MAN'S QUEST FOR MEANING: EXISTENTIAL ISOLATION AND QUEST RELIGIOSITY

by

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Submitted to the Graduate Faculty of the
College of Science and Engineering
Texas Christian University
In partial fulfillment of the requirements
For the degree of

Doctor of Philosophy

August 2020

ACKNOWLEDGEMENTS

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Approximately 80% of people worldwide identify as being religious (Pew Research Center, 2012). Regardless of the specific theological tradition (e.g., Christianity, Islam, Hinduism), religion is important as it helps to provide meaning and value to its many followers. This may include a sense of self-knowledge, how people perceive the world, and in developing an understanding of what life is about (e.g., Jonas & Fischer, 2006). Faith adherence, in turn, results in both positive and negative outcomes with respect to persons' emotions, attitudes, motivation, behavior, and so on (Pargament, 2002). What happens, however, when religion does not provide an answer to life's questions (e.g., existential insecurities)? In other words, how are individuals supposed to create a meaningful reality for themselves if they perceive their faith not as an unimpeachable truth, but rather, as a never-ending search for meaning?

These questions and worldviews are not unique. Religious doubt and uncertainty, while retaining a form of spiritual belief, is characteristic of quest or existential growth approaches to spirituality (Batson, 1976). However, research has shown that this type of belief is plagued by existential tradeoffs, often leaving the believer open to anxiety (Arrowood et al., 2018; van Tongeren et al., 2016). The purpose of the current work was to investigate and better understand the connection between religious doubts and feelings of existential isolation (EI). Research from the experimental, existential tradition (Pyszczynski et al., 2015) suggests that feelings of EI (i.e., feeling alone in one's subjective experience in what other people cannot understand) lead to negative outcomes and motivate people to re-evaluate their individual circumstances (Helm et al., 2018). Thus, it is likely that quest-oriented persons experience existential anxiety due to the conflict between their doubts and

theological teachings of certainty and unwavering faith. Four studies were conducted to explore the connection between quest orientation and EI. Study 1 served as a proof of concept in which quest religiosity was believed to positively correlate with trait feelings of EI. Study 2 attempted to build on this by manipulating religious uncertainty to increase the EI experience. Studies 3-4 sought to examine the downstream effects of EI on quest individuals' well-being. In other words, the third experiment explored whether high quest-oriented individuals reported reduced health as a function of increased feelings of EI. Study 4, in turn, sought to reduce these effects by promoting existential connectedness through I-sharing (i.e., having someone who shares similar perspectives; Pinel et al., 2004).

Quest Religiosity

There are many factors that contribute to persons' unique, religious experience (Hood et al., 2018). Much research examines personality characteristics within the motivations that drive faith. Termed "religious orientation," these individual differences describe how persons view their religious beliefs and seek to understand what influences behaviors and activities both within and without a spiritual context. Whereas these characteristics do not directly measure beliefs toward or about any specific religion, they can be applied to a variety of religious individuals, allowing for comparisons between faiths without having to take specific belief structures into account (e.g., specific pantheons or creation myths; Hill & Pargament, 2008).

Although a unified model of religious orientation remains elusive (Aghababaei et al., 2019), multiple theoretical accounts are proposed to describe religious motivation. Work within the Allportian model (Allport & Ross, 1967) describes religious belief using hard dichotomies of intrinsic and extrinsic orientations. Intrinsic religiosity is an internalized value

structure in which religion is its own end. Intrinsically-oriented individuals desire to truly *live* their religious belief, focusing on the personal relationship between the believer and the supernatural agents central to the religious pantheon. This orientation is associated with a multitude of benefits, including greater physical health and longer lifespans (Park et al., 2017), increased purpose of meaning in life (Byrd et al., 2007), and heightened well-being (Genia, 1996), while being negatively related to fundamentalist and dogmatic values (Kirkpatrick, 1993). On the other hand, extrinsic religiosity describes using religion for personal or social gain, causing individuals with this orientation to prioritize instrumental needs that religion can solve. As a result, their beliefs are not firmly held so much as they will shape their religion around their utilitarian needs. Consequences of this orientation include greater narcissism (Kasser & Ryan, 1996), worship attendance (Genia, 1996), need for social desirability (Watson et al., 1986), and poorer well-being and physical health (Abdel-Khalek, 2019).

Building on these, a third religious orientation (i.e., quest) was proposed to the Allportian model by Batson (1976) to capture religious maturity and existential growth. This orientation is typically qualified among three distinctions. First, quest individuals value doubt and uncertainty, believing it to be a means to grow within their faith. Second, they are more open-minded, recognizing the tentativeness of their beliefs without firmly committing to the absolute authority of one value over another. And finally, quest individuals are more accepting of complexity, often resisting simple solutions to existential questions. In essence, high quest-oriented persons: (a) view questions about doubt as potentially positive and inevitable; (b) are constantly evaluating their religious views and are open to change; (c) are devoted to exploring religious teachings, viewing other faiths as equally viable; (d)

understand situations as being more than black and white; (e) rely on the value behind religious scripture rather than literal understanding; and (f) see faith as a potential avenue to answering questions of purpose and meaning in life (Beck & Jessop, 2004). For all facets, the search to find meaning and gain a deeper truth drives much of quest individuals' approach to both religious issues and broader social constructs (van Tongeren et al., 2013).

From this perspective, quest individuals' preference toward doubt stems from efforts to make meaning. According to the religious meaning making model (Park, 2010), doubts serve an important part of religion, as they motivate attempts to restore and replace compromised meaning structures. When believers experience distress, they engage in both automatic and deliberative processes that try to make sense of the trigger (Greenberg, 1995). Doubts thereby form into a deliberative process that can stimulate meaning making. In other words, uncertainty prompts individuals to assess and reassess meaning structures that may or may not be working for them. Research has demonstrated that quest is associated with reduced presence of meaning (van Tongeren et al., 2013), which is a highly distressing state according to the meaning making model (Park). The search for meaning that quest individuals embark on appears to stem from this desire to existentially grow and create new meaning structures (Steger et al., 2010).

This preference for doubt and uncertainty, along with their desire to form meaning structures, often leads quest individuals to express their religion differently. Early work with quest religiosity likened the trait to agnosticism, with several researchers suggesting that quest was not a measure of religion at all (Donahue, 1985). Allport (1950) argued that conceptualizing religion as "a workshop of doubt" (p. 83) is a poor classification system for understanding a spiritual belief and takes away from what it truly means to be religious.

Other research has disentangled quest from agnosticism, showing that it is indeed a form of religious belief that measures "an open-ended, active approach to existential questions that resists clear-cut answers" (Batson & Shoenrade, 1991, p. 416). Nevertheless, quest is often distinct from other traditional measures of spirituality. For instance, quest religiosity correlates positively with anxious and avoidant attachment to religious deities (Beck, 2006; Miner, 2009; Rowatt & Kirkpatrick, 2002), disbelief in an afterlife (Steger et al., 2010), and interest in opposing religious pantheons (Arrowood et al., 2020), and it correlates negatively with reflection on spiritual matters, willingness to accept religious teachings as truth (Watson et al., 2014), internalized beliefs (Beck & Jessup, 2004), prayer frequency and church attendance (Lavrič & Flere, 2010), and belief in the agency of religious deities (Arrowood et al.).

Given the questioning nature of this individual difference, along with an increased desire for meaning, high quest orientation is also associated with detriments to health and well-being (Genia, 1996; Hill et al., 2004; Lavrič & Flere, 2010; Van Tongeren et al., 2016). Genia first demonstrated that quest religiosity is associated with greater depression and lower self-esteem, a finding that has been replicated across several samples (see e.g., Arrowood et al., 2014). Similarly, using "big data techniques," Galek and colleagues (2015) found that spiritual doubts among individuals who identify as religious are especially distressing, resulting in greater clinical symptoms such as generalized anxiety, social anxiety, paranoia, obsession, and compulsion. This finding appears to hold for individuals who hold strong religious beliefs but doubt them nonetheless (denoting the religiously "mature," as some have called it; Hood & Morris, 1985). In a large study examining religious clergy members, quest

religiosity negatively predicted personal well-being and satisfaction with life (Burris et al., 1996).

There is some question as to whether quest leads to distress directly or indirectly due to greater doubts and uncertainty. Interestingly, evidence has shown that quest beliefs are precipitated by significant life trauma, suggesting that quest leads to and stems from psychological distress (Krauss & Flauherty, 2001). From this perspective, quest religiosity serves to attempt to make sense of the insinuating circumstances associated with a traumatic event. As a result, doubts form as individuals' belief structures and worldviews are challenged, causing a "cognitive restructuring" to better account for and explain the negative life events (see also Park, 2020). However, a reciprocal relation is the more likely conclusion, in which doubts function to undermine important benefits offered by religion (Pargament et al., 1992) while also forming after significant life events to maintain meaning processes.

Several mechanisms have been proposed to explain the well-being reduction observed in quest individuals. Whereas other religious orientations (e.g., fundamentalists, intrinsics, extrinsics) utilize their faith to cope with adversity, high quest persons' doubt and uncertainty limit this protective ability. Instead of relying on faith, these individuals seek active approaches to solving problems, such as taking things into their own hands (Pargament et al., 1992). Religious coping involves an important process to dealing with life's stressors, effectively increasing well-being for those who engage in it (Pargament, 1997; Pargament et al., 1998). Indeed, religious practice and ritual, a form of spiritual coping, have been shown to increase well-being and reduce distress (Park, 2017). High quest persons are typically less involved in their faith, as demonstrated by decreased church attendance and prayer frequency (Lavrič & Flere, 2010). The religious coping quest individuals engage in would be met with

skepticism and doubt, while simultaneously looking for active ways to deal with the issue at hand. As a result, quest-oriented persons are suggested to have fewer resources available to deal with distress (Maltby & Day, 2003).

Furthermore, quest individuals are less likely to internalize their beliefs, instead taking a cautious, tentative stance on religious teachings (Beck & Jessup, 2004). Any protective or comforting functions derived from faith would be met with scrutiny and doubt, thereby undermining its protection. Doubt and skepticism, in relation to their desire for complexity and dialectic reasoning, would lead high quest-oriented persons to doubt the simple and authoritative answers provided by their faith, and to generate alternative outcomes to their life stressors and causes of distress (Weeks & Geisler, 2019). It stands to reason that quest individuals would contemplate negative life event like positive ones, leading to greater negativity. Calhoun et al. (2000) showed that quest individuals were more likely to ruminate about traumatic and stressful events compared to those low in quest. However, this desire to analyze philosophical and existential concepts from all perspectives similarly leads individuals to encounter the good and the bad of all things. Quest individuals should, therefore, be more likely to encounter distressing information as part of their search (Hood et al., 1985).

Moreover, doubts and uncertainty hold consequences for existential security and well-being. Religion is often viewed as a resource to help assuage anxieties. Beliefs provide considerable structure to everyday life - issuing rules, taboos, and moral codes that dictate appropriate behavior (Van Cappellen et al., 2011). Individuals who follow these guidelines are welcomed into larger social groups and communities that hold similar beliefs (Johnson & Mullins, 1990). Through these values and groups, religious individuals gain a sense of

identity, an important component to understanding the self (Ysseldyk et al., 2010), along with a means by which to attain meaning in life (Park, 2007). The promise of an immortal afterlife or continual reincarnation to those who follow the religion also allows believers to avoid concerns associated with earthly mortality as the end of existence (Vail et al., 2010). However, doubts associated with quest undermine these protective functions and open believers up to a large amount of uncertainty limiting their existential defenses. Research has found that individuals must be certain in their worldviews and religion to mitigate existential anxiety (see e.g., Greenberg et al., 2014). A recent review by Jong and Halberstadt (2016) showed that quest persons experience greater death anxiety due to doubts about the existential function of their faith. Similarly, meaning threat increases mortality awareness and reduces existential well-being among high quest persons (van Tongeren et al., 2016). And in a direct test of the existential function of quest, Arrowood and colleagues (2020) primed high versus low quest individuals with mortality salience and measured psychological and spiritual health. Similar to the meaning threat, death awareness reduced well-being among high quest participants while low quest individuals were buffered.

