data collection efficiency that the headsets afforded we were willing to accept possible differences in absolute signal power between our headsets vs. more conventional gel-based systems with different referencing schemes.

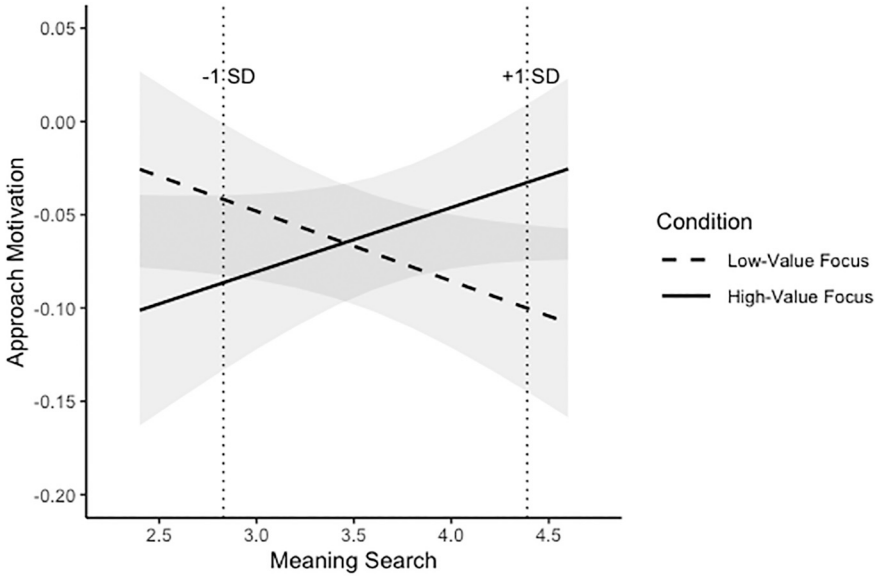

Fig. 2. Study 1 Meaning Search × Value-Focus effect on approach motivation (LFA = ln AF4 α power – ln AF3 α power) controlling for baseline LFA. The mean of approach motivation (LFA) at baseline was −0.065 (*SD* = 0.598) and did not significantly differ as a function of conditions or meaning search. Dotted lines indicate +/− 1 standard deviation of meaning search (*SD* = 0.78) and bands indicate 95% confidence intervals.

7.2.3. Meaning Search × Value-Focus effect on Belligerence

Similar to LFA, we used PROCESS Model 1 (Hayes, 2013, Version 3) to test the Meaning Search x Value-Focus (1 = high value-focus; 0 = low value-focus) effect on Belligerence. For this analysis, we included data from all available participants (i.e., even those for whom we were not able to get EEG data; *N* = 224); however, results remained the same if we included only participants with EEG data. The interaction was significant, *b* = −0.22, *SE* = 0.10, *t*(220) = −2.16, *p* = .032, 95% CI [−0.43, −0.02]. The simple effect of the manipulation was significant at high meaning search indicating that, for people high in meaning search, value focus significantly decreased belligerence, *b* = −0.30, *SE* = 0.11, *t*(220) = −2.73, *p* = .007, 95% CI [−0.53, −0.08]. (The simple effect of the manipulation was not significant at low meaning search (−1 SD), *b* = 0.04, *SE* = 0.11, *t*(220) = 0.34, *p* = .732, 95% CI [−0.18, 0.26].)

7.2.4. Mediational analysis: Meaning Search × Value-Focus effect on reduced Belligerence through approach motivation (LFA)

A mediational analysis using PROCESS Model 8 (Hayes, 2013, Version 3), with baseline LFA as a covariate, revealed that the indirect effect through approach motivation of the Meaning Search × Value-Focus interaction effect on Belligerence was not significant (see Fig. 3). The index of moderated mediation was −0.03, and the 95% bootstrap confidence interval included zero, CI [−0.10, 0.01]. On its own, this non-significant result in Study 1 does not support our hypothesis. The mini-meta-analysis of this moderated mediation of belligerence across Studies 1 and 2 is statistically significant, however (see General Discussion). In sum, replicating our pilot study result (with the same Meaning Search scale moderator, the same EEG index of approach motivation, at the same frontal electrode pair site) Study 1 indicated that for meaning searchers, focus on their most important values heightened approach motivation as indexed by a measure of LFA that was taken during the value-focus exercise. There was also a non-significant trend toward the interaction effect on approach motivation mediating less belligerence. (See the Limitations section in the General Discussion for consideration of mediation model limitations.)

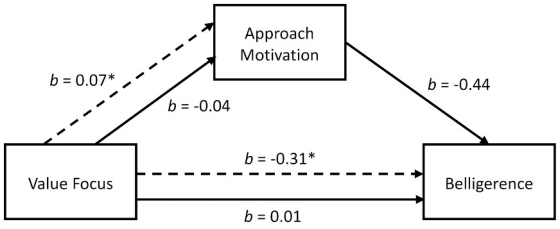

Fig. 3. Study 1 mediation model of the simple indirect effects on Belligerence of the Value-Focus manipulation (high = 1; low = 0) at high (dashed arrows) and low (solid arrows) Meaning Search through approach motivation (LFA), controlling for baseline LFA. All estimates are unstandardized regression coefficients. *$p < .05$.

8. Study 2

We designed Study 2 to replicate and extend the findings from Study 1 with a larger sample size across three different versions of the transcendence-focus condition (high values, spirituality, and compassion) vs. three versions of the control condition that focused on less self-transcendent topics (low values, personal power, and personal desire). Spirituality is an orientation toward transcendence that refers to connection with an inspiring power beyond the temporal self.[8] Compassion and related constructs (grace, love, charity, forgiveness) are self-transcendent core values and virtues in religious and secular forms of spirituality (Armstrong, 2006; Sheldrake, 2013). Study 2 also added an experimental manipulation of whether approach motivation was assessed during vs. after the transcendence-focus manipulation. This allowed us to test the prediction that it would be the initial surge in approach motivation aroused during transcendence-focus (not ambient approach motivation later on) that would mediate the subsequent drop in belligerence later on.

This is an important theoretical distinction because highly activated approach states tend to be closed-minded, with narrowed attention around the focal goal (Harmon-Jones et al., 2012) in order to sustain commitment, absorption, and freedom from distractions and conflicts

[8] Secular definitions of spirituality usually refer to experiential connection with powerful phenomena beyond the temporal self (e.g., meaning, values, truth, nature, love, or the cosmos); religious definitions usually involve experiential closeness to God or holiness (Sheldrake, 2013; Zinnbauer, Pargament, & Scott, 1999).

(Harmon-Jones et al., 2009). If the surge in approach motivation aroused during transcendence-focus persisted afterwards, then its tendency to make people closed-minded would be hard to square with open-minded freedom from belligerence after transcendence-focus. Our prediction that the surge in approach motivation would be limited to the duration of transcendence focus, but could still mediate longer-term reductions in belligerence is consistent with the theoretical model (see Fig. 1b) in which the transient surge in BAS causes a longer-lasting reduction in BIS-activation, which relieves motivation for defensive belligerence.

Other changes from Study 1 included: increasing statistical power (i.e., by tripling the *n* across the three versions of the transcendence and control conditions); using the most common self-report marker of approach motivation in place of the Study 1 EEG measure to bolster face and construct validity; adding a psychological threat for all participants before the transcendence manipulation to arouse more motivation for defensive belligerence (instead of just having the threat implied by the repugnant nature of the dependent measure that all participants experienced in Study 1); assessing belligerence an average of 20 min after the transcendence manipulation to demonstrate even though the BAS activation is transient, its effects on belligerence are more persistent; and using a different measure of (religious) belligerence to generalize the effect.

8.1. Method

8.1.1. Participants and procedure

We gave partial course credit to 539 undergraduates who participated online in what was advertised as an investigation of experiences, personality traits, and opinions. The study materials were programmed and delivered using Qualtrics™ software. Our data-collection stop rule was to maximize statistical power by recruiting as many participants as the undergraduate participant pool quota would allow in the academic term. Eight participants failed to complete any of the Meaning Search scale items, and 41 were excluded for self-reported non-conscientious responding using the same exclusion criteria as in Study 1. These exclusions left 490 participants (172 male, 318 female; *M*age = 19.96, *SD* = 2.96, age range: 17–38) for the statistical analyses. Reflecting the diversity at a liberal-arts public university in Canada's most multicultural city, participants' religious identifications were: Agnostic (11%), Atheist (7%), Buddhist (4%), Christian (38%), Hindu (7%), Jewish (5%), Muslim (14%), Sikh (5%), and other (9%). A sensitivity power analysis for the predicted interaction conducted in G*Power (Faul et al., 2007; multiple regression R^2 increase, alpha = 0.05, power = 0.80, total predictors = 7) indicated that, given this sample size, the study was powerful enough to detect a minimum effect size $f^2 = 0.02$.

After completing eight personality trait scales to bolster the "personality traits" cover story all participants completed a personal relationship-uncertainty threat exercise to arouse BIS-linked defensive motivation (see Jonas et al., 2014 for review of evidence that this manipulation arouses BIS-activation and defensive belligerence). They then completed the transcendence-focus manipulation materials, crossed by a randomly assigned manipulation of whether approach motivation was assessed during vs. after transcendence-focus. Next participants completed 12 personality trait scales to provide the time-delay necessary to show longer-term effects on the religious belligerence measure that was assessed at the very end of the study (i.e., an average of 20 min later). The last of these assessed the trait Meaning Search scale (the hypothesized moderator, as in Study 1) immediately before the main dependent measure of religious belligerence (from McGregor, Nash, & Prentice, 2010). Finally, following Ferriday (2015, Study 1), along with the measure of religious belligerence we also included a measure of non-defensive religious integrity. This allowed us to statistically control religious integrity in order to obtain a purer measure of religious belligerence, unconfounded by earnest religious devotion (which among undergraduates, usually tends to be magnanimous; Schumann, McGregor, Nash, & Ross, 2014).

We predicted a three-way Meaning Search × Transcendence-Focus × Approach Motivation Assessment Period interaction effect on approach motivation. We expected highest approach motivation among high meaning search participants in the transcendence-focus condition, and in the condition in which approach motivation was assessed during transcendence focus. We further predicted that this transient increase in approach motivation would mediate persistent freedom from religious belligerence (i.e., 20 min later).

8.1.2. Threat exercise (all participants)

To provide a psychological threat conducive to activation of defensive religious belligerence (for the transcendence-focus to relieve), right before the transcendence-focus manipulation all participants had two minutes to describe: "*a relationship with a friend, partner, or family member in which things seem to be going poorly and the future of the relationship feels uncertain.*" They were then given two more minutes to describe: "*the emotions that thinking about this uncertain relationship arouses in you.*" In past research this relationship threat has caused anxiety-related distress and various forms of defensive belligerence (Ferriday, 2015; McGregor & Marigold, 2003; McGregor, Nash, & Prentice, 2010, Study 3; Nash et al., 2011).

8.1.3. Trait meaning search (moderator variable)

We used the same Meaning Search scale as in Study 1; Cronbach's α reliability was 0.86.

8.1.4. First independent variable: Manipulation of Transcendence-Focus

For the experimental manipulation of transcendence-focus that served as our main independent variable, we randomly assigned participants to either complete one of three versions of the transcendence condition (collapsed for the main analysis) or one of three versions of the non-transcendence control conditions (collapsed for the main analysis). In all cases participants were allowed 3 min to write about the featured topic. The three versions of the transcendence-focus manipulation were the high-value-focus version from Study 1, a spirituality version, and a compassion version as follows. Instructions for the new spirituality version of the transcendence-focus condition were:

> Select the value from the list [same list as in the values versions] that is MOST important to your spirituality, and in the text box below describe *why* it is important to your spirituality, and *how* you've acted according to this value in the past and plan to in the future.

Instructions for the new compassion version of the transcendence-focus condition were:

> Select the domain [from the same list as in the values versions] in which you are most compassionate and kind toward others… Describe why being compassionate in this domain is important to you, how you've acted compassionately in this domain in the past, and how you plan to in the future.

The three versions of the non-transcendence control condition were the low-value-focus version from Study 1, a personal power version, and a personal desire version, as follows. Instructions for the new personal power version of the control condition (adapted from Galinsky, Magee, Inesi, & Gruenfeld, 2006) were:

> Recall a particular incident in which you had power over another individual or individuals. By power, we mean a situation in which you controlled the ability of another person or persons to get something they wanted, or were in a position to evaluate those individuals. Please describe this situation in which you had power—what happened, how you felt, etc.

Instructions for the new personal desire version of the control condition were:

Select the domain [from the same list as in the values versions] in which you are most determined, eager, strong, and confident in approaching outcomes that you want…Describe why it is important to you to be so determined in this domain, and how you've been determined in this domain in the past and plan to in the future.

8.1.5. Second independent variable: Manipulation of Approach Motivation Assessment Period (i.e., whether assessed during or after transcendence-focus)

To test whether it would specifically be the initial surge in approach motivation aroused during transcendence-focus that would mediate more persistent freedom from belligerence, we randomly assigned participants to complete the state BAS DV (described next) either during-focus vs. after-focus once the transcendence exercise had ended. In the during-focus condition, after writing about the transcendence or control topic participants read "Thank you for your honest responses … so far. You are almost finished … just a few minutes' worth of questions left in this section, relating to your feelings." In the after-focus condition, the instructions read, "Thank you for completing the section … For the remainder of this study most of the questions will now be more general." This differential wording varied whether the transcendence manipulation task was still framed as ongoing (i.e., during-focus), or finished (i.e., after-focus) while participants completed the BAS DV.[9] This is an important distinction in our theoretical model (illustrated in Fig. 1b) that stipulates it should specifically be the transiently activated BAS during focus on transcendence that sets off the motivational chain of events culminating in freedom from belligerence.

8.1.6. First dependent variable: State approach motivation (BAS)

Participants completed a state-modified version of the trait Behavioral Activation scale (Carver & White, 1994; 13-items; following Schmeichel, Harmon-Jones, & Harmon-Jones, 2010), rating their agreement with each item on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*. The BAS scale was developed by Carver and White (1994) to be a trait measure of approach motivation, and along with LFA it is now one of the most widely used research tools for assessing BAS (e.g., see Harmon-Jones & Gable, 2018). To assess state-BAS instead of trait BAS we modified the wording to focus on states "right now:" "Please rate your agreement with each of the following statements on the extent to which each feels like it applies to you right now" (following Cavallo, Fitzsimons, & Holmes, 2009; Hayes, Ward, & McGregor, 2016). We also modified the wording of the items so that they too would refer to conditional states instead of traits, e.g., "It would affect me strongly if something good happened to me" and "I would go all-out to get something I wanted." Cronbach's α reliability was 0.88.

8.1.7. Second dependent variable: Religious Belligerence

At the end of the experiment, roughly 15 to 20 min after the transcendence-focus manipulation ($Mdn_{elapsed\_time}$ = 15.11; $M_{elapsed\_time}$ = 19.95, with three extreme outliers removed) all participants indicated the "religious belief system" that they most closely identified with (agnostic, atheist, Buddhist, Christian, Hindu, Jewish, Muslim, Sikh, Other) and then completed the Religious Zeal scale (McGregor, Nash, & Prentice, 2010). For Religious Belligerence scores we averaged the scale's 11 religious extremism and jingoism items (from McGregor, Nash, & Prentice, 2010). In past research these items loaded together to define a common factor with scores that were defensively elevated by a relationship threat like the one all participants completed at the beginning of the study (Ferriday, 2015). The items were:

I would support a war that defended my religious beliefs.

If I really had to, I would give my life for my religious beliefs.

I will do whatever is necessary to help my religious beliefs prosper in society.

In my heart I believe that my religious beliefs are more correct than others.

It is wise to keep a wary distance from people who distract me from living according to my religious beliefs.

In the end, those who oppress my religious beliefs will suffer for their ignorance.

If everyone followed my religious beliefs, the world would be a much better place.

Harmful misinformation is too often spread about my religious beliefs by ignorant people.

If necessary, I would endure much pain and suffering to stay true to my religious beliefs.

Today's society is in desperate need of the wisdom of my religious beliefs.

My strongest relationships are with those who have the same religious beliefs as I do.

We also assessed the other five items from the Religious Zeal scale that are worded less militantly and that have loaded onto a separate religious integrity factor from the religious belligerence items (Ferriday, 2015 Study 1; McGregor, Nash, & Prentice, 2010, Study 3):

I aspire to live and act according to my religious beliefs.

I am confident in my religious beliefs.

My religious beliefs are grounded in objective truth.

Most people would agree with my religious beliefs if they took the time to understand them rather than just relying on stereotypes about them.

If my religious beliefs were being publicly criticized I would argue to defend them.

For all items, participants rated their agreement on a 5-point scale (from 1 = *strongly disagree* to 5 = *strongly agree*). For all analyses with Religious Belligerence as the dependent variable we included the Religious Integrity subscale as a covariate to show that effects we were specifically on belligerence, beyond earnest devotion (which among undergraduates, usually tends to be magnanimous; Schumann et al., 2014). Cronbach's α reliability of Religious Belligerence and of Religious Integrity were 0.92 and 0.88, respectively. All significant effects on Religious Belligerence reported below remain significant with or without Religious Integrity as a covariate (all results with and without the covariate are reported in OSD).

8.2. Results and discussion

8.2.1. Meaning Search × Transcendence-Focus × Approach Motivation Assessment Period effect on approach motivation (BAS)

We used Hayes' (2013, Version 3) PROCESS Model 3 with 5000 bootstrap samples to regress BAS on Meaning Search (mean centered), Transcendence-Focus (1 = collapsed high-value, spirituality, compassion; 0 = collapsed low-value, power, desire), Approach Motivation Assessment Period (1 = during-focus; 0 = after-focus), and all higher-order interactions. As shown in Fig. 4a, the three-way interaction significantly predicted the BAS measure of approach motivation, b = 0.41, SE = 0.09, $t(482)$ = 4.42, $p < .001$, 95% bootstrap CI [0.23, 0.59]. Power was not adequate to meaningfully test the three-way interaction for each specific version of the transcendence-focus condition vs. each

[9] Three different versions of the after-focus condition materials presented the after-focus framing and subsequent measure of approach motivation either immediately after, a few minutes after, or several minutes after the transcendence-focus manipulation (i.e., with zero, one, or two blocks of intervening personality questionnaires providing the delays as necessary). The three-way interaction effect on approach motivation was similarly shaped and significant when using any of the after-focus versions alone (p = .001, p = .003, and $p < .001$, respectively, in the immediate, short delay, and long delay versions), and so we combined them into a single after-focus condition. These results indicate that as soon as a transcendence-focus ends, its transient effect on high meaning searchers' approach motivation also ends. There does not appear to be any lingering effect on approach motivation after transcendence-focus ends.