Experimental Existential Psychology and Isolation

A large part of the quest orientation involves grappling with big questions regarding life and uncertainty, with some even suggesting that it is an individual difference measuring existentialism (see e.g., van Tongeren et al., 2016). The search for meaning and truth, which are characteristics of quest, are also at the heart of existential experimental psychology (EEP). This perspective focuses on understanding issues associated with the human condition and how we manage anxiety brought on by existential concerns (Pyszczynski et al., 2015). The tradition often utilizes an interdisciplinary perspective, bridging areas of anthropology,

biology, social sciences, religion, and philosophy. For instance, empirical work has examined

aspects of the human condition, including death (e.g., Terror Management Theory [TMT];

Greenberg et al., 2014), freedom (e.g., Self-Determination Theory [SDT]; Deci & Ryan,

1985), meaning in life (e.g., the Meaning Making Model; Park, 2010), identity (e.g., Self-

Discrepancy Theory; Higgins, 1989), and existential isolation (e.g., The State Trait

Existential Isolation Model; Helm et al., 2018). This perspective overall suggests that these

concepts (i.e., meaning, death, isolation, identity, & freedom) are paramount to the human

condition, with individuals having to confront them as part of their daily experience

(Arrowood & Cox, 2020; Cox & Arrowood, 2018).

First, EEP has examined topics related to choice and free will suggesting conflicting

desires for freedom and restriction. On one hand, research has found that when freedoms are

threatened and our ability to choose is restricted, then we react against the threats in an

attempt to reassert our self-control (i.e., reactance theory; Brehm & Brehm, 1980). On the

other hand, too much freedom can lead to aversive consequences as individuals grapple with

whether they made the right choice (Gilbert, 2009). Second, EEP is interested in

understanding how we view our place in the world, ultimately making up our personal sense

of identity. From this perspective, identity forms a type of structure that can reduce feelings

of personal uncertainty (McGregor, 2004). Third, a large field within EEP has focused on

understanding the human quest for meaning and how we create and maintain purpose in life.

Most research suggests that meaning is a two-fold system composed of global and situation

systems (e.g., the meaning making model; Park, 2020). Global meaning involves how

individuals view the world, involving our cognitive schemas associated with our beliefs,

goals, and subjective feelings. On the other hand, situational meaning involves our

interpretation and understanding of specific life events as we attempt to make sense of events, especially crises (Park, 2010). Fourth, EEP has considered our desire to live, coupled with the awareness of our eventual demise. According to TMT, death is a highly aversive topic because we are terrified of nonexistence; however, we are frequently exposed to mortality-related events, leading persons to bolster defenses to reduce anxiety associated with death (Greenberg et al., 1986).

Although much work has examined people's fundamental need for close others (e.g., Baumeister & Leary, 1995; Bowlby, 1969; Maslow, 1943), EEP has only recently been applied to the study of existential isolation (EI; Helm, Greenberg, et al., 2019; Pinel et al., 2004; Yalom, 1980). According to Yalom, EI is the belief that one's subjective experience is unable to be understood by other people. Although we can gain some hint as to whether we share an experience appraisal with someone else (e.g., two people laughing at the same time at a joke), there is no way to *truly* understand what another person is experiencing. As a result, Yalom suggests that EI is "the unbridgeable gulf between oneself and any other being" (p. 355). This perspective suggests that EI is unique from other forms of isolation (e.g., alienation; loneliness) insomuch as it involves the individual's experience without direct regard toward his or her immediate interactions with others. This differentiates EI from interpersonal isolation, in which persons are *physically* separated from others, often resulting in feelings of loneliness or abandonment (Case & Williams, 2004). Existential isolation does not necessarily involve seclusion, as people can feel disconnected from others even while in close proximity (Pinel et al., 2004). Similarly, EI differs from intrapersonal isolation, as the latter involves a sense of dissociation, causing people to disconnect from themselves. Although there are clinical diagnoses associated with dissociation (e.g., dissociative identity

disorder), less severe forms of intrapersonal isolation involve indecisiveness and a feeling of living inauthentically (Yalom).

As a result, EI differs from both intra- and interpersonal isolation: Neither of these involves understanding (or failing to understand) one's experiences. Pinel et al. (2017), however, demonstrated that EI was *related* to other forms of isolation. On one hand, EI is positively associated with greater feelings of loneliness and alienation. On the other hand, there is considerable divergence between the concepts, suggesting unique variance. Existential isolation is found to differ from alienation, extroversion, and loneliness in predicting other characteristics of isolation. Alienation positively predicts desire for connection, need to belong, and social desirability. Similarly, loneliness positively predicts a need to belong and a desire for connection. This is in contrast with EI, which has negative or null associations with these variables. Loneliness and alienation also correlate considerably more strongly together than with EI. Finally, Pinel et al. showed that priming feelings of EI by having individuals write about a time that their experiences felt isolated from someone else, state EI increased, but it had no effects on loneliness. As Helm, Greenberg et al. (2019) suggest, EI may eventually arise from these other forms of isolation, especially over prolonged exposure, showing a connection between the three types of isolation. That is, feeling lonely or alienated may cause individuals to believe that others cannot understand them or relate to them. These specific types of isolation do not necessarily contain the others.

Recently, a theoretical model was proposed to account for the various findings associated with EI. Termed the State-Trait Existential Isolation Model (Helm, Greenberg et al., 2019) this perspective outlines the causes and consequences associated with both short-term and long-term EI (see Figure 1). The left side of the model outlines state EI, or

temporary/fleeting feelings of isolation often caused by situational contexts (e.g., a minority member surrounded by persons in the majority). Although as humans we are always somewhat aware of our EI (Becker, 1971), this acute sense is not maladaptive and does not impair daily functioning. Due to various life circumstances, state EI often increases when individuals feel that they are not experiencing the world the same way as others. Empirically, state EI can be induced by having persons write about a time that no one understood them and their thoughts and feelings (Pinel et al., 2017). The reactions evoked by these manipulations, whether naturally occurring or artificially induced, are especially problematic when people believe that they are having a different experience from their ingroup (Helm, Greenberg et al.). According to Yalom (1980), difficulties in managing connection with one's preferred ingroup can lead to increased EI, along with higher feelings of loneliness and social isolation. Outgroups can similarly instill thoughts of EI when individuals are away from their ingroup for extended periods of time (Helm, Greenberg et al.).
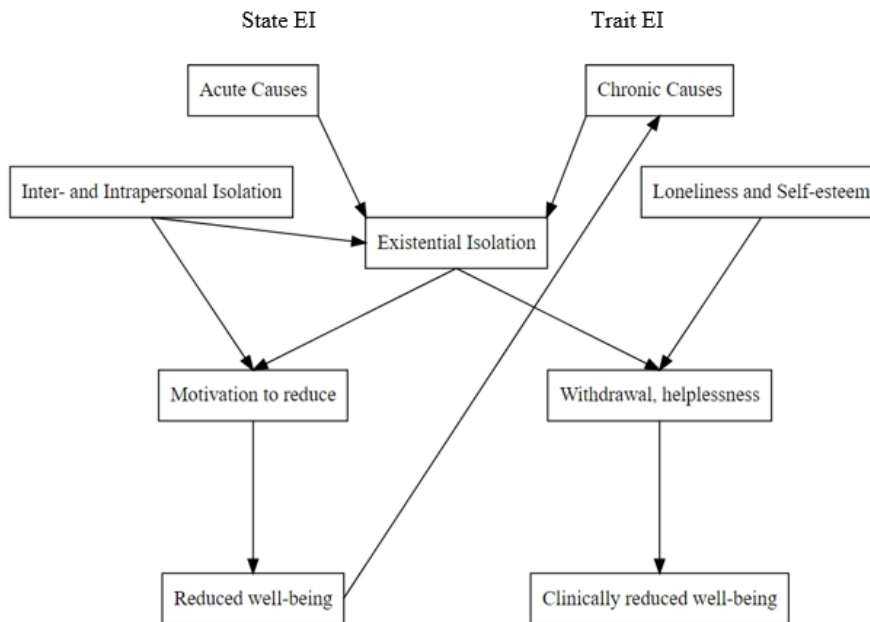
Figure 1: The State-Trait Existential Isolation Model (Helm et al., 2018).

Once EI is made salient, individuals may experience heightened psychological distress. In one such study, Helm and colleagues (2019) primed participants with EI (vs. a control task) and measured the accessibility of death-related thoughts. They found that the EI-primed participants experienced greater mortality salience, a highly aversive and existentially distressing situation (Pyszczynski et al., 2014). Similarly, EI correlates moderately with increased feelings of distress, anxiety, depression, stress (Constantino et al., 2019), and reduced group identification if members are perceived as isolated (Pinel et al., 2017). The aversiveness associated with higher EI can lead to several compensatory responses. First, individuals may practice active denial in which they assume that they share experiences and internal states with others (Helm, Greenberg, et al., 2019). Whereas individuals cannot actively know exactly how another person feels, we can instead assume that any person would react the same way that we do under similar circumstance (Yalom, 1980). Second, Yalom suggests that people will attempt to distract from increased EI through cultural, religious, and/or sexual activities, as well as increased drug intake associated with reduced self-awareness (e.g., alcohol). This strategy involves more of an active denial whereby individuals attempt to forget their own "self" to avoid the comparison to others' "selves." Regarding religion, people may become more involved in their belief, fully immersing themselves within their faith to distract from existential concerns. Finally, those who are existentially isolated may try to actively change their experiences and beliefs to match those around them (Helm, Greenberg et al.). This can result in extreme scenarios in which individuals lose their sense of "self" and instead adopt an artificial "self" that is similar to the majority worldview (Swann et al., 2012). This conformity effectively reduces state EI by removing the conflicting value or experience.

Repeated exposure to state EI, along with unsuccessful attempts at addressing existential worries, may cause trait EI to develop. This individual difference involves the continual belief that one is alone in his or her experience and will never be able to relate to others (Helm et al., 2019). Trait EI is like other personality characteristics in that people can score high or low on it; however, high trait EI involves long lasting feelings of isolation that are not easily resolved. Those high in trait EI, for instance, often hold a nihilistic outlook toward social relations, giving up on forming social connections. Altogether, unsuccessful attempts at reducing state EI may reinforce one's belief that he or she is unable to relate to someone else and is truly alone in their experience (Helm, Greenberg et al., 2019). This reclusion from social interactions has been found to be related to a lower need to belong and reduced extroversion, agreeableness, and openness scores (Pinel et al., 2017). Whereas EI may lead to greater social disconnection (Costello & Long, 2014), this relationship is bidirectional – being disconnected from others can contribute to lasting feelings of isolation (Helm, Greenberg, et al.). As a result, trait EI often forms a feedback loop in which failed social connections lead to EI, reducing the likelihood of trying to form a connection in the future, also leading to EI. The right half of Figure 1 outlines the progression of trait EI.