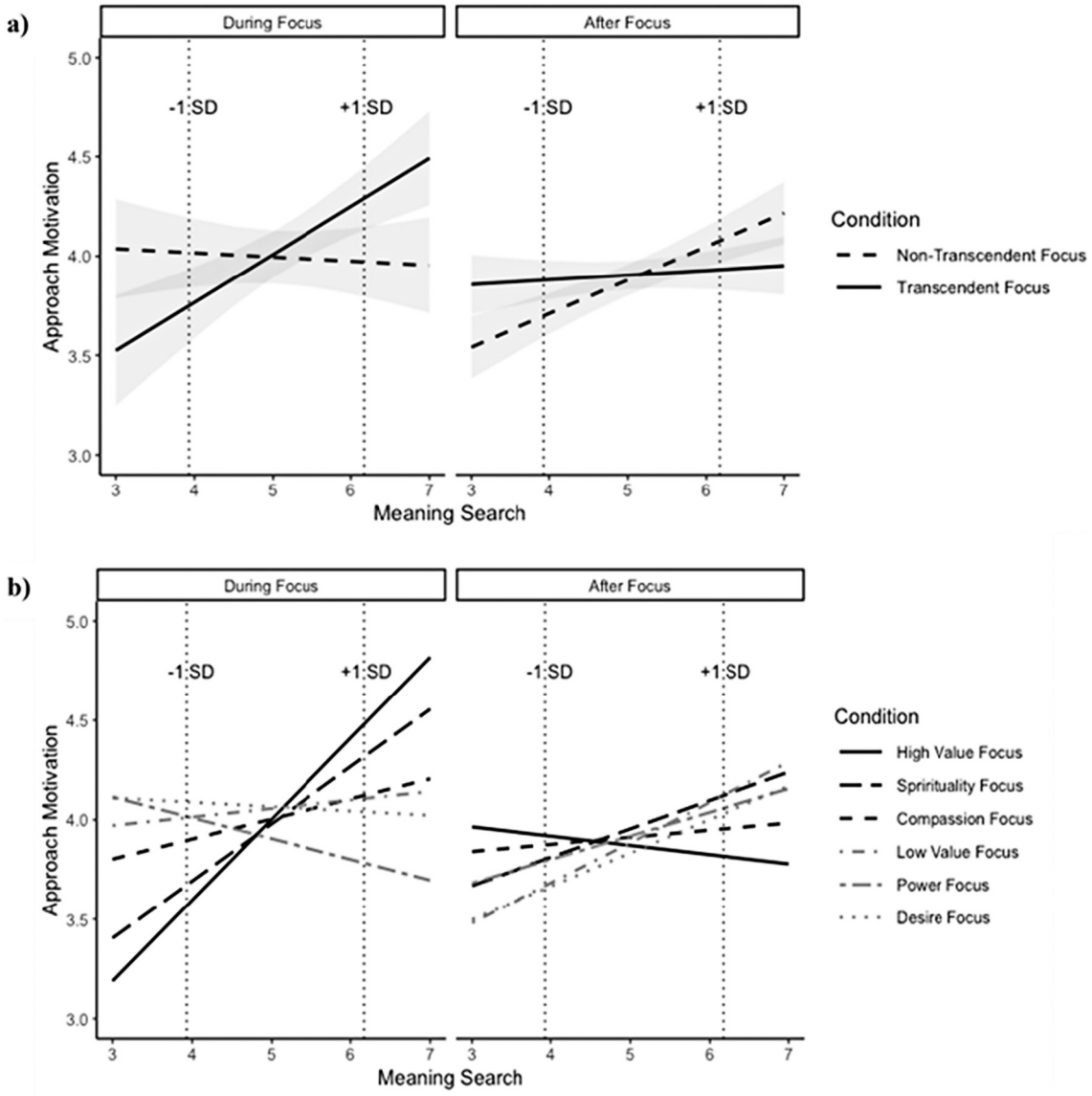

Fig. 4. Study 2 Meaning Search × Transcendence-Focus × Approach Motivation Assessment Period interaction effects on approach motivation (self-reported BAS, 1–5 scale). a) With overall Transcendence-Focus (i.e., collapsed high-value, spirituality, compassion vs. collapsed low-value, power, desire). Bands indicate 95% CIs. b) Showing each version of the transcendence and control conditions. Vertical dotted lines indicate +/− 1 SD of Meaning Search (*SD* = 1.12).

specific version of the control condition, but see Fig. 4b for the pattern of specific results.[10]

Consistent with the pattern from Study 1, when approach motivation was assessed in the during-focus condition, there was a significant, conditional Meaning Search × Transcendence-Focus interaction effect on approach motivation, $b = 0.26$, $SE = 0.08$, $t(482) = 3.33$, $p < .001$, 95% CI [0.11, 0.42] (in the after-focus condition, in contrast, it was in the opposite direction, $b = -0.15$, SE = 0.05, $t(482) = -3.03$, $p = .003$, 95% CI [−0.24, −0.05]). The conditional effect of transcendence in the during-focus condition at high meaning search (+1 *SD*) was also significant, $b = 0.32$, $SE = 0.12$, $t(482) = 2.65$, $p = .008$, 95% CI [0.08, 0.56] (in contrast, at low meaning search (−1 SD) it was in the opposite direction, $b = -0.27$, $SE = 0.13$, $t(482) = -2.05$, $p = .040$, 95% CI [−0.52, −0.01]). These results extend the Study1 finding that at high meaning search, value-focus heightened approach motivation. The Study 2 results generalize this effect to other transcendent phenomena (see Fig. 4b), and demonstrate that the surge in approach motivation lasts only while focus is on transcendence.

8.2.2. *Meaning Search × Transcendence-Focus effect on Religious Belligerence*

We used PROCESS Model 1 (Hayes, 2013, Version 3) to test the Meaning Search (mean centered) x Transcendence-Focus (1 = collapsed high-value, spirituality, compassion; 0 = collapsed low-value, power, desire) interaction effect on Religious Belligerence, controlling for

[10] Evidence that the overall effect was not entirely driven by the high-value vs. low value version of the transcendence-focus manipulation comes from the significant three-way interaction effect across the collapsed spirituality/compassion versions of the transcendence-focus condition (vs. the collapsed power and desire versions of the control condition), $b = 0.32$, $SE = 0.12$, $t(309) = 2.61$, $p = .010$, 95% bootstrap CI [0.08, 0.57]. Weaker effects may have occurred in each of the spirituality and compassion-focus versions of the transcendence-focus manipulation than after the value-focus version because spirituality and compassion are more specific sub-categories of self-transcendence than high values. They require all participants in those conditions to frame their values in a specific way that may be unintuitive for some. For example, a hardnosed secular humanist with highest values related to environmental action might find it awkward to have to frame them as compassionate or spiritual.

Religious Integrity. There was no reason to expect total effects on Religious Belligerence to be affected by Approach Motivation Assessment Period, therefore, we did not include it in this model. Unexpectedly and in contrast to the result in Study 1, this interaction effect was not significant, $b = -0.05$, $SE = 0.05$, $t(483) = -0.86$, $p = .389$, 95% CI [−0.15, 0.06] and neither were the conditional effects of transcendence-focus on Religious Belligerence at high meaning search (+1 SD), $b = -0.07$, $SE = 0.09$, $t(483) = -0.80$, $p = .425$, 95% CI [−0.24, 0.10], nor at low meaning search (-1SD), $b = 0.04$, $SE = 0.08$, $t(483) = 0.42$, $p = .677$, 95% CI [−0.13, 0.20]. It is not clear why this interaction effect on belligerence was significant in Study 1 but not in Study 2, but one reason could be the longer time (20 min in Study 2 vs. 3 min in Study 1) between the experimental manipulation and the measure of belligerence. Despite this non-significant interaction effect in Study 2 there was a significant meta-analysis of this interaction effect on belligerence across Studies 1 and 2 (see meta-analysis in the General Discussion), and as reported next, its indirect effect through approach motivation was significant in Study 2.

8.2.3. Mediational analysis: Meaning Search × Transcendence-Focus × Approach Motivation Assessment Period effect on Religious Belligerence through BAS

Finally, for the main analysis Study 2 was designed to test, we used PROCESS Model 13 (Hayes, 2013, Version 3) to test whether the Meaning Search × Transcendence-Focus × Approach Motivation Assessment Period (1 = during-focus; 0 = after-focus) interaction indirectly influenced Religious Belligerence, controlling for Religious Integrity, through BAS. Model 13 specifies a three-way interaction predicting the mediator only and a two-way interaction predicting the outcome controlling for the mediator (see conceptual model diagram in the OSD). The indirect effect was significant, with an index of doubly moderated mediation = −0.13, 95% bootstrap CI [−0.21, −0.06]. The three-way interaction predicted more BAS, which predicted less belligerence.

For a comparable analysis to the moderated mediation reported in Study 1, we also tested the conditional indirect effect in the during-focus condition, of the Meaning Search x Transcendence-Focus interaction on Religious Belligerence, controlling for Religious Integrity, through approach motivation. As in Study 1 this indirect effect was significant with the index of conditional moderated mediation = −0.09, 95% bootstrap CI [−0.15, −0.04]. In the after-focus condition, this effect was significant but in the opposite direction, with its index of conditional moderated mediation = 0.05, 95% bootstrap CI [0.01, 0.09]. As shown in Fig. 5, this reversal was driven by the precipitous drop off in approach motivation measured after vs. during transcendence-focus, attesting to its transience and defensive-approach-ameliorating function.

As shown in Fig. 5 there was a significant, conditional, simple indirect effect of transcendence-focus on Religious Belligerence through approach motivation at high Meaning Search (+1 *SD*) in the during-focus condition, with the conditional indirect effect = −0.11, 95% bootstrap CI [−0.20, −0.03], but not in the after-focus condition, index = 0.05, 95% bootstrap CI [−0.01, 0.11]. Further, the conditional simple indirect effect at low meaning search (−1 SD) in the during-focus condition was significant in the opposite direction, index = 0.09, 95% bootstrap CI [0.004, 0.18]; see the General Discussion for speculation about the unexpected reversal at low meaning search).

These results indicate that for meaning searchers, transcendence-focus heightened approach motivation which, in turn, predicted less belligerence. Moreover, these results demonstrate it is specifically transient (not persistent) approach motivation, activated during transcendence-focus that mediated a more persistent freedom from belligerence.[11] (All significant effects on Religious Belligerence remained significant without the Religious Integrity covariate. Both sets of results are tabled in the OSD. See the General Discussion for consideration of mediation model limitations.)

In sum, the results of Study 2 generalize and extend those of Study 1 using different transcendence-focus manipulations, a self-report measure of approach motivation instead of an EEG one, and a measure of religious belligerence instead of punitive moral belligerence. Importantly, the effects on approach motivation held only when approach motivation was assessed during (but not after) transcendence-focus. Despite the transience of approach motivation, however, the effect on magnanimity lasted for about 20 min. This is consistent with our theoretical model (illustrated in Fig. 1b) in which transcendence-focus transiently activates BAS to cause a more persistent quelling of BIS and belligerence.

9. General discussion

An internal meta-analysis using the Stouffer's *Z* test method (Goh, Hall, & Rosenthal, 2016; Whitlock, 2005) found that across the two studies the Meaning Search × Transcendence-Focus interaction significantly predicted transient approach motivation (i.e., assessed during transcendence-focus), $z = 4.11$, $p < .001$.[12] The meta-analytic conditional effect of transcendence-focus at high meaning search also significantly predicted transient approach motivation, $z = 3.38$, $p < .001$. When these same analyses were run combining the results across Study 1 and Study 2 with only the high value-focus vs. low value-focus versions of the conditions, the statistics were $z = 3.86$, $p < .001$, and $z = 3.01$, $p = .003$, respectively. This effect of meaningful self-transcendence on approach motivation may help explain why the buoyant states arising from self-transcendence can feel like a kind of higher power for people who seek meaning. Power is a common and potent catalyst of approach-motivated states (Guinote, 2017).

Further, the meta-analytic Meaning Search × Transcendence-Focus interaction effect on transient approach motivation significantly mediated freedom from belligerence, $z = -3.02$, $p = .003$, operationalized as low Moral Belligerence in Study 1 and low Religious Belligerence in Study 2. The meta-analytic conditional indirect effect of transcendence-focus at high meaning search through approach motivation was, $z = -2.54$, $p = .011$. When these same analyses were run combining Study 1 with Study 2 results from only the high vs. low value-focus versions of

[11] For a more direct replication of Study 1, we repeated the analysis reported above with the high (vs. low) value-focus conditions only, and found a significant indirect effect, through approach motivation, of the three-way Meaning Search × Value-Focus × Approach Motivation Assessment Period interaction on religious belligerence, with the index of doubly moderated mediation = −0.29, 95% bootstrap CI [−0.46, −0.12]. Further analysis of mediation by approach motivation, of the conditional Meaning Search x Value-Focus interaction effect in the during-focus condition, revealed a significant index of conditional moderated mediation = −0.18, 95% bootstrap CI [−0.28, −0.05]. Finally, the mediation by approach motivation of the conditional effect of transcendence on magnanimity (in the during-focus condition at high meaning search) had a significant, conditional indirect effect = −0.21, 95% bootstrap CI [−0.43, −0.04].

[12] For the meta-analyses we used the Study 2 simple interaction effect in the during-focus condition.

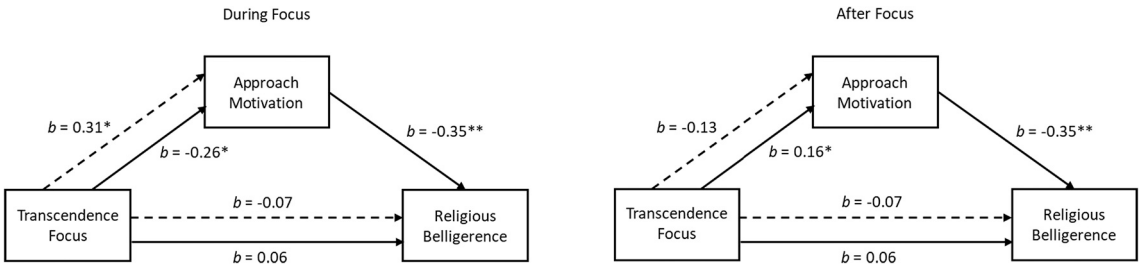

Fig. 5. Study 2 mediation model of simple indirect effects on Religious Belligerence through approach motivation of the Transcendence-Focus manipulation (collapsed high-value, spirituality, compassion focus = 1; collapsed low-value, power, desire focus = 0) at high (dashed arrows) and low (solid arrows) Meaning Search, with approach motivation assessed during-focus (left panel) and after-focus (right panel). All estimates are unstandardized regression coefficients. * $p < .05$; ** $p < .001$.

the conditions the statistics were $z = -2.88$, $p = .004$ and $z = -2.26$, $p = .024$, respectively. Together, these results indicate that for meaning searchers, transcendence focus confers both aspects of magnanimity—approach motivated buoyancy and freedom from belligerence.

Finally, the meta-analysis of the total Meaning Search x Transcendence-Focus interaction effect on belligerence, and the conditional effect of transcendence-focus on belligerence at high meaning search were z = −2.13, $p = .033$ and z = −2.48, $p = .013$. When these same meta-analyses were run only among participants across the two experiments who completed the highest-value vs. lowest-value version of the transcendence-focus manipulation the statistics were $z = -2.95$, $p = .003$ and $z = -2.76$, $p = .006$. These findings connect the present work with past research guided by self-affirmation theory showing that focus on high values can make people less belligerent. The moderation by meaning-search and mediation by transient approach motivation help provide a more complete understanding of the motivational mechanics.

Overall, these results contribute to an integrative view of threat, defense, and magnanimity. Previous research has found that after BIS-activating threats some people reactively turn to belligerent values and compensatory convictions to spur reactive approach motivation for relief from aversive BIS-states (reviewed Jonas et al., 2014; see Fig. 1a). For example, they become more dogmatic about moral opinions and priorities, more vengeful against moral offenders, and more belligerent about ideological and religious judgments (McGregor et al., 2001; McGregor et al., 2012, 2013; McGregor, Nash, & Prentice, 2010; Nash et al., 2011; Randles, Inzlicht, Proulx, Tullett, & Heine, 2015; Schumann et al., 2014; Van den Bos, 2009). Such belligerent extremes function as defensive levers for mobilizing palliative BAS (for EEG, self-report, and behavioral evidence, see McGregor et al., 2007; McGregor, Nash, & Inzlicht, 2009; McGregor, Nash, Mann, & Phills, 2010). The reactive belligerence is supplanted, however, if the BIS-linked distress arising from threat can be pre-emptively neutralized some other way (Greenberg et al., 2003; Nash et al., 2011; Proulx & Heine, 2008; Randles et al., 2015; Randles, Heine, & Santos, 2013). The present research suggests that BAS activation arising from self-transcendence focus is one way that BIS and reactive belligerence can be supplanted.

9.1. *Self-distance and the decoupling of self from distress*

The transcendence-induced approach-motivation findings are compatible with accounts of how self-distancing can improve magnanimity. Viewing the self from a broader or more remote perspective increases approach motivation for trait-anxious people (Eftekhari, Tran, & McGregor, 2017) and also reduces distress and improves self-control (Fujita, Trope, Liberman, & Levin-Sagi, 2006; Grossmann, 2017; Kross & Ayduk, 2017; Kross, Gard, Deldin, Clifton, & Ayduk, 2012; Mischkowski, Kross, & Bushman, 2012). The self-distance allows one to attend to other foci beyond threats that "may engulf one's self-perception and keep it engulfed due to a difficulty of disengaging from the threat…until an outside intervention assists with disengagement" (Critcher & Dunning, 2015, p. 5). Reflecting on self-transcendent values may accomplish this kind of disengaging self-distance because, for meaning searchers, they are compelling enough to seize motivational focus, even in stressful circumstances. In doing so they transiently activate BAS states capable of muting BIS-linked self-focus (Jonas et al., 2014; Todd, Forstmann, Burgmer, Brooks, & Galinsky, 2015). Value-focus and other transcendence-related foci may thereby "uncouple" or "untether" the self from vigilant preoccupation with worrisome thoughts (Sherman, 2013) by transiently riveting attention onto reliably BAS-activating vistas that reboot the BIS (as proposed by Jonas et al., 2014). Even though the BAS is only transiently activated, once the BIS is uncoupled, it may stay uncoupled until reactivated.

9.2. *From transient approach motivation to persistent magnanimity*

One of the main purposes for Study 2 was to demonstrate that transient, but not persistent approach motivation mediates transcendence-focus effects on magnanimity. Results indeed revealed that the approach motivation was elevated only while participants actively focused on transcendence. This finding is consistent with evidence that abstract mindsets also do not persist after value-affirmation to mediate subsequent effects (Sherman et al., 2013). Thus, value/transcendence-focus does not seem to work by leaving participants floating on a cloud of eager abstraction, oblivious to threats on the ground. Indeed, value-focus makes people *better* able to track challenging complexities and details afterwards (Correll et al., 2004; Kang et al., 2018). Given that BAS mutes BIS, and value-focus persistently mutes phenomena related to the BIS (Creswell et al., 2005; Hirsh, Mar, & Peterson, 2012; Jackson et al., 2003; Jonas et al., 2014; Kang et al., 2018; Koole et al., 1999; McGregor, 2006a; Nash et al., 2011; Nash et al., 2012; Schmeichel & Martens, 2005), the present research is consistent with the view that for high meaning searchers, transient BAS activation arising from transcendence focus causes a persistent decrease in BIS-activation, which is what makes people less belligerent afterwards.

9.3. *Self-transcendent meaning search*

Across the two studies Meaning Search was the only one of the 78 trait scales assessed (see OSD), either during the study sessions or in mass-testing, that moderated value/ transcendence effects onto

magnanimity through approach motivation (i.e., mediation of the two-way interaction in Study 1, or of the simple two-way interaction in the during-focus condition in Study 2). The simplest explanation for why meaning search uniquely moderates transcendence-focus effects on approach motivation and magnanimity is that it reflects identification with the transcendent goals that transcendence-focus activates. Low meaning-searchers would presumably have fewer transcendent goals to be activated. This view could account for why, in contrast to our moderated effects, early value-focus research often reported main effects (Cohen & Sherman, 2014). Over the past 50 years focus on meaning and transcendence has become less normative. For young adults, "finding purpose and meaning in my life" as an important life goal has decreased from 80% to 50% (with a reciprocal increase in self-advancement and self-image goals; Twenge et al., 2012, pp. 1048–1052). Religious identity (a vector for self-transcendence and idealistic values) has also sharply dropped in the same time frame (Putnam, 2010). Earnest meaning search goals are less popular now than in the 1960s and 1970s when research on value-focus began (Ostrom et al., 1971).[13]

The question of why meaning searchers respond so readily to transcendence opportunities is further informed by findings that trait meaning search correlates positively with both BIS-related and BAS-related traits. Trait meaning search in our studies correlated positively with trait negative affect, stress, depression, rumination, neuroticism, uncertainty aversion, felt uncertainty, fear motivation, prevention-focus; and negatively with mindful acceptance, attachment security, self-esteem, meaning presence, vitality, (worldly) power, self-control, and conscientiousness. In contrast, however, meaning search also correlated positively with several approach-motivation-related tendencies, including trait BAS, hope, self-efficacy, independent self-construal, hypomania, openness to experience, anger, aggression, promotion-focus, faith in intuition, power motivation, authenticity, wisdom, eudaimonic motivation, and hedonic motivation (for similar findings see McGregor et al., 2012; Steger et al., 2006; Steger et al., 2008). In sum, meaning search seems to reflect a tendency toward BIS-linked vulnerability, but also toward BAS-linked hope (see OSD for Meaning Search scale correlations with all other scales included either in mass-testing or as filler traits in the studies presented here).

This dual, anxious but eager orientation may make meaning searchers especially sensitive to BIS-related distress (Hirsh et al., 2012; Proulx et al., 2012) and also inclined toward palliative BAS-activating phenomena for relief (Jonas et al., 2014), especially idealistic and self-transcendent ones (McGregor et al., 2012). The anxious and eagerly idealistic nature of meaning search is consistent with evidence that induced anxious distress heightens reactive meaning search (McGregor et al., 2001, Study 4; McGregor, Prentice, & Nash, 2009, Study 2) and that meaning search partially mediates links between distress and idealistic extremes and anger (Van Tilburg & Igou, 2016; Van Tilburg, Igou, Maher, & Lennon, 2019), both of which are approach-oriented (Harmon-Jones & Gable, 2018; McGregor et al., 2012).

The anxious but idealistic nature of meaning search is also consistent with demographic variables that predict who benefits most from transcendent-value-focus interventions. Value-focus effects on improved academic performance have been particularly strong among low SES Latinos, African Americans, and women who hold traditional gender stereotypes while taking STEM courses (Cohen et al., 2009; Miyake et al., 2010; Sherman et al., 2013). As highlighted by the authors of those studies, members of these demographic categories face extra challenges and stereotypes that make their academic environments more stressful. What has not been previously noted, however, is that these demographic categories also predict spiritual enthusiasm (Batson, Schoenrade, & Ventis, 1993, pp. 33–41; Brown, Taylor, & Chatters, 2015; Lehman & Sherkat, 2018; Miller & Hoffmann, 1995; Miller & Stark, 2002; Morgan, 1987; Ruiter & Van Tubergen, 2009). If spiritual enthusiasm reflects meaning search (Armstrong, 2006; Emmons & Schnitker, 2013; Saroglou, Delpierre, & Dernelle, 2004; Shariff, Willard, Andersen, & Norenzayan, 2016) then past value-focus effects may have also been effectively moderated by meaning search tendencies.