There are several consequences associated with increased trait EI. Existentially isolated individuals experience detriments to well-being; research has shown that the trait is related to greater death thought accessibility (Helm et al., 2019), reduced meaning in life (Pinel et al., 2017), increased anxiety (i.e., general & social anxiety; Costello & Long, 2014) and diminished need satisfaction (Pinel et al., 2018). The findings associated with death, meaning, and need satisfaction are especially problematic as they make up the core of other existential worries that individuals cope with. Similarly, trait EI leads to a reduction in pro-

sociality and group-oriented activities, as individuals worry that their isolation will be exacerbated by failing to connect with others (Helm, Greenberg et al., 2019). However, this results in a feedback loop where individuals high in trait EI further reduce their opportunities to connect with others, thereby deepening their existential worries. Trait EI undermines the social connection and need for close relations driving much of our existence (Bowlby, 1969; Maslow, 1945). As a result, Yalom (1980) suggests that EI is truly problematic to the human experience as it can serve as a precursor to existential terror and anxiety across several dimensions, as well as exacerbate pre-existing existential anxieties from other domains.

Overview of Current Studies

Given concerns associated with state and trait EI, the current studies sought to understand how this phenomenon is related to quest religiosity. Although there have been no direct attempts to understand the effects of EI within religious belief, there is evidence to suggest that high quest-oriented persons should be especially vulnerable. Whereas previous research has found that these individuals value existential questions and uncertainty (Altemeyer & Hunsberger, 1992; Batson & Shoenrade, 1991), this comes with a trade-off to security. For instance, people high on quest are more vulnerable to death anxiety (Arrowood et al., 2018; Arrowood et al., 2020) and have lower meaning in life (van Tongeren et al., 2016), outcomes associated with heightened EI (Helm et al., 2018). Adding to this, persons can feel existentially vulnerable when they are members of a non-dominant group compared to a majority. According to a recent poll (Pew, 2019), about three-quarters of Americans identify with the Christian faith, while 72% of persons in the U.S. consider religion to be fairly or very important (Brenan, 2018). Given that most individuals outwardly claim to adhere to and follow the scriptures of their faith, quest persons are unique in their openness

and search. By being part of the minority, rather than the majority, they may be more prone to feelings of EI, which in turn can lead to declines in health, well-being, and existential security. This mismatch between the values and characteristics of the "average" believer and the quest person may lead to greater feelings of EI.

Although it makes sense that these variables are related (i.e., a questioning of beliefs can make someone existentially vulnerable), this relationship has yet to be empirically studied. The present research examined this phenomenon in two ways. First, Study 1 consisted of pilot-data collected as proof of concept, in which religious participants were asked to complete trait measures of quest and EI. It was hypothesized that high quest religiosity would be positively associated with greater trait EI. Given the correlational nature of Study 1, one aim of Study 2 was to replicate these findings within an experimental framework. To make the case that religious doubt leads to feelings of EI, I activated thoughts of spiritual doubt (i.e., quest), compared to a control and a negative religion condition, to look at increases in EI. A further goal of the second study was to explore EI in comparison to other convergent forms of isolation (i.e., loneliness, alienation, social desirability, & need to belong). Specifically, in their validation study, Pinel et al. (2017) demonstrated that the EI scale correlated with measures of loneliness, extroversion, and alienation. However, the EI scale differed from these other measures in the extent to which they predicted desire for existential connection, need to belong, and social desirability - differentiating this scale from other forms of isolation (e.g., inter- and intrapersonal). Previous research has also explored how EI is unique from these other forms of disconnection. Pinel et al. (2017) found that although EI was positively correlated with alienation and loneliness, it was not related to a need to belong or being socially desirable. Given that the other forms of isolation were

correlated highly together, but not with EI specifically, these results suggest that being existentially isolated serves as an exceptional form of interpersonal disconnectedness. A secondary goal of the current work was to explore whether the same pattern of results emerge among those who question their faith.

If quest is associated with EI, what are the consequences of this connection? There is much evidence to suggests that quest religiosity is related to well-being detriments. Genia (1996) showed quest is associated with greater psychological distress, with further evidence suggesting that quest is the product of meaning crisis causing individuals to search for value (van Tongeren et al., 2016). Indeed, quest individuals appear to lack many of the religious resources (e.g., prayer certainty, church attendance) that non-questers use to cope (Pargament, 1998). At the same time, people who are more prone to EI also experience detriments to emotional, psychological, social, and physical health. Overall, the state-trait existential isolation model (Figure 1) outlines both acute and chronic outcomes of EI, with both being associated with poorer well-being and greater existential concerns (Helm, Greenberg et al., 2019). Integrating these two literatures, the purpose of Study 3 was to explore the associative link between quest and well-being as a function of EI. To do this, I measured trait quest, EI, and a variety of well-being facets (i.e., depression, anxiety, stress, distress, existential well-being, spiritual well-being), with the hypothesis that quest would predict greater EI (replicating Study 1) and greater psychological malady. Additionally, EI was predicted to mediate the relationship between quest and well-being, such that quest would be associated with greater EI, further predicting lower well-being.

Given the overall goals of Studies 2 and 3, how might we eliminate EI and its subsequent effects on well-being? Study 4 explored this question. There is evidence to

suggest that EI can be reduced by evoking shared experience by two individuals. I-sharing (Pinel et al., 2017) is an experimental manipulation in which persons are exposed to someone else who shares the same subjective experience. By having people high in EI feel as though another person can relate to their experience, individuals feel less isolated (Pinel et al., 2004). There is reason to believe that this manipulation may be especially effective among high quest persons. First, quest-oriented individuals have a powerful desire to form broad social groups with diverse perspectives of the world; this openness has been proposed to stem from a need to quell existential anxieties (van Tongeren et al., 2016). Second, quest individuals are more accepting of complexity, often resisting simple solutions to existential questions. Weeks and Geisler (2019) found that persons high on quest engage in greater dialectical and elaborative complexity when discussing philosophical and moral dilemmas. Interacting with an I-sharer who also has a desire for openness and complexity may thus quell feelings of being existentially isolated. Overall, Study 4 was conducted with two goals in mind. First, to the extent that I-sharing should reduce feelings of EI, high quest individuals exposed to someone else who shares their quest worldview should report lower levels of EI. Second, to the extent that EI predicts lower well-being, eliminating existential worries should be associated with an increase in well-being for high quest individuals. In Study 4, it was hypothesized that I-sharing religious uncertainty and doubt would reduce EI and furthermore increase well-being among high quest individuals. Thereby, EI should mediate the effects of I-sharing among those high in quest.

Study 1

Existential isolation arises when individuals feel as though they are alone in their subjective experience (Yalom, 1980). As a result, quest motivation should be associated with

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increased EI, as the worldview of doubt and uncertainty is inconsistent with traditional religious experience. As a pilot study to test this idea, I administered a measure of quest (Batson & Schoenrade, 1991), along with Pinel and colleagues' (2017) measure of trait EI. It was hypothesized that the two measures would be positively correlated.

Method

Participants

I adopted an effect size threshold sampling strategy to determine minimum sample sizes for all four studies. Although there have been no direct attempts to examine EI and quest religiosity together, prior work examining other existential concerns among this demographic yielded a starting point. Several researchers (e.g., Arrowood et al., 2018; Jong & Halberstadt, 2016; van Tongeren et al., 2016) have shown moderate effects sizes (R^2s ranging from .04 to .09) when examining existential concerns among quest individuals. In order to maximize power, I conducted a power analysis (i.e., G*Power; Faul et al., 2007) looking for a small to moderate correlation between the two target variables. Power was set to .80 with alpha levels remaining at .05. The analysis found that 120 participants was the recommended sample size.

One-hundred and seventy-three religious individuals completed the study. Participants were recruited from the human subjects pool in the psychology department at Texas Christian University (TCU) and were compensated with partial course credit for their time. All participants were screened prior to data collection, so only religious individuals were able to sign up for the study. Several researchers have highlighted the importance of excluding atheists, agnostics, and "other" categories without well-defined religious doctrines when studying quest orientation (see e.g., Galen, 2012; Silver et al., 2014). Thus, no

participants were removed due to religious affiliation in the final sample. However, 18 participants failed quality control checks and were excluded prior to analysis. The final sample included 155 religious individuals, was predominantly female ($n = 117$), and tended to be young adult ($M_{age} = 18.86$, $SD = 1.58$).

Materials and Procedure

Participants completed two empirical measures and demographics as part of the study procedures. All items were randomized, reducing the possibility of order effects, and presented via computer. Individuals were informed that they were participating in a study measuring religious beliefs. At debriefing, they were told that we measured existential concerns associated with isolation. Measures for all four studies can be found in Appendix A.

Eligibility. In order to exclude non-religiously affiliated individuals, participants completed a single item eligibility screen. The item asked participants: "What religion or philosophy are you affiliated with, if any?" A drop-down list included the following categories: 1) Christian; 2) Protestant; 3) Catholic; 4) Jewish; 5) Muslim; 6) Atheist; 7) Agnostic; 8) Buddhist; 9) Hindu; or 10) Other _____.

Quest religiosity. To measure quest religiosity, I used the Batson and Schoenrade (1991) 12-item quest scale. Hill and Edwards (2013) reviewed every quantitative measure for religious orientation, finding that the Batson and Shoenrade scale most accurately measures religious orientation and was highly reliable between presentations, thereby measuring a trait. Furthermore, discriminate (e.g., fundamentalism, dogmatism) and convergent (e.g., doubt, openness) validity aligns most strongly with this scale compared to other quest measures (Hill & Edwards). Sample items include: "I am constantly questioning my religious beliefs," and "For me, doubting is an important part of what it means to be religious." All items were

scored on a 9-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. The quest measure demonstrated high reliability (Cronbach's $\alpha = .87$).

Existential isolation scale. Participants completed the EI scale developed by Pinel and colleagues (2017). This measure assesses either trait or state EI, depending on the instructions prior to scale presentation. For the purposes of the Study 1, participants were told to answer each question with how they "usually feel" to measure trait EI. Sample items of the 6-item scale include: "People do not often share my perspective," and "Other people usually do not understand my experiences." Items were scored on a 7-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. Scale reliability was high for the EI scale in Study 1 (Cronbach's $\alpha = .78$).

Demographics and quality check. Following the final measure, participants completed demographic questions (e.g., age, sex, relationship status), as well as several quality control checks. The quality checks were based on those by Nielsen and Bauer (2018). Specifically, participants answered the following questions: 1) "I put enough effort toward this study"; 2) "I gave this study enough attention;" and 3) "In your honest opinion, should we use your data in our analysis of this study?" All items were scored on a 5-point Likert-type scale (1 = *Strongly Disagree*; 5 = *Strongly Agree*). All participants responding with "*Disagree*" or "*Strongly Disagree*" were removed prior to analysis.

Results and Discussion

Prior to analysis, parametric assumptions were tested using SPSS version 26. Both the quest scale (skewness = -.15, 95% *C.I.* [-.48, .19]; kurtosis = .06, 95% *C.I.* [-.71, .84]) and the EI scale (skewness = .23, 95% *C.I.* [-.17, .62]; kurtosis = -.52, 95% *C.I.* [-1.30, .25]) were roughly normal. Examination of the residuals showed that the data was homoscedastic. A

correlation analysis was conducted to explore the relationship between quest religiosity and EI. The results found a small, positive correlation between quest and EI, $r(154) = .16$, $p = .05$, $R^2 = .03$. This small effect size is not surprising because quest individuals typically do not meet clinical thresholds for existential distress, despite always carrying *some* existential anxiety. These results serve as a proof of concept, however, suggesting that quest individuals experience heightened EI. Furthermore, this suggests that something about the quest experience causes persons to have difficulty relating to others despite their desire for connection.

Study 2

The results of Study 1 revealed a link between existential uncertainty and EI. The findings, however, are limited as they are correlational. I am therefore unable to make the causal claim that religious quest can lead people to feeling existentially vulnerable. Adding to this, whereas Helm et al. (2018) discuss the consequences of both trait and state EI, the first experiment was specific to individual differences. In Study 2, I intended to produce EI effects with state measures. To make a convincing case that religious uncertainty can lead to feelings of EI, it is important to re-produce this trend in an experimental framework. Utilizing a religious doubt and uncertainty manipulation designed to invoke feelings of quest (Arrowood et al., 2020), Study 2 primed quest religiosity compared to two control groups (i.e., religious taboo, true control) and measured state-level changes in EI. It was hypothesized that individuals primed with quest would experience greater feelings of EI. Multiple control groups were included to help understand and isolate effects to religious uncertainty. Specifically, a neutral control was included as a base score of EI without priming any form of

religious belief, and a religious taboo condition was included to more directly mimic the quest prime without evoking doubt.

An additional goal of this work was to examine concepts associated with EI and reactions to religious doubts and uncertainty. Existential isolation is both related to and conceptually distinct from other forms of isolation, both inter- and intrapersonal. Pinel and colleagues (2017) demonstrated that state levels of EI predicted greater loneliness and alienation. However, these correlations were small to moderate. Existential isolation further diverged from alienation and loneliness in predicting desire for existential connection and social desirability. Thus, a secondary goal of Study 2 was to replicate and extend these findings to a quest population, as this group holds strong feelings toward group formation and interaction (van Tongeren et al., 2016). I hypothesized the effects of the quest prime on the other types of isolation would diverge from EI, such that these other measures would not be affected by quest (or show a reduction), but EI would increase after the quest prime.

Method

Participants

Based on the small to moderate effect size observed in Study 1, I conducted an *a priori* power analysis using G*Power (Faul et al., 2007) to detect a small to moderate effect with three groups on five simultaneous dependent variables with power set to .80 and alpha set to .05. The results of the analysis recommended 300 participants to achieve sufficient power. Overall, 440 participants were recruited from Amazon's Mechanical Turk (MTurk) data collection site (www.mturk.com) who were compensated $1.00 for their time. Ninety-one participants were removed prior to analysis due to failing a bot detector task (see materials and procedure). Furthermore, an additional 48 participants were removed due to

failing attention checks or directly admitting to not paying attention. Overall, the final sample was composed of 304 religious individuals, was predominantly female ($n = 152$), and was mostly young adults ($M_{age} = 31.85$, $SD = 11.45$). To maximize power, data collection was not fully terminated until the end of the semester (see Simmons, Nelson, & Simonsohn, 2011). A sensitivity power analysis found the final sample size can detect an effect as small as $f^2 = .04$.

Materials and Procedure

Participants completed all measures on computers. Prior to participating, they were told to take the survey in a quiet setting. To avoid unintentionally priming religious doubts, participants were informed that the study was interested in examining a new measure of personality and well-being among the general population. Following this, participants completed the following items.

Religious uncertainty prime. In order to prime doubts and uncertainty, participants were randomly assigned to one of three conditions (Arrowood et al., 2020). In the uncertainty condition, participants were instructed to "Think about aspects of your religion that make you feel uncertain about yourself, your life, and your future. Write a few sentences, in the space below, about three aspects of your faith that make you feel most uncertain." Additionally, I utilized two control conditions, one associated with religion and one that was neutral. In the religion control condition, participants were asked to, "Think about something that is often considered taboo in your religion, or not up to the standard of your religion. Write a few sentences, in the space below, about this event." This control condition involves religious belief and divergence without directly priming spiritual doubts. In the true control condition, participants were asked to "describe the room that you are currently sitting in" as a neutral prompt. For all three conditions, participants were told to respond with their "first, gut-level

response" and to take as much time as they needed. All essays were screened to ensure that they followed the writing prompt.

Following this, participants were given three items from the same quest scale (Batson & Schoenrade, 1991) introduced in Study 1 as a manipulation check: "I am doubting my faith; " "I am experiencing spiritual uncertainty;" and "I am questioning my spiritual beliefs." The instructions, however, were modified telling participants to respond, "as you feel right now, at this very moment." Items were scored on a 7-point Likert-type scale ranging from *Strongly Disagree* to *Strongly Agree*. This manipulation check showed high reliability in the current study (Cronbach's α = .92). Once completed, everyone completed five measures of different types of isolation phrased as state rather than trait. All the following measures, except for the final quest scale, were randomly presented to avoid order effects.

Existential isolation. To measure EI, participants completed the same EI measure used in Study 1. However, all items were rephrased to measure state EI (e.g., "*Right now*, other people do not understand my experiences"). Reliability was sufficient for the EI scale (Cronbach's α = .72).

Loneliness. Participants completed the UCLA Loneliness Scale (Russell et al., 1978) to assess interpersonal isolation. This measure included 20 items. Each question was slightly modified to assess state (e.g., "I feel lonely;" "I feel isolated from others") rather than trait loneliness. All responses were scored on a 7-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. In the current study, reliability was high (Cronbach's α = .87).

Alienation. Participants also completed the Alienation Scale (Jessor & Jessor, 1977). This 15-item measure was scored on a 7-point Likert scale (1 = *Strongly Disagree*; 7 = *Strongly Agree*). Sample items include: "Hardly anyone I know is interested in how I

really feel inside" and "I feel alone when I am with other people." Reliability was high in the current study (Cronbach's α = .83).

Social desirability. The Crowne and Marlowe (1960) social desirability scale assessed the need for social acceptance. The 33-item survey was measured on a 7-point Likert scale (1 = *Strongly Disagree*; 7 = *Strongly Agree*). Sample items include, "I feel like I practice what I preach" and "I feel like I am careful about my manner of dress." Reliability was sufficient for the social desirability scale (Cronbach's α = .78).

Need to belong. The Need to Belong Questionnaire (Leary et al., 2013) included 10 items (e.g., "I try hard not to do things that will make other people avoid or reject me;" "I have a strong need to belong") and was scored on a 5-point Likert scale (1 = *Not at all*; 5 = *Extremely*). Reliability was incredibly poor in the current study for need to belong (Cronbach's α = .35) but was nevertheless analyzed due to the *a priori* analysis plan. This and all other discriminant measures reported in Study 2 were shown to be applicable to studying EI (Pinel et al., 2017).

Quest. To measure trait quest beliefs, the same quest scale used in Study 1 (but scored on a 7-point scale) was presented at the end of the study. Given the length of time from the manipulation, we phrased this questionnaire at trait in order to examine correlations with the other measures as secondary analyses. Reliability was sufficient in the current study (Cronbach's α = .76).

Demographics and quality controls. The same quality check items (Neilson & Bauer, 2018) and demographics used in Study 1 were presented after the final experimental measure. Finally, participants were debriefed as to the true nature of the study.

Results and Discussion

Normality Tests and Manipulation Check

Prior to analysis, all dependent variables (i.e., quest, EI, alienation, loneliness, need to belong, & social desirability) were checked for normality by assessing skewness and kurtosis within each level of the independent variable. The results found that all scores were roughly normal except for EI and Social Desirability. Neither logarithmic nor square root transformations could address the divergence from normality; thus, bootstrapping procedures using 1,000 resamples were utilized for each analysis assessing these constructs.

Furthermore, a one-way analysis of variance (ANOVA) was conducted on the quest manipulation check as a function of condition. The Levene's test was nonsignificant, suggesting equality of error variance ($p = .93$). The results found a significant main effect of condition on state quest scores, $F(2, 299) = 3.63$, $p = .03$, $\eta^2 = .01$. Specifically, LSD post hoc analyses found that participants primed with quest religiosity ($M = 11.53$, $SD = 5.78$) reported significantly greater quest scores than did participants in the religious taboo condition ($M = 9.76$, $SD = 5.62$) and the control condition ($M = 9.57$, $SD = 5.69$), ps $\leq .04$. There was no significant difference between the religious taboo and neutral control condition, $p = .81$. These results suggest that the manipulation successfully primed state quest beliefs.

Target Analysis

A one-way ANOVA was conducted to compare state EI scores between the uncertainty and neutral conditions. Omnibus results were not statistically significant, $F(2, 299) = .46$, $p = .63$, $\eta^2 = .003$. The EI scores in the quest condition ($M = 3.70$, $SD = 1.11$), the

religious taboo condition (M = 3.79, SD = 1.00), and the neutral control condition (M = 3.83, SD = 1.00) did not significantly differ from one another, ps ≤ .34, *95% CIs* [≤ -.14, ≥ .15].

Secondary Analyses

In order to examine the effects of quest versus controls (e.g., religious control & neutral) on other forms of isolation, a Multivariate Analysis of Variance (MANOVA) was conducted with each dependent variable entered simultaneously. Levene's tests suggested equality of error variance between conditions on each of the dependent variables, p ≥ .15. Using Pillai's trace, the omnibus test failed to show an effect of condition on the various measures, V = .16, F (10, 592) = 1.44, p = .16. Means and standard deviation as well as inferential statistics for each dependent variable can be found in Table 2. These results suggest that priming quest does not cause greater existential isolation, nor does it lead to greater inter- or intrapersonal isolation.

For exploratory purposes, and to replicate the results of Study 1, correlational analyses were used to examine the relationship between trait quest religiosity, EI, and the various isolation measures (see Table 3).[1] The results demonstrated that quest was positively related to alienation, loneliness, and need to belong but negatively related to EI. There was a marginal negative relationship between religious uncertainty and social desirability.

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[1] Prior to this analysis, a one-way ANOVA was conducted to see if the quest manipulation influenced trait quest scores. The results found that trait quest was not affected by this manipulation, $F(2, 300)$ = .11, p = .89, and was likely not influenced by the trait manipulation.

Table 1.

Normality statistics for each scale by experimental level in Study 2

	Quest condition		Taboo Condition		Control Condition	
	Skewness [95% C.I.]	Kurtosis [95% C.I.]	Skewness [95% C.I.]	Kurtosis [95% C.I.]	Skewness [95% C.I.]	Kurtosis [95% C.I.]
Quest Manipulation Check	-.17 [-.62, .28]	-.53 [-1.50, .44]	-.23 [-.75, .29]	.40 [-.62, 1.42]	-.16 [-.61, .29]	-.14 [-1.04, .79]
Alienation	-.19 [-.59, .37]	-.50 [-1.46, .46]	-.44 [-.96, .08]	.21 [-.81, 1.23]	-.32 [-.78, .14]	-.55 [-1.45, .35]
Loneliness	.01 [-.47, .49]	-.41 [-1.37, .55]	.14 [-.38, .66]	.12 [-.90, 1.14]	.25 [-.21, .71]	-.23 [-1.13, .67]
Social Desirability	-.02 [-.05, .46]	.62 [-.34, 1.58]	1.06 [.55, 1.58]	2.09 [.97, 3.21]	.55 [.09, 1.01]	.59 [-.32, 1.48]
Need to Belong	-.19 [-.67, .29]	.66 [-.30, 1.62]	-.49 [-1.01, .03]	-.30 [-1.32, .72]	-.40 [-.86, .06]	.05 [-.85, .95]
Existential Isolation	.60 [.12, 1.08]	.36 [-.06, 1.32]	.87 [.35, 1.39]	1.63 [.61, 2.95]	.47 [.01, .93]	.69 [-.21, 1.59]

Table 2.

Means, standard deviations, and inferential statistics for each dependent variable as a function of condition

	M (SD)			F (df)	p	η^2	95% C.I.'s
	Quest condition	Taboo Condition	Control Condition				
Alienation	3.78 (.98)	3.79 (1.00)	3.83 (1.00)	.09 (2, 299)	.91	<.001	≤ -.25, ≥ .21
Loneliness	3.54 (1.13)	3.53 (1.15)	3.50 (1.24)	.04 (2, 299)	.97	<.001	≤ -.34, ≥ .30
Social Desirability	4.19 (.53)	4.19 (.53)	4.32 (.62)	2.34 (2, 299)	.10	.02	≤ -.03, ≥ .30
Need to Belong	3.19 (.45)*	3.05 (.50)*	3.16 (.42)	2.40 (2, 299)	.09	.02	≤ -.25, ≥ .21
Existential Isolation	3.70 (1.11)	3.78 (1.03)	3.83 (1.00)	.46 (2, 299)	.63	.003	≤ .01, ≥ .27

Note. * p < .05

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Table 3

Descriptive statistics and correlation matrix for measures in Study 3.