9.4. Limitations and future directions

The mediational analyses leave uncertainty about approach motivation effects on freedom from belligerence because this second link in the mediational model is correlational. Processes not measured could account for the relationship. Tentative confidence in the likely causal mediating role, however, comes from conformity of the results to the theoretically grounded transient-BAS-mediation hypothesis (i.e., Study 2 mediation by BAS measured during transcendence focus, but not after). Additional confidence comes from failure of other possible mediators to yield similar results (e.g., see non-significant results reported in the OSD for positive affect, negative affect, control). Tentative confidence also comes from the implausibility of the reverse causality scenario of low belligerence elevating approach motivation instead of vice-versa. Across the two studies, for high meaning searchers, experimentally manipulated transcendence-focus caused approach motivation (assessed while participants were writing and thinking about their transcendent values) and a decrease in the belligerence that was assessed either a few min later (in Study 1) or 20 min later (in Study 2). The reverse causation scenario of transcendence lowering belligerence first (before the immediately assessed approach motivation), which could then cause an increase in approach motivation is theoretically dubious because high, not low belligerence (hate, anger, aggression) triggers approach motivation (Carver & Harmon-Jones, 2009; Elnakouri et al., 2022).

Another limitation is that the present research was not designed to test the entire serial mediation chain, from value/transcendence-focus, through transient approach motivation, through persistent reduction in BIS-sensitivity, to reduced belligerence. We did not assess affect or motivation again, right before belligerence. Demonstrating interaction effects through two mediators was beyond our more limited ambition of revealing that the joint effects of meaning search and value/transcendence-focus on transient approach motivation would mediate freedom from belligerence. Future research should assess patterns of BAS activation and BIS-linked distress over time, as serial mediators. Future research should also test whether other meaning-and-transcendence-related interventions might produce similar effects (e.g., integrity, virtue, inspiration, ideals, morality, prosocial intentions, love, belongingness, broadened perspective, significance, sanctification, religious devotion, and other forms of spirituality or eudaimonic motivation; Costin & Vignoles, 2020; Critcher & Dunning, 2015; Crocker et al., 2008; Grant, 2012; Hernandez, Mahoney, & Pargament, 2011; Kang et al., 2018; McGregor & Little, 1998; McGregor et al., 2012; Nelson, Fuller, Choi, & Lyubomirsky, 2014; Park, 2005; Thrash, Elliot, Maruskin, & Cassidy, 2010; Walton & Cohen, 2011; Yeager et al., 2014).

Finally, future theoretical and empirical work is needed to understand the motivational dynamics after various self-transcendent vs. self-immersed interventions for people *low* on meaning search. We had expected them to show little reaction at all to self-transcendent topics due to their lack of interest, and because their relative absence of ambient

[13] Even in the early days of value-focus research, however, researchers often used other methods to ensure participants had strong value orientations akin to meaning search. The first demonstration that economic/political value affirmation could eliminate defensive rationalization effects in cognitive dissonance experiments used only participants who had been preselected for top-tertile scores "to identify a group of subjects with a strong economic-political value orientation" (the same strong values screen was used for aesthetic value affirmation in Study 3 of that paper; Steele & Liu, 1983, p. 7). In another seminal study, participants were preselected to be high on scientific or business values, and the defensiveness-eliminating value-focus involved affirmations of those preselected strong values (by wearing a scientific lab-coat vs. a business jacket; Steele, Hopp, & Gonzales, 1986).

trait-distress would make them less drawn to the kind of palliation that self-transcendence can confer for high meaning searchers. An internal meta-analysis, however, found a reversal such that among participants *low* in meaning search (−1 *SD*), in the during-focus condition, transcendence-focus predicted less approach motivation, $z = -2.44$, $p = .015$. For them, self-immersed focus on expedience/worth/power/status/pleasure may be what spurs BAS-mediated relief from anxious distress and defensiveness. This possibility is suggested by past research linking power, self-esteem, and fun/pleasure with approach motivation (Anderson & Berdahl, 2002; Carver & White, 1994; Heimpel, Elliot, & Wood, 2006; Keltner, Gruenfeld, & Anderson, 2003; May, Juergensen, & Demaree, 2016; McGregor et al., 2007, Study 2), and other research indicating that people with high but not low self-esteem are able to benefit from self-worth enhancement opportunities (Dodgson & Wood, 1998; McGregor, 2006a; Wood, Perunovic, & Lee, 2009; see OSD for negative correlation between meaning search and self-esteem). Another possibility is that such people dislike and are not used to focusing on self-transcendent topics, and so being forced to do so creates a conflict that activates the BIS (and thereby mutes BAS). Either way, if people high and low in meaning search prefer diametrically opposed foci (self-transcendent vs. self-immersed/expedient) for palliative relief from anxious distress, this could help account for perspective-taking difficulties between groups guided by idealistic vs. more worldly priorities.

9.5. Vicissitudes of higher power

If self-transcendent and immersed/expedient values are alternative routes to BAS-linked self-soothing (cf. Schwartz, 1992) future research should investigate trade-offs for adaptive functioning (cf. Huta and Ryan, 2010). Self-immersed/expedient priorities may be adaptive when things are going well, but self-transcendent foci may be more adaptive under personal or cultural conditions of pervasive threat. Indeed, trait-tendencies to focus more on virtue than pleasure predict wise reasoning in self-threatening but not in neutral circumstances (Huynh, Oakes, Shay, & McGregor, 2017). Historical support for the idea that self-transcendence may be especially attractive in distressing circumstances comes from evidence that religions tend to emerge and become more extreme during eras characterized by social chaos (Armstrong, 1993, 2000, 2006). Distress-linked traits, states, and experimental manipulations also predict meaning search (McGregor et al., 2001, Study 4; McGregor, Prentice, & Nash, 2009, Study 2; Park, 2016; Steger et al., 2008; Van Tilburg, Igou, & Sedikides, 2013). Distress-prone people may be drawn to transcendent foci that can be reliably approached, conceptually, by mere contemplation, for BAS-mediated hope and inspiration above the fray of BIS-inducing circumstances (McGregor et al., 2012).

Prevalence of meaning search in distressing circumstances does not necessarily mean it is adaptive, however (Steger & Dik, 2009; Park, 2016). Chronic meaning search could be a kind of over-idealism that distracts people from making progress on vital, real-world goals—a maladaptive addiction that prevents immersion in the here and now that is necessary for actually obtaining meaning (see Yalom, 1980, p. 483; cf. Heintzelman & King, 2014; Steger, 2013). Idealistic devotion can also sometimes tilt into smug sanctimony or self-righteous hate, as a way to activate BAS-linked meaning (Elnakouri et al., 2022). Future longitudinal and cross-cultural research is needed to assess the extent to which self-transcendent vs. self-immersed/expedient vs. balanced orientations are adaptive in easy vs. stressful life-stages and contexts.

Either way, the present research helps make sense of why some people become so fervently committed to spiritual or self-transcendent foci, for better or worse. There can be approach-motivated power in self-transcendence that can make people more magnanimous in threatening circumstances (see also Schumann et al., 2014). This abstraction-induced and motivationally-grounded feeling of higher power, and the magnanimity it supports, may be part of what moral philosophies, classic psychological theories, and spiritually oriented people and religions have been orienting to since the dawn of the human capacity for abstraction.[14]

10. Conclusion

The present research reveals how and for whom self-transcendence can confer magnanimity via approach motivation. In doing so it links the self-affirmation theory view of how values confer non-defensiveness with other work on benefits of fidelity with self-transcendent foci (McGregor & Little, 1998; Schlegel & Hicks, 2011; Schlegel, Hicks, King, & Arndt, 2011; Sheldon, 2014). For meaning searchers, transcendence focus arouses the kind of transient BAS state that can more persistently quell BIS-instigated distress and defensiveness.

Open practices

Complete transcripts of materials used in both studies are presented in the OSD at https://osf.io/9sb42/. Hypotheses were not pre-registered and data are not publicly archived because data were collected for both studies before 2015 when the authors began to routinely pre-register hypotheses and attain participants' consent to publicly archive their data. For data and code, contact the corresponding author.

Declaration of Competing Interest

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References

Adler, A. (1931). *What life should mean to you*. Boston: Little Brown.
Alcoholics Anonymous. (2001). *Alcoholics Anonymous: The story of how many thousands of men and women have recovered from alcoholism* (4th ed.). New York: Alcoholics Anonymous World Services, Inc.
Allport, G. W. (1955). *Becoming: Basic considerations for a psychology of personality*. New Haven: Yale University Press.
Alquist, J. L., Baumeister, R. F., McGregor, I., Core, T. J., Benjamin, I., & Tice, D. M. (2018). Personal conflict impairs performance on an unrelated self-control task: Lingering costs of uncertainty and conflict. *Journal of Experimental Social Psychology, 74*, 157–160.
Amodio, D. M., Shah, J. Y., Sigelman, H., Brazy, P. C., & Harmon-Jones, E. (2004). Implicit regulatory focus associated with asymmetrical frontal cortical activity. *Journal of Experimental Social Psychology, 40*, 225–232.
Anderson, C., & Berdahl, J. L. (2002). The experience of power: Examining the effects of power on approach and inhibition tendencies. *Journal of Personality and Social Psychology, 83*, 1362–1377.
Ansbacher, H. L., & Ansbacher, R. R. (1956). *The individual psychology of Alfred Adler*. New York, NY: Basic Books.
Armstrong, K. (1993). *A history of god: The 4,000-year quest of Judaism, Christianity, and Islam*. New York, NY: Ballantine Books.
Armstrong, K. (2000). *The battle for god: A history of fundamentalism*. New York: Ballantine Books.
Armstrong, K. (2006). *The great transformation: The beginnings of our religious traditions*. New York, NY: Alfred A. Knopf.

[14] Integrity with transcendent values is centrally prescribed by the world's four main monotheistic religions. In Judaism, "the integrity of the upright guides them, but the unfaithful are destroyed by their duplicity" (Proverbs, 11: 3, The Bible, New International Version). In Christianity "whatever is true, whatever is noble, whatever is right, whatever is pure, whatever is lovely, whatever is admirable—if anything is excellent or praiseworthy—think about such things (Phillipians 4:8, The Bible, New International Version). In Islam, peace to found by disciplined moral virtue in service of Allah (Miles, 2014, pp. 1377–1991), e.g., Anas ibn Malik reported that the Prophet said, "The one with good morals and character already owns the best of this world and the Hereafter" (Efendi & Bayrak, 2005). For Sikhs, the highest value is "living truthfully" (Singh & Fenech, 2014, *p. 234*).