		M	SD	2	3	4	5	6
1	Quest	4.16	1.02	-.17**	.37***	.17**	.15**	-.10^
2	Existential Isolation	3.77	1.03		.16**	.34***	-.26***	-.17**
3	Alienation	3.77	.95			.73***	-.02	-.45***
4	Loneliness	3.53	1.17				-.14*	-.39***
5	Need to Belong	4.23	.58					-.10^
6	Social Desirability	3.14	.46					

Note. ^ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

The purpose of this work was to replicate the findings of the prior study within the context of an experimental design. Although it was hypothesized that activating quest uncertainty among religiously oriented persons would lead to greater feelings of EI, as compared to control counterparts, these findings were not supported by the data. The results revealed no significant difference between quest uncertainty, religious taboo, and neutral conditions on isolation scores. These findings, though, make sense for a couple of reasons. First, although the manipulation seemed well-suited to increase quest uncertainty, as evidenced by the manipulation check, having spiritual doubts may not directly evoke feelings of EI. Existential isolation is the extent to which persons believe they are not understood or accepted by *others* (Helm, Greenberg et al., 2019). This suggests that a comparison process is taking place wherein EI should emerge when people feel that their internal state is different from that of everyone else. Although religious doubts were successfully primed in the present research (i.e., manipulation check), this does not necessarily mean social comparisons were activated to elicit EI.

Second, returning to the state-trait model of EI (see Figure 1), there may have been a misalignment between existential considerations and the current study aims. Although both state

and trait EI can result in reduced well-being, there are variations in how people respond to it. When state feelings of isolation are activated, individuals move quickly to eliminate this aversive state (e.g., belief validation, close relationships; Helm, Greenberg et al., 2019). Conversely, persons scoring high on trait EI are likely to withdraw from the situation and/or report feelings of helplessness. With respect to the current experiment, if the religious uncertainty prime heightened thoughts of state isolation, then participants could have been simultaneously focused on EI reduction strategies. Although yet to be empirically examined, along with the timing of EI effects, Yalom (1980) suggests that outcomes of state feelings of isolation are temporary when they are not chronic. As a result, having individuals write about their doubts may have increased state EI while also heightening reduction strategies to ameliorate such existential concerns.

Adding to the above, although there was no effect of the quest prime on EI scores, exploratory analyses showed a negative relationship between religious uncertainty and feelings of existential isolation. These effects run counter to the results of Study 1, which demonstrated a positive association between these variables. One explanation for these contrary findings is the crossover between trait (i.e., religious quest) and state scales (i.e., EI) in the current experiment. Alternatively, from an empirical and theoretical standpoint, high quest-oriented persons may feel less existentially isolated given their worldview of group connectedness and universal tolerance (Beck & Jessup, 2004; van Tongeren et al., 2016). This is supported by research from a terror management theory perspective (Greenberg et al., 2014; Vail et al., 2010) demonstrating that individuals adhere to their beliefs (including religion) more strongly when existential concerns are salient. Persons scoring high in quest may have felt less threatened by EI, as their worldview emphasizes a sense of openness and acceptance - opposite of an existentially isolated individual. Low quest individuals (i.e., fundamentalists), in turn, are known to be more spiritually

conservative and less tolerant of others (Altemeyer & Hunsberger, 1992). High EI may have

emerged here as fundamentalist Christians have been shown to segregate themselves from those

who are different (Williamson, in press). As argued by others (Batson et al., 2008; Hood et al.,

1985), the exploration of complex, existential topics is only possible among the religiously

mature (i.e., quest), whereby they must prepare for the journey and the answers they may find.

A final goal of Study 2 was to explore the relationship between quest, EI, and other

measures of social isolation (i.e., alienation, loneliness, need to belong, & social desirability).

Consistent with Pinel and colleagues (2017), I also found that EI was positively related to

alienation and loneliness while being negatively associated with belongingness needs and social

desirability. These results suggest that the EI measure utilized in Study 2 may have been

assessing trait rather than state tendencies. This is because prior work has shown that individuals

try to minimize state feelings of EI by promoting group belongingness (see e.g., Helm,

Greenberg et al., 2019). Finally, although Study 2 suggests that high quest individuals are

existentially connected (i.e., low EI), the results showed that they are not interpersonally linked

given greater loneliness, alienation, and need to belong scores. These results make sense as quest

individuals are more spiritual in their orientation as they move away from traditional, organized

faith (Batson, 1976; Hood, 1985). For instance, in a longitudinal study over 2 years, Hunsberger

and colleagues (2002) found that religious doubts associated with quest caused individuals to

alienate themselves from others, including close family and friends. Quest has thus been

considered a "self-directed" pursuit of meaning, often resulting in individuals leaving their more

established religious systems (Burris et al., 1996).

Overall, in light of problems with the current work, combined with the significant

correlational findings of both studies, Studies 3-4 returned to trait assessments of quest and

existential isolation. Although high quest-oriented persons may experience greater EI as a result of their belief uncertainty and questioning nature (Study 1), their worldview of openness and tolerance may also lead to a reduction in existential vulnerability (Study 2). The following studies explored both hypotheses simultaneously while also examining carryover effects to individuals' psychological and spiritual well-being.

Study 3

A large body of research has shown that quest religiosity is associated with psychological maladjustment. Whereas security- and tradition-focused orientations, such as religious fundamentalism and low quest, are predictive of greater well-being (Calhoun et al., 2000; Green & Elliot, 2009), the doubts and desire for openness inherent to quest make people vulnerable to distress. For instance, quest is related to a greater desire to understand and value complexity (Batson, 1976). This motivates engagement in more deliberative, analytic dissection of ideas (Bahcekapili & Yilmaz, 2017). When confronted with moral, philosophical, ethical, and religious dilemmas, high-quest individuals are more likely to consider multiple viewpoints and alternative conclusions, often confronting belief-disconfirming information (Conway et al., 2008; Weeks & Geisler, 2019). Hood (1985) suggests that quest individuals are more likely to encounter distressing worldviews and concepts as they attempt to express their desire for knowledge (see also Henrie & Patrick, 2014). In several studies, researchers have found that quest individuals are willing to discuss and consider belief-opposing information with others even when their worldviews are challenged (Batson et al., 2008; McFarland & Warren, 1992). According to EEP, these alternative worldviews should be especially distressing and potentially damaging because they reduce existential defenses (Greenberg et al., 2004).

Furthermore, quest-oriented persons, doubting the truthfulness and efficacy of their faith, are unable to use their religious beliefs as a source of comfort. A long history within the psychology of religion has shown internalized beliefs are a prerequisite for the use of faith as a means for coping (see Hood et al., 2018 for a review). Pargament (1997; see also Pargament et al., 1998; Park et al., 2017) suggests that religion is an effective means for coping with daily stressors. Quest religiosity, however, correlates negatively with intrinsic religiosity as these individuals refuse to internalize their faith, instead recognizing the tentativeness of their worldviews (Beck & Jessup, 2004). Those who doubt their beliefs are forced to rely on other ways to deal with psychological distress. Although secular methods are certainly capable of providing psychological support, research has suggested that these beliefs are not quite as effective as religious coping (McDougle et al., 2015). Findings such as these suggest that quest individuals are left with a deficit when contending with the frequent, distressing problems that they face and suffer from lower mental health.

Similar research has found that both trait and state EI also contribute to reduced well-being. For instance, Berger and Luckman (1966; see also Greenberg et al., 2014) argue that people's worldviews are socially constructed and maintained through reinforcement by others. Existential isolation undermines individuals' faith in their worldviews, limiting their capacity to function. When worldviews are threatened, persons are vulnerable to a host of psychological distress. Research has found that EI is associated with greater depression, anxiety, and stress (Constantino et al., 2019). When beliefs are compromised, people face greater accessibility of death-related thoughts and even possibly psychological trauma, including post-traumatic stress disorder (Pyszczynski & Kesebir, 2011). Even if it does not reach clinical levels, however, EI is at minimum an aversive state, as no one wants to feel that their beliefs or existence are not valid

(Yalom, 1980). This contributes to greater feelings of ostracism, marginalization, and need

disruption while individuals seek to remedy their existential distress (Helm et al., 2018).

Study 3 was designed with two goals in mind. First, to replicate the results of one of the

prior studies, I examined the relationship between quest religiosity and EI. To the extent that

quest is associated with uncertainty with and disconnectedness from one's spirituality, this

should contribute to higher feelings of EI. However, based on findings that quest individuals

seek out novel groups to meet their belongness needs when feeling lonely (Hunsberger et al.,

2002; van Tongeren et al., 2016), this could result in a reduction in existentially related isolation.

The second goal of this work was to test a mediational path model of the relationship between

quest and well-being as a function of EI. I measured several markers of psychological health

(i.e., stress, depression, anxiety), existential distress (i.e., meaning presence; Steger et al., 2010),

and spiritual well-being (i.e., prayer frequency & church attendance; Park et al., 2017; spiritual

distress) that have been observed in both the quest and EI literatures. Each dependent variable

was estimated simultaneously using path modeling and bootstrapping. This allows for robust

estimation while avoiding inflating error terms from repeated tests. Given prior work showing

theoretical and statistical problems with combining unique forms of well-being (Genia, 2001;

Viser et al., 2017), I used path modeling to predict outcomes while accounting for correlations

between dependent variables (e.g., stress, depression, anxiety). I hypothesized that quest

religiosity would be associated with EI. Changes in isolation scores, in turn, were expected to

affect well-being (see Figure 2). A directional hypothesis for the mediation results was not made

given ambiguity surrounding the quest/EI link.
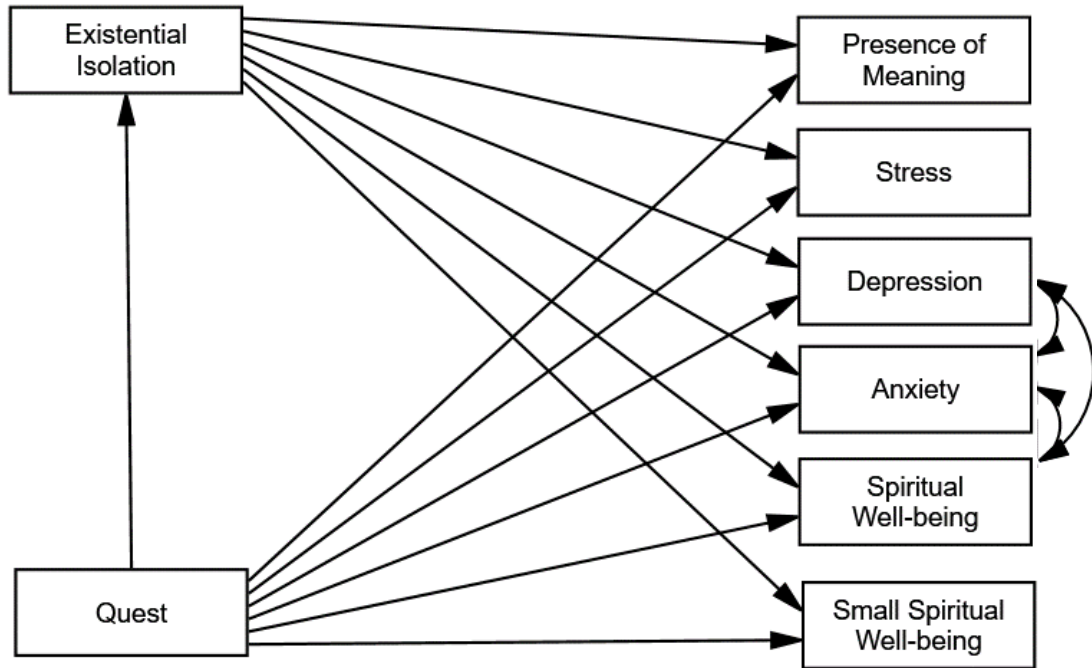
Figure 2. Path model depicting EI as the mediator between quest and well-being.

Method

Participants

Based on Study 1, an *a priori* power analysis found that to detect a small effect with .80 power with alpha set at .05, 300 participants would be needed. This model was computed using the most complex design proposed (i.e., one predictor, one simultaneous mediator). Additionally, quantitative theory suggests that 10 participants are necessary per indicator in a path model (Nunnelly, 1967), suggesting that I would need at least 70 participants. In order to maximize power while taking both power estimations into account, 393 participants were recruited in order to account for missing data and bots. All participants were recruited from MTurk and compensated with $1.00. Sixty-four participants were removed from Study 3 due to failing attention checks or bot detectors. The remaining sample was composed of 329 religious individuals, was predominantly female ($n = 210$) and young adult ($M_{age} = 30.51$, $SD = 10.11$). A sensitivity power analysis based on sample size could detect an effect as small as $f^2 = .04$.

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Materials and Procedures

As in the previous studies, participants completed the questionnaires on computers. Each measure was presented in the order below to assess mediation.

Quest religiosity and EI. Participants completed the same quest (Batson & Schoenrade, 1991) and EI (Pinel et al., 2017) measures used in Study 1.

Well-being measures. To assess well-being, individuals were given the Depression Anxiety Stress Scale-21 (Antony et al., 1998) as a general measure of psychological distress. This measure included three subscales designed to more specifically measure types of distress: depression (e.g., "I felt I was pretty worthless;" "I just couldn't seem to get going"), stress (e.g., "I found it difficult to relax;" "I was in a state of nervous tension"), and anxiety (e.g., "I experience trembling;" "I feel terrified"). Each question was scored on a 7-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*. Prior research has used this measure when examining the consequences of EI (Constantino et al., 2019), as well as quest religiosity (Arrowood et al., 2014). Each subscale had high reliability (Cronbach's αs ≥ .88).

Meaning in life. Following research by Helm et al (2018), I measured presence of meaning in life as an index of existential well-being. The meaning in life questionnaire (Steger et al., 2006) assessed meaning presence based on five items. Sample items include: "I understand my life's meaning" and "My life has a clear sense of purpose." All scale items were scored on a 7-point Likert-type scale ranging from *Absolutely Untrue* to *Absolutely True*. Reliability of the presence of meaning subscale were high (Cronbach's α = .81).

Spiritual well-being. Additionally, as a measure of spiritual well-being, participants were asked to indicate how often they attend church per week and how frequently they pray (Francis, 1997). Both questions were scored on a 5-point scale. Responses for church attendance

include: "Weekly," "At least once a month," "Sometimes," "Once or twice a year," and "Never."

Responses for prayer frequency include: "Daily," "At least once a week," "Sometimes," "Once or twice a year," and "Never." Responses were averaged together to create a short composite measure of spiritual well-being (Park et al., 2017). As a further measure of religious health, participants completed the Paloutzian and Ellison (1991) spiritual well-being scale (e.g., "I don't find much satisfaction in private prayer with God"). This scale is composed of 20 items and was scored on a 7-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree.* Reliability was high for this scale (Cronbach's α = .91).

Demographics and quality checks. Participants completed the same demographic and quality check items used in the previous studies.

Results and Discussion

Preliminary Analyses

Prior to analyses, all dependent variables were assessed for normality using skewness and kurtosis statistics, assessing their 95% confidence intervals, and examining p-p plots. A summary of these statistics can be found in Table 4. The results of this analysis found deviations from normality in scores of EI, stress, depression, anxiety, presence of meaning, and the small spiritual well-being scale. Transformations were unable to correct for the increased skewness among the data. Despite this, maximum likelihood (ML) estimators were still used for Study 3 for several reasons. First, research has found that ML is robust to normality violations (Lai, 2018) as sample size increases. Second, Monte Carlo estimations have demonstrated that skewness and kurtosis violations do not significantly impact ML predictions when compared to other assumption violations (Reinartz et al., 2009). And finally, bootstrapping with 95% confidence intervals and 1,000 reiterations on the data were utilized to further offset any effects

of non-normality (Hayes, 2018). Given this, as well as the absence of missing data, ML remained

the estimation technique utilized in Study 3.

Table 4

Normality statistics for each scale in Study 3

	Skewness [95% C.I.]	Kurtosis [95% C.I.]
Quest	-.21 [-.45, .03]	-.43 [-.93, .07]
Existential Isolation	-.19 [-.43, .05]	.71 [.21, 1.21]
Stress	-.10 [-.34, .14]	-.99 [-1.49, -.49]
Depression	.04 [-.20, .28]	-1.25 [-1.75, -.75]
Anxiety	.16 [-.08, .40]	-1.00 [-1.50, -.50]
Presence of Meaning in Life	-.38 [-.62, -.14]	.13 [-..37, .63]
Spiritual Well-being	.19 [-.05, .43]	.-.24 [-.74, .26]
Small Spiritual Well-being	.47 [.23, .71]	-.85 [-1.35, -.35]

Target Analyses

Correlation analyses were conducted to examine the general relationships between quest,

EI, and the measures of well-being (see Table 5). Quest religiosity was negatively associated

with EI but significantly related to lower well-being (e.g., greater depression, lower spiritual

health) across each category except for meaning presence and the short spiritual well-being scale.

Further, EI showed the same pattern, albeit weaker; greater isolation was associated with

decreased well-being across all dimensions aside from anxiety.

Table 5

Descriptive statistics and correlation matrix for the measures in Study 3.

		M	SD	2	3	4	5	6	7	8
1	Quest	4.13	.90	-.11*	.34***	.40***	.36***	-.28***	-.06	-.11^
2	Existential Isolation	3.64	.98		.12*	.12*	.05	-.16**	.07	-.17**
3	Stress	3.76	1.54			.86***	.86***	-.42***	-.08	-.20***
4	Depression	3.50	1.71				.82***	-.49***	-.10^	-.31***
5	Anxiety	3.46	1.58					-.35***	-.16**	-.16**
6	Spiritual Well-being	4.89	1.06						-.42***	.66***
7	Small Spiritual Well-being	2.41	1.21							-.30***
8	Presence of meaning	4.92	1.23							

Note. ^ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

A mediation path model using AMOS version 26 was utilized to allow quest religiosity to predict EI (see Figure 2) while both variables simultaneously predicted depression, stress, anxiety, presence of meaning, and the two indicators of spiritual well-being (see Table 6). Depression, stress, and anxiety were correlated given the positive relationship between variables.[2] The indirect effect of quest onto each well-being measure was estimated using 1,000 bootstrap resamples (see Table 7). For all analyses reported herein, the relationships between scales are described while controlling for all other variables. Mimicking the correlation results, quest negatively predicted EI (*a* path). Existential isolation, in turn, predicted greater stress and depression but lower meaning presence and spiritual well-being (*b* paths). There was no relationship between EI and anxiety or short spiritual well-being. A similar pattern of results was found for quest religiosity and health outcomes (i.e., *c'* paths). That is, high quest was associated

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[2] Removing these correlations did not change the pattern of results, nor their magnitude in either Study 3 or 4.

with greater stress, depression, and anxiety, while simultaneously predicting lower meaning in life and spiritual well-being (both scales).

In terms of mediation, there was a marginally significant indirect effect of quest in predicting reduced anxiety, stress, and depression through EI, while increasing meaning presence and spiritual well-being. There was no mediating effect of quest on the short spiritual well-being scale. Overall, these results suggest that quest is associated with lower well-being in general, but greater health when examined through reduced EI.

Table 6.

Inferential Statistics for the path model of quest predicting existential isolation and well-being.

	b	SE	β	95% CI	
Existential Isolation					
Quest	-.14	.05	-.13*	-.25	-.02
Stress					
Existential Isolation	.21	.07	.13**	.04	.36
Quest	.69	.08	.41***	.49	.83
Depression					
Existential Isolation	.23	.08	.13**	.07	.39
Quest	.86	.09	.45***	.65	1.01
Anxiety					
Existential Isolation	.12	.08	.10^	-.04	.28
Quest	.72	.08	.41***	.51	.89
Presence of Meaning					
Existential Isolation	-.22	.06	-.18***	-.37	-.07
Quest	-.16	.07	-.12*	-.27	-.001
Spiritual Well-being					
Existential Isolation	-.20	.05	-.18***	-.32	-.07
Quest	-.37	.06	-.32***	-.46	-.22
Short Spiritual Well-being					
Existential Isolation	.05	.06	.04	-.09	.18
Quest	-.12	.07	-.09^	-.26	< .001

Note. ^ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 7.

Indirect effects of quest on well-being through existential isolation for the path model

	β	95% CI	
Stress	-.02*	-.04	-.001
Depression	-.02*	-.04	-.001
Anxiety	-.01	-.03	.003
Presence of Meaning	.02*	.002	.05
Spiritual Well-being	.02*	.003	.05
Short Spiritual Well-being	-.01	-.02	.01

Note. ^ *p* < .10. * *p* < .05. ** *p* < .01. *** *p* < .001

Exploratory Analyses

Given the correlational nature of this work, and to further explore the relationship between quest and EI, supplementary analyses were performed to examine an alternative mediation pathway. In other words, in order to create a sense of meaning and value, existentially isolated individuals may become more certain in their beliefs (as evidenced by low quest). This might explain the negative relationship between quest and EI as observed in this and the prior study. An increase in belief certainty, in turn, should be associated with heightened well-being. In support, significant indirect effects of this model emerged in that reduced quest in connection with heightened EI was associated with lower feelings of stress, depression, anxiety, and greater meaning presence and spiritual well-being [stress (β = -.05, *p* = .02, *95% C.I.* [-.10, -.01]), depression (β = -.06, *p* = .02, *95% C.I.* [-.11, -.01]), anxiety (β = -.05, *p* = .02, 95% C.I. [-.10, -.01]), meaning in life (β = .02, *p* = .04, *95% C.I.* [<.001, .04]), spiritual well-being (β = .04, *p* = .02, *95% C.I.* [.01, .08]), and short spiritual well-being index (β = .01, *p* = .08, *95% C.I.* [-.001, .03])].

The purpose of Study 3 was three-fold. First, given the contradictory results of Studies 1-2, one question was whether the relationship between quest and EI was positive or negative.

Following Study 2, religious uncertainty was associated with reduced feelings of isolation. These findings are consistent with other work demonstrating that high quest individuals are driven to form diverse social groups with values differing from their own (van Tongeren et al., 2016). Francis and colleagues (2019), for instance, found that quest-oriented persons are drawn to religious denominations that have a higher degree of tolerance (e.g., Catholicism) rather than those with more closed theologies (e.g., Pentecostal). Interestingly, research also shows that the tolerance associated with quest wavers when encountering rigid, fundamentalist individuals (Goldfried & Miner, 2002), especially when closemindedness is promoted (Batson et al., 2008). One direction for future research is to further explore the relationship between quest and EI to see if the negative connection between variables is accounted for by increases in openness to experience, religious tolerance, spiritual acceptance, and so on. Alternatively, or in addition, priming thoughts of fundamentalism may produce a reversal in effects with the reduction in connectedness following quest heightening feelings of EI.