Bartra, O., McGuire, J. T., & Kable, J. W. (2013). The valuation system: A coordinate-based meta-analysis of BOLD fMRI experiments examining neural correlates of subjective value. *Neuroimage, 76*, 412–427.
Batson, C. D., Schoenrade, P., & Ventis, W. L. (1993). *Religion and the individual: A social-psychological perspective*. Oxford University Press.
Berridge, K. C., & Robinson, T. E. (1998). What is the role of dopamine in reward: Hedonic impact, reward learning, or incentive salience? *Brain Research Reviews, 28*, 309–369.
Boksem, M. A., Smolders, R., & DeCremer, D. (2009). Social power and approach-related neural activity. *Social Cognitive and Affective Neuroscience, 7*, 516–520.
Borman, G. D., Grigg, J., Rozek, C. S., Hanselman, P., & Dewey, N. A. (2018). Self-affirmation effects are produced by school context, student engagement with the intervention, and time: Lessons from a district-wide implementation. *Psychological Science, 29*, 1773–1784.
Brown, R. K., Taylor, R. J., & Chatters, L. M. (2015). Race/ethnic and social-demographic correlates of religious non-involvement in America: Findings from three national surveys. *Journal of Black Studies, 46*, 335–362.
Burson, A., Crocker, J., & Mischkowski, D. (2012). Two types of value affirmation: Implications for self-control following social exclusion. *Social Psychology and Personality Science, 3*, 510–516.
Carver, C. S., & Harmon-Jones, E. (2009). Anger is an approach-related affect: Evidence and implications. *Psychological Bulletin, 135*(2), 183–204.
Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York, NY: Cambridge University Press.
Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319–333.
Cascio, C. N., O'Donnell, M. B., Tinney, F. J., Lieberman, M. D., Taylor, S. E., Strecher, V. J., & Falk, E. B. (2015). Self-affirmation activates brain systems associated with self-related processing and reward and is reinforced by future orientation. *Social Cognitive and Affective Neuroscience, 11*, 621–629.
Cavallo, J. V., Fitzsimons, G. M., & Holmes, J. G. (2009). Taking chances in the face of threat: Romantic risk regulation and approach motivation. *Personality and Social Psychology Bulletin, 35*, 737–751.
Cohen, G. L., Aronson, J., & Steele, C. M. (2000). When beliefs yield to evidence: Reducing biased evaluation by affirming the self. *Personality and Social Psychology Bulletin, 26*, 1151–1164.
Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *Science, 313*, 1307–1310.
Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustosk, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science, 324*, 400–403.
Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology, 65*, 333–371.
Cohen, G. L., Sherman, D. K., Bastardi, A., Hsu, L., McGoey, M., & Ross, L. (2007). Bridging the partisan divide: Self-affirmation reduces ideological close-mindedness and inflexibility in negotiation. *Journal of Personality and Social Psychology, 93*, 415–430.
Cook, J. E., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. (2012). Chronic threat and contingent belonging: Protective benefits of values affirmation on identity development. *Journal of Personality and Social Psychology, 102*, 479–496.
Corr, P. J. (2002). J. A. Gray's reinforcement sensitivity theory: Tests of the joint subsystems hypothesis of anxiety and impulsivity. *Journal of Individual Differences, 33*, 511–532.
Corr, P. J. (2004). Reinforcement sensitivity theory and personality. *Neuroscience & Biobehavioral Reviews, 28*, 317–332.
Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology, 40*, 350–356.
Costin, V., & Vignoles, V. L. (2020). Meaning is about mattering: Evaluating coherence, purpose, and existential mattering as precursors of meaning in life judgments. *Journal of Personality and Social Psychology, 118*(4), 864–884.
Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress response. *Psychological Science, 16*, 846–851.
Critcher, C. R., & Dunning, D. (2015). Self-affirmation provides a broader perspective on self-threat. *Personality and Social Psychology Bulletin, 41*, 3–18.
Crocker, J., & Canevello, A. (2012). Consequences of self-image and compassionate goals. In , *Vol. 45. Advances in experimental social psychology* (pp. 229–277). Academic Press.
Crocker, J., Niiya, Y., & Mischkowski, D. (2008). Why does writing about important values reduce defensiveness? Self-affirmation and the role of positive other-directed feelings. *Psychological Science, 19*, 740–747.
Crowell, A., Page-Gould, E., & Schmeichel, B. J. (2015). Self-affirmation breaks the link between the behavioral inhibition system and the threat-potentiated startle response. *Emotion, 15*, 146–150.
Depue, R. A., & Collins, P. F. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral and Brain Sciences, 22*, 491–517.
DeYoung, C. G., Peterson, J. B., & Higgins, D. M. (2005). Sources of openness/intellect: Cognitive and neuropsychological correlates of the fifth factor of personality. *Journal of Personality, 73*, 825–858.
Dodgson, P. G., & Wood, J. V. (1998). Self-esteem and the cognitive accessibility of strengths and weaknesses after failure. *Journal of Personality and Social Psychology, 75*, 178–197.
Durant, W. (1939). *The life of Greece*. New York: Simon and Schuster.
Dutcher, J. M., Creswell, J. D., Pacilio, L. E., Harris, P. R., Klein, W. M., Levine, J. M., … Eisenberger, N. I. (2016). Self-affirmation activates the ventral striatum: A possible reward-related mechanism for self-affirmation. *Psychological Science, 27*, 455–466.
Efendi, B. M., & Bayrak, T. (2005). *The path of Muhammad: A book on Islamic morals and ethics*. Bloomington, IN: World Wisdom, Inc.
Eftekhari, E., Tran, A., & McGregor, I. (2017). Decentering increases approach motivation among distressed individuals. *Personality and Individual Differences, 119*, 236–241.
Elnakouri, A., Hubley, C., & McGregor, I. (2022). Hate and meaning in life: How collective, but not personal, hate quells threat and spurs meaning in life. *Journal of Experimental Social Psychology, 98*, Article 104227.
Emmons, R. A. (1999). *The psychology of ultimate concerns: Motivation and spirituality in personality*. New York, NY: Guilford Press.
Emmons, R. A., & Schnitker, S. A. (2013). Gods and goals. Religion and purposeful action. In R. F. Paloutzian, & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 256–273). New York, NY: Guilford Press.
Epton, T., Harris, P. R., Kane, R., van Koningsbruggen, G. M., & Sheeran, P. (2015). The impact of self-affirmation on health-behavior change: A meta-analysis. *Health Psychology, 34*, 187–196.
Erikson, E. H. (1963). *Childhood and society*. New York: Norton.
Falk, E. B., O'Donnell, M. B., Cascio, C. N., Tinney, F., Kang, Y., Lieberman, M. D., et al. (2015). Self-affirmation alters the brain's response to health messages and subsequent behavior change. *PNAS, 112*, 1977–1982.
Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175–191.
Ferriday, C. (2015). *Forlorn and fervent: Religious radicalization of the meek*. Masters Thesis. Toronto, ON: York University.
Finley, A. J., Crowell, A. L., & Schmeichel, B. J. (2018). Self-affirmation enhances processing of negative stimuli among threat-prone individuals. *Social Cognitive and Affective Neuroscience, 13*, 569–577.
Frankl, V. E. (1959). *Man's search for meaning*. Boston, MA: Beacon Press (First published in German, in 1946, as From death-camp to existentialism.).
Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of Personality and Social Psychology, 90*, 351–367.
Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and perspectives not taken. *Psychological Science, 17*, 1068–1074.
Gazzaniga, M. (1995). Consciousness and the cerebral hemispheres. In M. Gazzaniga (Ed.), *The cognitive neurosciences*. Cambridge, MA: MIT Press.
Goh, J. X., Hall, J. A., & Rosenthal, R. (2016). Mini meta-analysis of your own studies: Some arguments on why and a primer on how. *Social and Personality Psychology Compass, 10*(10), 535–549.
Grant, A. M. (2012). Leading with meaning: Beneficiary contact, prosocial impact, and the performance effects of transformational leadership. *Academy of Management Journal, 55*, 458–476.
Gray, J. A., & McNaughton, N. (2000). *The neuropsychology of anxiety: An enquiry into the functions of the septo-hippocampal system*. New York, NY: Oxford University Press.
Grayling, A. C. (2003). *What is good? The search for the best way to live*. London, England: Weidenfeld & Nicolson.
Greenberg, J., Martens, A., Jonas, E., Eisenstadt, D., Pyszczynski, T., & Solomon, S. (2003). Psychological defense in anticipation of anxiety: Eliminating the potential for anxiety eliminates the effect of mortality salience on worldview defense. *Psychological Science, 14*, 516–519.
Grossmann, I. (2017). Wisdom in context. *Perspectives on Psychological Science, 12*, 233–257.
Guinote, A. (2017). How power affects people: Activating, wanting, and goal seeking. *Annual Review of Psychology, 68*, 353–381.
Hajcak, G. (2016). The clinical neuroscience of mistakes: Error-related brain activity and risk for anxiety. Psychological Science Agenda| February 2016. *Psychological Science, 30*. Retrieved from https://www.apa.org/science/about/psa/2016/02/clinical-neuroscience.
Harmon-Jones, E. (2003). Clarifying the emotive functions of asymmetrical frontal cortical activity. *Psychophysiology, 40*(6), 838–848.
Harmon-Jones, E., & Allen, J. J. (1997). Behavioral activation sensitivity and resting frontal EEG asymmetry: Covariation of putative indicators related to risk for mood disorders. *Journal of Abnormal Psychology, 106*(1), 159–163.
Harmon-Jones, E., Amodio, D. M., & Harmon-Jones, C. (2009). Action-based model of dissonance: A review, integration, and expansion of conceptions of cognitive conflict. In M. P. Zanna (Ed.), *Vol. 41. Advances in experimental social psychology* (pp. 119–166). London, England: Academic Press.
Harmon-Jones, E., & Gable, P. A. (2018). On the role of asymmetric frontal cortical activity in approach and withdrawal motivation: An updated review of the evidence. *Psychophysiology, 55*, Article e12879.
Harmon-Jones, E., Harmon-Jones, C., & Price, T. F. (2013). What is approach motivation? *Emotion Review, 5*, 291–295.
Harmon-Jones, E., Price, T. F., & Gable, P. A. (2012). The influence of affective states on cognitive broadening/narrowing: Considering the importance of motivational intensity. *Social and Personality Psychology Compass, 6*(4), 314–327.
Harris, P. S., Harris, P. R., & Miles, E. (2017). Self-affirmation improves performance on tasks related to executive functioning. *Journal of Experimental Social Psychology, 70*, 281–285.
Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
Hayes, J., Ward, C. L. P., & McGregor, I. (2016). Why bother? Death, failure, and fatalistic withdrawal from life. *Journal of Personality and Social Psychology, 110*, 96–115.

Heimpel, S. A., Elliot, A. J., & Wood, J. V. (2006). Basic personality dispositions, self-esteem, and personal goals: An approach-avoidance analysis. *Journal of Personality, 74*, 1293–1320.
Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review, 10*(2), 88–110.
Heintzelman, S. J., & King, L. A. (2014). Life is pretty meaningful. *American Psychologist, 69*, 561–574.
Henriques, J. B., & Davidson, R. J. (1991). Left frontal hypoactivation in depression. *Journal of Abnormal Psychology, 100*(4), 535–545.
Hernandez, K. M., Mahoney, A., & Pargament, K. I. (2011). Sanctification of sexuality: Implications for newlyweds' marital and sexual quality. *Journal of Family Psychology, 25*, 775–780.
Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280–1300.
Hirsh, J. B., Mar, R. A., & Peterson, J. B. (2012). Psychological entropy: A framework for understanding uncertainty-related anxiety. *Psychological Review, 119*, 304–320.
Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies, 11*, 735–762.
Huynh, A. C., Oakes, H., Shay, G. R., & McGregor, I. (2017). The wisdom in virtue: Pursuit of virtue predicts wise reasoning about personal conflicts. *Psychological Science, 28*, 1848–1856.
Jackson, D. C., Mueller, C. J., Dolski, I., Dalton, K. M., Nitschke, J. B., Urry, H. L., et al. (2003). Now you feel it, now you don't: Frontal brain electrical asymmetry and individual differences in emotion regulation. *Psychological Science, 14*, 612–617.
James, W. (1958/1902). *The varieties of religious experience*. New York: Mentor.
Jonas, E., McGregor, I., Klackl, J., Agroskin, D., Fritsche, I., Holbrook, C., … Quirin, M. (2014). Threat and defense: From anxiety to approach. In J. M. Olson, & M. P. Zanna (Eds.), *Vol. 49. Advances in experimental social psychology* (pp. 219–286). San Diego, CA: Elsevier Academic Press.
Kang, Y., Cooper, N., Pandey, P., Scholz, C., O'Donnell, M. B., Lieberman, M. D., … Konrath, S. (2018). Effects of self-transcendence on neural responses to persuasive messages and health behavior change. *Proceedings of the National Academy of Sciences, 115*, 9974–9979.
Kang, Y., O'Donnell, M. B., Strecher, V. J., Taylor, S. E., Lieberman, M. D., & Falk, E. B. (2017). Self-transcendent values and neural responses to threatening health messages. *Psychosomatic Medicine, 79*, 379–387.
Kelly, J. F. (2017). Is alcoholics Anonymous religious, spiritual, neither? Findings from 25 years of mechanisms of behavior change research. *Addiction, 112*(6), 929–936.
Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*, 265–284.
Klinger, E. (1977). *Meaning and void: Inner experience and the incentives in people's lives*. Minneapolis, MN: University of Minnesota Press.
Koole, S., Smeets, K., Van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology, 77*, 111–125.
Kross, E., & Ayduk, O. (2017). Self-distancing: Theory, research, and current directions. In J. M. Olson (Ed.), *Vol. 55. Advances in experimental social psychology* (pp. 81–136). Cambridge, MA: Academic Press.
Kross, E., Gard, D., Deldin, P., Clifton, J., & Ayduk, O. (2012). "Asking why" from a distance: Its cognitive and emotional consequences for people with major depressive disorder. *Journal of Abnormal Psychology, 121*, 559–569.
Layous, K., Davis, E. M., Garcia, J., Purdie-Vaughns, V., Cook, J. E., & Cohen, G. L. (2017). Feeling left out, but affirmed: Protecting against the negative effects of low belonging in college. *Journal of Experimental Social Psychology, 69*, 227–231.
Lehman, D., & Sherkat, D. E. (2018). Measuring religious identification in the United States. *Journal for the Scientific Study of Religion, 57*, 779–794.
Little, B. R. (1993). Personal projects and the distributed self: Aspects of a conative psychology. In J. Suls (Ed.), *Psychological perspectives on the self: The self in social perspective* (pp. 157–185). Hillsdale, NJ: Erlbaum.
Lydon, J. E., & Zanna, M. P. (1990). Commitment in the face of adversity: A value affirmation approach. *Journal of Personality and Social Psychology, 58*, 1040–1047.
Maslow, A. H. (1970). *Religion, values, and peak-experience*. New York, NY: Penguin Books (First published in 1964).
May, C. N., Juergensen, J., & Demaree, H. A. (2016). Yum, cake! How reward sensitivity relates to automatic approach motivation for dessert food images. *Personality and Individual Differences, 90*, 265–268.
McGregor, I. (2006a). Zeal appeal: The allure of moral extremes. *Basic and Applied Social Psychology, 28*, 343–348.
McGregor, I. (2006b). Offensive defensiveness: Toward an integrative neuroscience of compensatory zeal after mortality salience, personal uncertainty, and other poignant self-threats. *Psychological Inquiry, 17*, 299–308.
McGregor, I., Gailliot, M. T., Vasquez, N. A., & Nash, K. A. (2007). Ideological and personal zeal reactions to threat among people with high self-esteem: Motivated promotion focus. *Personality and Social Psychology Bulletin, 33*, 1587–1599.
McGregor, I., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology, 74*, 494–512.
McGregor, I., & Marigold, D. C. (2003). Defensive zeal and the uncertain self: What makes you so sure? *Journal of Personality and Social Psychology, 85*, 838–852.
McGregor, I., Nash, K., & Inzlicht, M. (2009). Threat, high self-esteem, and reactive approach motivation: Electroencephalographic evidence. *Journal of Experimental Social Psychology, 45*, 1003–1007.
McGregor, I., Nash, K., Mann, N., & Phills, C. E. (2010). Anxious uncertainty and reactive approach motivation (RAM). *Journal of Personality and Social Psychology, 99*, 133–147.
McGregor, I., Nash, K., & Prentice, M. (2010). Reactive approach motivation (RAM) for religion. *Journal of Personality and Social Psychology, 99*, 148–161.
McGregor, I., Prentice, M., & Nash, K. (2012). Approaching relief: Compensatory ideals relieve threat-induced anxiety by promoting approach-motivated states. *Social Cognition, 30*, 689–714.
McGregor, I., Prentice, M., & Nash, K. (2013). Anxious uncertainty and reactive approach motivation (RAM) for religious, idealistic, and lifestyle extremes. *Journal of Social Issues, 69*(3), 537–563.
McGregor, I., Prentice, M. S., & Nash, K. A. (2009). Personal uncertainty management by reactive approach motivation. *Psychological Inquiry, 20*, 225–229.
McGregor, I., Zanna, M. P., Holmes, J. G., & Spencer, S. J. (2001). Compensatory conviction in the face of personal uncertainty: Going to extremes and being oneself. *Journal of Personality and Social Psychology, 80*, 472–488.
Miles, J. (Ed.). (2014). *Vol. 1. The Norton anthology of world religions*. New York: Norton.
Miller, A. S., & Hoffmann, J. P. (1995). Risk and religion: An explanation of gender differences in religiosity. *Journal for the Scientific Study of Religion, 34*, 63–75.
Miller, A. S., & Stark, R. (2002). Gender and religiousness: Can socialization explanations be saved? *American Journal of Sociology, 107*, 1399–1423.
Mischkowski, D., Kross, E., & Bushman, B. J. (2012). Flies on the wall are less aggressive: Self-distancing "in the heat of the moment" reduces aggressive thoughts, angry feelings and aggressive behavior. *Journal of Experimental Social Psychology, 48*, 1187–1191.
Miyake, A., Kost-Smith, L. E., Finkelstein, N. D., Pollock, S. J., Cohen, G. L., & Ito, T. A. (2010). Reducing the gender achievement gap in college science: A classroom study of values affirmation. *Science, 330*, 1234–1237.
Morgan, M. Y. (1987). The impact of religion on gender-role attitudes. *Psychology of Women Quarterly, 11*, 301–310.
Nash, K., Inzlicht, M., & McGregor, I. (2012). Approach-related left prefrontal EEG asymmetry predicts muted error-related negativity. *Biological Psychology, 91*, 96–102.
Nash, K., McGregor, I., & Prentice, M. (2011). Threat and defense as goal regulation: From implicit goal conflict to anxious uncertainty, reactive approach motivation, and ideological extremism. *Journal of Personality and Social Psychology, 101*, 1291–1301.
Nelson, S. K., Fuller, J. A., Choi, I., & Lyubomirsky, S. (2014). Beyond self-protection: Self-affirmation benefits hedonic and eudaimonic well-being. *Personality and Social Psychology Bulletin, 40*, 998–1011.
Ostrom, T. M., Steele, C. M., Rosenblood, L. K., & Mirels, H. L. (1971). Modification of delinquent behavior. *Journal of Applied Social Psychology, 1*, 118–136.
Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. New York, NY: Oxford University Press.
Park, C. L. (2005). Religion and meaning. In R. F. Paloutzian, & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (pp. 295–314). New York, NY: Guilford.
Park, C. L. (2016). Meaning making in the context of disasters. *Journal of Clinical Psychology, 72*(12), 1234–1246.
Pennington, G. L., & Roese, N. J. (2003). Regulatory focus and temporal distance. *Journal of Experimental Social Psychology, 39*, 563–576.
Pizzagalli, D. A., Sherwood, R. J., Henriques, J. B., & Davidson, R. J. (2005). Frontal brain asymmetry and reward responsiveness: A source-localization study. *Psychological Science, 16*(10), 805–813.
Powers, W. T. (1973). *Behavior: The control of perception*. Chicago: Aldine.
Proulx, T., & Heine, S. J. (2008). The case of the transmogrifying experimenter: Affirmation of a moral schema following implicit change detection. *Psychological Science, 19*, 1294–1300.
Proulx, T., Inzlicht, M., & Harmon-Jones, E. (2012). Understanding all inconsistency compensation as a palliative response to violated expectations. *Trends in Cognitive Science, 16*, 285–291.
Putnam, R. (October, 2010). *American grace*. Princeton, NJ: Tanner lecture on human values delivered at Princeton University. Retrieved from: https://tannerlectures.utah.edu/_documents/a-to-z/p/Putnam_10.pdf.
Ramachandran, V. S. (1995). Anosognosia in parietal lobe syndrome. *Consciousness and Cognition, 4*, 22–51.
Randles, D., Heine, S. J., & Santos, N. (2013). The common pain of surrealism and death: Acetaminophen reduces compensatory affirmation following meaning threats. *Psychological Science, 24*, 966–973.
Randles, D., Inzlicht, M., Proulx, T., Tullett, A. M., & Heine, S. J. (2015). Is dissonance reduction a special case of fluid compensation? Evidence that dissonant cognitions cause compensatory affirmation and abstraction. *Journal of Personality and Social Psychology, 108*, 697–710.
Rasimus, T., Engberg-Pedersen, T., & Dunderberg, I. (2010). *Stoicism in early christianity*. New York, NY: Baker Academic.
Ruiter, S., & Van Tubergen, F. (2009). Religious attendance in cross-national perspective: A multilevel analysis of 60 countries. *American Journal of Sociology, 115*, 863–895.
Sagiv, L., Roccas, S., Cieciuch, J., & Schwartz, S. H. (2017). Personal values in human life. *Nature Human Behaviour, 1*(9), 630–639.
Saroglou, V., Delpierre, V., & Dernelle, R. (2004). Values and religiosity: A meta-analysis of studies using Schwartz's model. *Personality and Individual Differences, 37*, 721–734.
Schimel, J., Arndt, J., Banko, K., & Cook, A. (2004). Not all self-affirmations were created equal: The cognitive and social benefit of affirming the intrinsic (vs extrinsic) self. *Social Cognition, 22*, 75–99.
Schlegel, R. J., & Hicks, J. A. (2011). The true self and psychological health: Emerging evidence and future directions. *Social and Personality Psychology Compass, 5*, 989–1003.