Following past research, the second aim of Study 3 was to examine how quest and EI (separately) affect well-being outcomes. Based on the results of the correlation analyses, along with the significant *c* paths of the target mediation models, persons who scored higher on quest were more likely to experience reduced meaning presence, spiritual health, and greater feelings of stress, anxiety, and depression. These findings are consistent with prior work that has shown that quest religiosity is associated with a host of mental, existential, and spiritual malady (see e.g., Green & Elliot, 2009; Hood et al., 2018). Although quest-oriented individuals value their search, it comes at a cost to their well-being, as spiritual doubts undermine the protective function of their faith (Pargament, 2002). Additionally, the results of the *b*-paths to mediation found that persons who were more existentially isolated also reported lower psychological health

(i.e., stress, anxiety, & depression), meaning, and spiritual health as compared to individuals scoring low on the trait. Not only do these findings replicate prior work on EI and psychological health (Constantino et al., 2019; Costello & Long, 2014; Pinel et al., 2017), Study 3 is important as the first to demonstrate that increased isolation is related to declines in spiritual well-being. Given that most individuals within religion are focused on their interpersonal standing as compared to their congregation (Allport & Ross, 1967; Hood et al., 2018), it is not surprising that feelings of disconnection would disrupt their sense of spiritual harmony. People who are also more existentially isolated may feel as if their religious deity is unavailable to their needs, thereby resulting in detriments to health.

The final aim of this work was to examine the role that EI plays in the relationship between quest orientation and well-being outcomes. The results revealed that the decline in isolation concerns in response to higher quest orientation was related to better psychological and spiritual health. Upon further consideration, and consistent with prior work, these results make sense. Specifically, research among high quest-oriented individuals has found that they actively seek meaning and growth when their beliefs are not supported (Hunsberger et al., 2002). Such activities, according to the EEP tradition, result in existential benefits and increased well-being (Greenberg et al., 2014; Pyszczynski et al., 2015). Additionally, growth motivation can stem from joining diverse groups that also value openness and doubt (van Tongeren et al., 2016). By surrounding themselves with others who share a likeminded tolerance, persons high in quest should gain the spiritual coping mechanisms that often coincide with religion (Pargament, 1997). This heightened belief validation, in turn, has the potential to carryover to well-being outcomes – emotional, psychological, and/or spiritual.

Finally, although not a specific aim of this work, Study 3 also explored an alternative mediation pathway in assessing the role of quest on the relationship between EI and participants' health. Specifically, people may experience an increased need for belief certainty (i.e., quest) to the extent that they feel more existentially isolated. Resolving one's religious doubts (i.e., becoming certain in the uncertain), in turn, should be related to increased well-being. In support, results from Study 3 found that heightened quest in connection to EI was associated with reduced anxiety, depression, stress, and more meaning presence and spiritual health. These findings may be partially explained by prior work showing the EI causes individuals to cling to certainty to reduce negative feelings associated with isolation (Helm, Greenberg et al., 2019). That is, when persons are existentially threatened, they become more confident in their worldviews to reduce vulnerability and protect well-being (Pyszczynski et al., 2015).

Having a better understanding of the relationship between quest and EI, the final experiment sought to further replicate the negative association between variables (i.e., Studies 2-3), while looking at carryover effects on psychological and spiritual health (i.e., Study 3). Importantly, returning to the literature on EI (e.g., Pinel et al., 2004), an additional goal of Study 4 was to introduce an I-sharing prime to ameliorate the previously established correlation between quest and EI (i.e., Study 1) and as originally proposed.

Study 4

If EI is associated with feelings that others do not share one's subjective experience, then promoting some type of commonality (i.e., I-sharing) should alleviate these effects. Pinel and colleagues (2004) define I-sharing as a connection between people by believing that someone else is having a similar experience. This concept builds off early theory by James (1890) in which the self is composed of two components: the *me* and the *I*. According to James, the *me* is

how we view ourselves, our background, and our beliefs. Within modern psychology, the *me* is

most closely associated with our self-concept (Pinel et al.). On the other hand, James discusses

the *I* as the moment-by-moment perceptions that represent the self, including our thoughts,

feelings, and actions. The *I* is the fleeting, subjective experiences that we interpret in the present

moment. It is the *I* that, according to Yalom (1980), leads to feelings of EI – when the *I* is

believed to be alone.

Pinel et al. (2017) suggest that I-sharing is especially desirable for everyone because we

all have a fundamental need to belong and feel connected to others (Bowlby, 1969; Leary, 2005;

Leary & Baumeister, 2000; Maslow, 1943). I-sharing promotes feelings of similarity and

acceptance (Pinel et al., 2018), along with promoting existential connection among individuals

who believe that others are experiencing the world in a similar manner. As a result, persons who

are existentially isolated show a strong preference for I-sharers regardless of state (Pinel et al.,

2006) or trait EI (Pinel & Long, 2012; Note - it often takes several instances of I-sharing to help

trait EI; Helm et al., 2018). Furthermore, research has differentiated I-sharing from me-sharing in

alleviating EI. In this case, me-sharing involves similarity with others regarding objective

features associated with the self (Pinel et al., 2018). For instance, sharing a similar hometown or

background would be considered me-sharing. This is differentiated from I-sharing, which

involves sharing a subjective experience (e.g., two people laughing at a joke or listening to the

same song simultaneously). As a result, persons who have drastically different personalities,

backgrounds, or beliefs can still I-share. In fact, Pinel and colleagues (2004) demonstrated across

multiple studies that people have a strong preference for I-sharers over me-sharers. They found

that when individuals shared a similar background with someone else (i.e., the me-sharer),

participants preferred the me-sharer over a non-me sharer. However, when the non-me-sharer

was also an I-sharer, participants rated the non-me sharer over the me-sharer. In a follow up study, they replicated this preference for I-sharers among individuals who were existentially isolated, suggesting that I-sharing is a beneficial way to promote interpersonal connection and reduce feelings of EI (Pinel & Long, 2012).

There is reason to believe that I-sharing would be especially effective at reducing EI among quest individuals. Although quest is predominantly associated with doubt and uncertainty, two other components of this trait involve appreciation of and openness to novel and diverse approaches to life (Batson, 1976; Beck & Jessup, 2004). In a typical I-sharing paradigm, individuals are told to interact with someone, or information is provided from someone, who shares a similar worldview and can relate to the experience (Pinel et al., 2004). Thus, high quest persons' pursuit of novelty and openness should lead them to take special interest in someone else's approach to life. This is supported by evidence demonstrating that quest individuals value interacting with others even if they do not share similar beliefs (van Tongeren et al., 2016). Although in this context, the dissimilar other might seem existentially threatening at first, they should actually value someone who shares a similar worldview of openness, exploration, and doubt, finding the other like-minded person to be existentially comforting.

Furthermore, quest individuals should be especially receptive to I-sharing, as they desire cognitive complexity, often rejecting simple answers and approaches for an all-encompassing understanding of a subject. Quest individuals often have higher educational attainment (Altemeyer & Hunsberger, 1992) and greater interest in intellectual pursuits (Watson et al., 2011), rejecting ideological dogmatism, and likely to consider conflicting viewpoints as a means to grow (Crowson, 2009; Weeks & Geisler, 2019). Thereby, quest persons should value the religious uncertainty of another individual as they would be presented by a complex discussion,

focusing on multiple aspects of a belief, worldview, or construct. This observed complexity

should serve as a reminder to the quest-oriented person that others also see the world through a

skeptical, open, and understanding lens.

Overall, Study 4 sought to accomplish several goals. The first aim was to replicate the

relationship between quest and EI in terms of a negative association (i.e., Studies 2-3). Second,

returning to the results of the mediational model in the third experiment, Study 4 also explored

the associative links between quest, EI, and well-being outcomes. Specifically, to the extent that

EI is reduced in response to higher quest, then feelings of existential security should result in

improved well-being. Finally, building on Pinel and colleagues, a final goal of Study 4 was to

introduce an I-sharing manipulation to reduce the quest/EI association (see Figure 3). By

proposing these studies, and following the first experiment, the initial goal was to introduce I-

sharing to help ameliorate the positive relationship between religious uncertainty and existential

concerns. However, in replicating the third experiment, it was expected that (a) high quest

orientation would be negatively related to EI, (b) a reduction in existential isolation would relate

to increased well-being, and (c) this effect would be exaggerated when participants feel a sense

of connection with another person. That is, high (vs. low) quest-oriented persons should

experience a stronger positive relationship between EI and well-being following an I-sharing

prime.
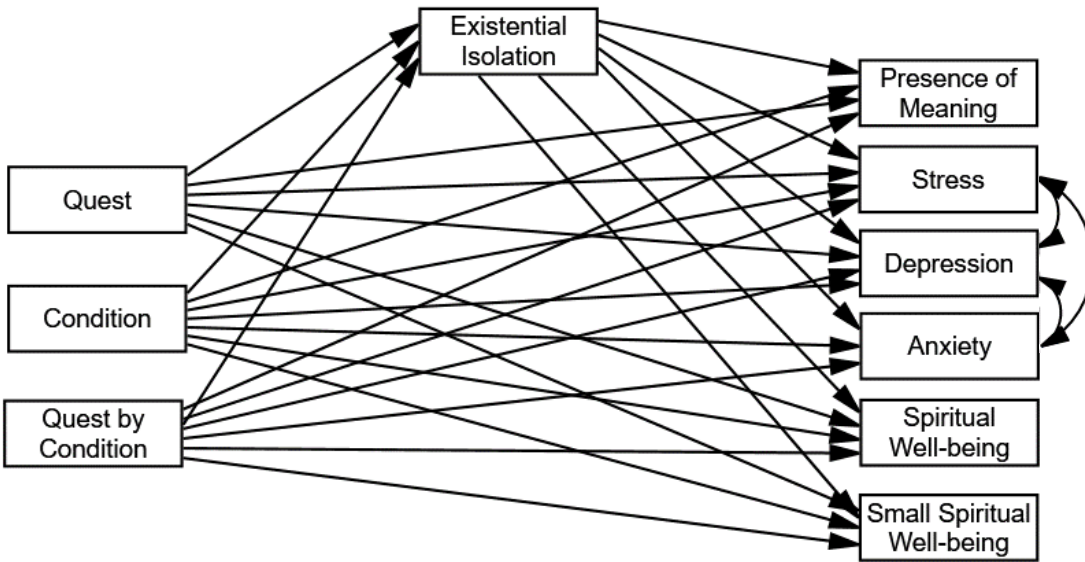
Figure 3. Path model depicting existential isolation as the mediator between quest, I-sharing, and their interaction and well-being (Study 4).

Method

Participants

I conducted an *a priori* power analysis for a moderated design with two groups (i.e., I-sharing vs. control) and three simultaneous, continuous predictors (i.e., Quest, Quest by I-Sharing Interaction, EI) looking for a small effect with .80 power and alpha levels set to .05. The results found that 351 participants were needed to detect an effect. Thus, I set out to collect 500 participants from the general psychology subject pool to account for missing data and non-religiosity (i.e., atheism, agnosticism, non-defined other). Furthermore, Study 4 only sampled participants who self-identified as Christians due to the nature of the I-sharing prime. After running the study through the semester end (and considering the coronavirus pandemic, which majorly stunted recruitment ability), 281 participants took part for partial course credit. Fifty-two participants were removed prior to analysis due to failing attention checks or directly admitting to not paying attention. Overall, the final sample was composed of 229 Christians, predominantly

female (n = 190), and tended to be young adult (M_{age} = 20.19, SD = 2.53). A sensitivity power

analysis based on sample size could detect an effect as small as f^2 = .18.