Schlegel, R. J., Hicks, J. A., King, L. A., & Arndt, J. (2011). Feeling like you know who you are: Perceived true self-knowledge and meaning in life. *Personality and Social Psychology Bulletin, 37*, 745–756.
Schmeichel, B. J., Harmon-Jones, C., & Harmon-Jones, E. (2010). Exercising self-control increases approach motivation. *Journal of Personality and Social Psychology, 99*, 162–173.
Schmeichel, B. J., & Martens, A. (2005). Self-affirmation and mortality salience: Affirming values reduces worldview defense and death-thought accessibility. *Personality and Social Psychology Bulletin, 31*, 658–667.
Schmeichel, B. J., & Vohs, K. (2009). Self-affirmation and self-control: Affirming core values counteracts ego depletion. *Journal of Personality and Social Psychology, 96*, 770–782.
Schnabel, N., Purdie-Vaughns, V., Cook, J. E., Garcia, J., & Cohen, G. L. (2013). Demystifying value affirmation interventions: Writing about social belonging is a key to buffering against identity threat. *Personality and Social Psychology Bulletin, 39*, 663–676.
Schnitker, S. A., & Emmons, R. A. (2013). Spiritual striving and seeking the sacred: Religion as meaningful goal-directed behavior. *The International Journal for the Psychology of Religion, 23*(4), 315–324.
Schumann, K., McGregor, I., Nash, K. A., & Ross, M. (2014). Religious magnanimity: Reminding people of their religious belief system reduces hostility after threat. *Journal of Personality and Social Psychology, 107*, 432–453.
Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Vol. 25. Advances in experimental social psychology* (pp. 1–65). New York, NY: Academic Press.
Shariff, A. F., Willard, A. K., Andersen, T., & Norenzayan, A. (2016). Religious priming: A meta-analysis with a focus on prosociality. *Personality and Social Psychology Review, 20*, 27–48.
Sheldon, K. M. (2014). Becoming oneself: The central role of self-concordant goal selection. *Personality and Social Psychology Review, 18*, 349–365.
Sheldrake, P. (2013). *Spirituality: A brief history*. John Wiley & Sons.
Sherman, D. K. (2013). Self-affirmation: Understanding the effects. *Social and Personality Psychology Compass, 7*, 834–845.
Sherman, D. K., Bunyan, D. P., Creswell, J. D., & Jaremka, L. M. (2009). Psychological vulnerability and stress: The effects of self-affirmation on sympathetic nervous system responses to naturalistic stressors. *Health Psychology, 28*, 554–562.
Sherman, D. K., & Cohen, G. L. (2002). Accepting threatening information: Self–affirmation and the reduction of defensive biases. *Current Directions in Psychological Science, 11*, 119–123.
Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, S., … Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: How self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology, 104*, 591–618.
Sherman, D. K., & Kim, H. S. (2005). Is there an "I" in "Team"? The role of the self in group-serving judgments. *Journal of Personality and Social Psychology, 88*, 108–120.
Sherman, D. K., Nelson, L. D., & Steele, C. M. (2000). Do messages about health risks threaten the self? Increasing the acceptance of threatening health messages via self-affirmation. *Personality and Social Psychology Bulletin, 26*, 1046–1058.
Shnabel, N., Purdie-Vaughns, V., Cook, J. E., Garcia, J., & Cohen, G. L. (2013). Demystifying values-affirmation interventions: Writing about social belonging is a key to buffering against identity threat. *Personality and Social Psychology Bulletin, 39*, 663–676.
Simon, L., Greenberg, J., & Brehm, J. (1995). Trivialization: The forgotten mode of dissonance reduction. *Journal of Personality and Social Psychology, 68*, 247–260.
Singh, P., & Fenech, L. E. (2014). *The Oxford handbook of Sikh studies*. Oxford, UK: Oxford University Press.
Sleegers, W., & Proulx, T. (2015). The comfort of approach: Self-soothing effects of behavioral approach in response to meaning violations. *Frontiers in Psychology, 5* (1568), 1–10.
Sobotka, S. S., Davidson, R. J., & Senulis, J. A. (1992). Anterior brain electrical asymmetries in response to reward and punishment. *Electroencephalography and Clinical Neurophysiology, 83*(4), 236–247.
Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Vol. 21. Advances in experimental social psychology* (pp. 261–302). New York, NY: Academic Press.
Steele, C. M., Hopp, H., & Gonzales, J. (1986). *Dissonance and the lab coat: Self-affirmation and the free choice paradigm*. Unpublished manuscript. University of Washington.
Steele, C. M., & Liu, T. J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology, 45*, 5–19.
Steele, C. M., Spencer, S. J., & Lynch, M. (1993). Self-image resilience and dissonance: The role of affirmational resources. *Journal of Personality and Social Psychology, 64*, 885–896.
Steger, M. F. (2013). Wrestling with our better selves: The search for meaning in life. In K. D. Markman, T. Proulx, & M. J. Lindberg (Eds.), *The psychology of meaning* (pp. 215–233). Washington, DC, US: American Psychological Association.
Steger, M. F., & Dik, B. J. (2009). If one is looking for meaning in life, does it help to find meaning in work? *Applied Psychology. Health and Well-Being, 1*, 303–320.
Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counselling Psychology, 53*, 80–93.
Steger, M. F., Kashdan, T. B., Sullivan, B. A., & Lorentz, D. (2008). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality, 76*, 199–228.
Steger, M. F., Oishi, S., & Kesebir, S. (2011). Is a life without meaning satisfying? The moderating role of the search for meaning in satisfaction with life judgments. *Journal of Positive Psychology, 6*, 173–180.
Tang, D., & Schmeichel, B. J. (2015). Self-affirmation facilitates cardiovascular recovery following interpersonal evaluation. *Biological Psychology, 140*, 108–115.
Tarnas, R. (1991). *The passion of the Western mind: Understanding the ideas that have shaped our world view*. New York, NY, US: Ballantine.
Thrash, T. M., & Elliot, A. J. (2004). Inspiration: Core characteristics, component processes, antecedents, and function. *Journal of Personality and Social Psychology, 87*, 957–973.
Thrash, T. M., Elliot, A. J., Maruskin, L. A., & Cassidy, S. E. (2010). Inspiration and the promotion of well-being: Tests of causality and mediation. *Journal of Personality and Social Psychology, 98*, 488–506.
Todd, A. R., Forstmann, M., Burgmer, P., Brooks, A. W., & Galinsky, A. D. (2015). Anxious and egocentric: How specific emotions influence perspective taking. *Journal of Experimental Psychology: General, 144*, 374.
Twenge, J. M., Campbell, W. K., & Freeman, E. C. (2012). Generational differences in young adults' life goals, concern for others, and civic orientation, 1966–2009. *Journal of Personality and Social Psychology, 102*, 1045–1062.
Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review, 94*, 3–15.
Van den Bos, K. (2009). Making sense of life: The existential self trying to deal with personal uncertainty. *Psychological Inquiry, 20*, 197–217.
Van Tilburg, W. A., & Igou, E. R. (2016). Going to political extremes in response to boredom. *European Journal of Social Psychology, 46*(6), 687–699.
Van Tilburg, W. A., Igou, E. R., Maher, P. J., & Lennon, J. (2019). Various forms of existential distress are associated with aggressive tendencies. *Personality and Individual Differences, 144*, 111–119.
Van Tilburg, W. A., Igou, E. R., & Sedikides, C. (2013). In search of meaningfulness: Nostalgia as an antidote to boredom. *Emotion, 13*(3), 450–461.
Vernon, P. E., & Allport, G. W. (1931). A test for personal values. *The Journal of Abnormal and Social Psychology, 26*, 231–248.
Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 331*, 1447–1451.
Whitlock, M. C. (2005). Combining probability from independent tests: The weighted Z-method is superior to Fisher's approach. *Journal of Evolutionary Biology, 18*(5), 1368–1373.
Wong, P. T. (2014). Viktor Frankl's meaning seeking model and positive psychology. In *Meaning in positive and existential psychology* (pp. 149–184). New York: Springer.
Wood, J. V., Perunovic, W. Q., & Lee, J. W. (2009). Positive self-statements: Power for some, peril for others. *Psychological Science, 20*, 860–866.
Yalom, I. D. (1980). *Existential psychotherapy*. New York, NY, US: Basic Books.
Yeager, D. S., Henderson, M. D., Paunesku, D., Walton, G. M., D'Mello, S., Spitzer, B. J., & Duckworth, A. L. (2014). Boring but important: A self-transcendent purpose for learning fosters academic self-regulation. *Journal of Personality and Social Psychology, 107*, 559–580.
Zinnbauer, B. J., Pargament, K. I., & Scott, A. B. (1999). The emerging meanings of religiousness and spirituality: Problems and prospects. *Journal of Personality, 67*(6), 889–919.