Materials and Procedures

All study protocols were administered via computer. To avoid influencing participant

responses, a cover story was crafted telling persons that they were taking a study examining

personality and social evaluations. They were also informed that the study was interested in

collecting different perspectives on real world scenarios, and to do this, participants were asked

to write a response to a prompt shared with another person. All materials were presented in the

order described below.

Quest religiosity and filler measures. Participants were given the same quest scale used

in the previous studies (Cronbach's α =.76). However, in order to bolster the cover story,

participants completed several filler measures that were not hypothesized to exert any influence

on any other measures and were therefore, unanalyzed. These items included the 12-item

Personal Need for Structure scale (e.g., "I hate to be with people who are unpredictable;"

Neuberg & Newsom, 1993), the 36-item Experiences in Close Relationships scale (e.g., "I find it

difficult to allow myself to depend on romantic partners;" Brennan et al., 1998), and the 10-item

Need for Meaning Scale (e.g., "I want to feel meaningful;" Abeyta & Routledge, 2018). All filler

items were scored on a 7-point Likert scale ranging from *Strongly Disagree* to *Strongly Agree*.

Each filler measure as well as the quest scale were presented randomly to avoid order effects.

I-sharing manipulation. To manipulate I-sharing, I modified the procedures by Pinel et

al. (2004) in which participants were asked to read and evaluate a short essay written by another

person who was taking the experiment. To promote the cover story, participants were first asked

to write about a topic that was randomly selected for them. All persons wrote "for a short period

about your life as a college student." Following the writing prompt, participants were given a

loading bar saying that they were being matched with another student and that this process would

take a few moments. After 60 s, participants were immediately taken to a screen with an essay

they were told was written by another participant. These essays served as the experimental

conditions for Study 4. Participants were randomly assigned to an uncertainty sharing condition

or a neutral condition. In the uncertainty sharing condition, the essay focused on religious doubts

and uncertainty, stressing the importance of not knowing (e.g., "Maybe we should just be open to

new possibilities and working with others, even from other faiths, to really live the 'right' life").

Participants in the control condition read an essay about the life of a college student that was

coded to promote me-sharing but not I-sharing (e.g., "The biggest challenges consisted of

learning how to study, how to manage my time, and how to approach more rigorous

coursework"). In both cases, participants were told that the essays were written by students

attending the same university. Following the essay, participants evaluated the essay writer using

evaluation criteria developed by Greenberg et al. (1992) to bolster the cover story. Sample items

included "How much do you like this person?" and "How knowledgeable do you think this

person is?" All items were scored on a 9-point Likert scale (1 = *Not at all*; 9 = *Totally*). Scores

were averaged together to serve as a manipulation check for the I-sharing condition (Cronbach's

α =.89). Participants were given as much time as they needed to complete this exercise.

Existential isolation and well-being. Following the I-sharing manipulation, participants

were given the EI scale (Cronbach's α =.83) and well-being measures (Cronbach's αs $\geq$ .77)

described in Study 3.

Demographics and quality check. Participants then completed basic demographics and quality check items described in the previous studies. Finally, participants were debriefed as to the true nature of the experiment.

Results and Discussion

Preliminary Analyses

Dependent variables were assessed for normality using skewness and kurtosis statistics, assessing their 95% confidence intervals, and examining p-p plots. A summary of those statistics within each condition can be found in Table 8. The results found deviations from normality in scores of stress, depression, anxiety, presence of meaning, and the small spiritual well-being scale. Transformations were unable to correct for the increased skewness and kurtosis among the data. As a result, bootstrapping procedures utilizing 1,000 resamples were used to offset any effects of the non-normality on the ML estimator (Hayes, 2018). Given this, as well as the absence of missing data, ML remained the estimation technique in Study 4.

Table 8

Normality statistics for each scale within each condition in Study 4

	I-Sharing Condition		Control Condition	
	Skewness [95% C.I.]	Kurtosis [95% C.I.]	Skewness [95% C.I.]	Kurtosis [95% C.I.]
Existential Isolation	.14 [-.32, .60]	-.01 [-.91, .89]	.37 [-.08, .82]	-.09 [-.99, .81]
Stress	.58 [.12, 1.04]	-.34 [-1.24, .56]	.69 [.23, 1.15]	-.26 [-1.16, .64]
Depression	1.39 [.93, 1.85]	1.84 [.99, 2.79]	1.26 [.08, 1.72]	1.20 [.30, 2.10]
Anxiety	1.23 [.77, 1.69]	2.09 [1.19, 2.99]	.87 [.41, 1.33]	.66 [-.24, 1.56]
Presence of Meaning in Life	-.37 [-.83, .09]	-.30 [-1.20, .60]	-.98 [-1.44, -.52]	.98 [.08, 1.88]
Spiritual Well-being	-.90 [-1.36, -.44]	1.66 [.76, 2.56]	-.58 [-1.04, -.12]	.50 [-.40, 1.40]
Small Spiritual Well-being	.49 [.03, .95]	-.46 [-1.36, .44]	.64 [.18, 1.10]	-.49 [-1.39, .41]

Table 9

Descriptive statistics and partial correlation matrix controlling for condition in Study 4

		M	SD	2	3	4	5	6	7	8
1	Quest	3.98	.89	-.14*	.07	.09	.12^	-.20**	.24***	-.11^
2	Existential Isolation	3.31	1.10		.23***	.23***	.15*	-.16*	-.05	-.11^
3	Stress	2.94	1.26			.67***	.68***	-.27***	.04	-.19**
4	Depression	2.29	1.20				.63***	-.49***	.15*	-.46***
5	Anxiety	2.33	1.06					-.26***	.05	-.23**
6	Spiritual Well-being	5.31	1.02						-.60***	.65***
7	Small Spiritual Well-being	2.40	1.12							-.31***
8	Presence of meaning	5.00	1.34							

Note. ^ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

A moderated regression was conducted to see if there was a difference in student evaluations as a function of condition (dummy coded) and quest (centered). Specifically, following work by Pinel and her colleagues (2006), it was expected that quest participants would express increased liking toward an I-sharer compared to a me-sharer while low quest individuals should exhibit negativity toward the I-sharer due to the topic being discussed. The results found a significant interaction between quest and I-sharing on essay ratings, $b = .55$ ($SE = .20$), $t = 2.76$, $p = .01$, $R^2 = .03$ (see Figure 4). Specifically, although there was no relationship between variables in the control condition, $b = -.06$ ($SE = .14$), $t = .41$, $p = .68$, $R^2 = .001$, quest was related to higher evaluations in the I-sharing condition, $b = .49$ ($S.E. = .14$), $t = 3.52$, $p = .001$, $R^2 = .05$. Looked at differently, at high levels of quest ($+1$ SD), individuals preferred the control essay over the I-sharing one, $b = -.52$ ($SE = .25$), $t = 2.03$, $p = .04$, $R^2 = .02$. A similar pattern emerged at low levels of quest (-1 SD), $b = -1.50$ ($SE = .25$), $t = 6.00$, $p < .001$, $R^2 = .13$.
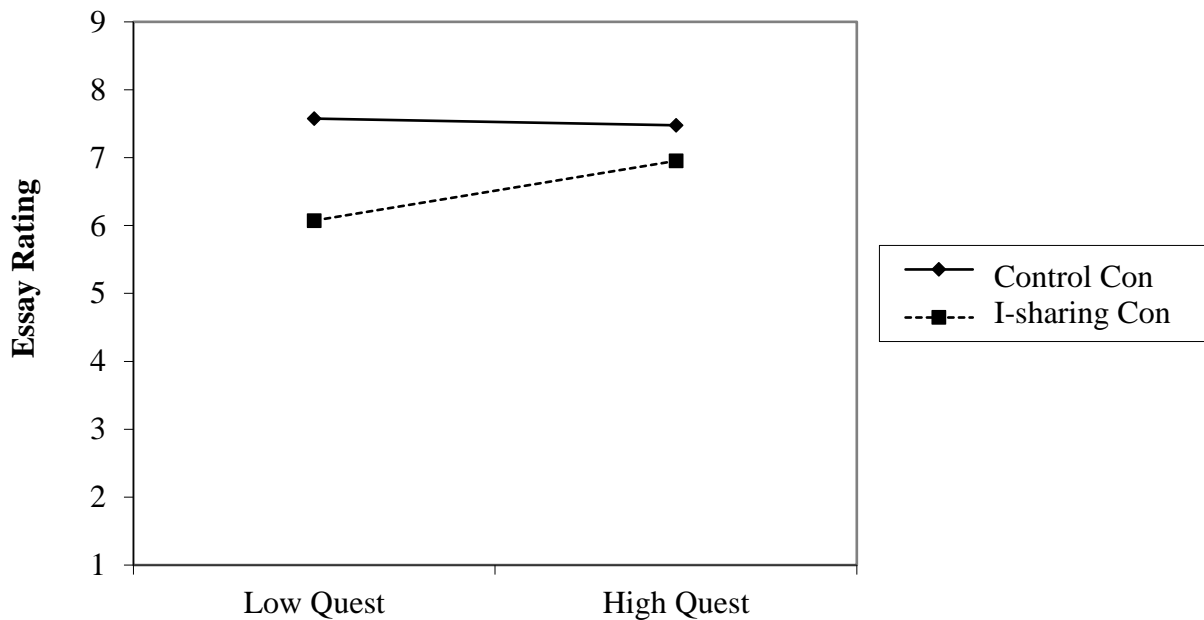
Figure 4. Essay rating as a function of quest religiosity and I-sharing condition (Study 4).

Target Analyses

A partial correlation analysis, controlling for condition, was conducted to look for general relationships within the data and better understand the link between quest and EI (see Table 9). Quest scores were associated with reduced EI, spiritual well-being, and presence of meaning (marginal). However, the trait was positively related to church attendance and prayer frequency (i.e., composite score) and anxiety (marginal). Unlike prior work, quest was not significantly related to any of the mental well-being items (i.e., stress, depression, anxiety). Existential isolation, in turn, was correlated positively with greater anxiety, stress, and depression, while simultaneously relating to reduced spiritual well-being and meaning in life presence.

A path model simultaneously testing the mediational effects of quest (centered) and I-sharing (dummy-coded) on well-being through EI was conducted using AMOS version 26 and 1,000 bootstrap resamples. The results found that neither quest, $b = -.10$ ($SE = .10$), $\beta = -.08$,

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p = .32, *95% CI* [-.33, .12], I-sharing condition, *b* = .03 (*SE* = .13), *β* = .01, *p* = .81, *95% CI* [-.25, .28], or their interaction predicted EI, *b* = -.10 (*SE* = .15), *β* = -.06, *p* = .50, *95% CI* [-.44, .20]. Thus, the interaction effect was not probed further in the current analysis.

Given the non-significant I-sharing effects, a path model was conducted to replicate the results of Study 3 to test whether EI mediates the relationship between quest and well-being. Inferential statistics are reported in Table 10. All relationships reported herein are between the different scales while controlling for remaining variables in the model. The results found a significant negative relationship between quest and EI such that higher quest predicted lower isolation (*a* path). High quest orientation was associated with greater depression, anxiety, church attendance/prayer frequency, and stress (marginal) but lower spiritual health and meaning presence (*c* paths). The *b*-paths to mediation showed that EI predicted increased stress, anxiety, and depression, as well as, reduced presence of meaning and spiritual well-being. There was no relationship between EI and the short spiritual well-being scale. More importantly, there was a significant indirect effect of quest on each of the well-being measures (with the exception of the short spiritual well-being scale) through EI (see Table 11). That is, quest religiosity predicted greater well-being through reduced isolation scores.

Exploratory Analyses

As with Study 3, exploratory analyses were performed to examine reverse mediation. Existential isolation (centered) and I-sharing (dummy-coded) were treated as predictors, while quest was designated as the mediator. Results demonstreated that neither EI, *b* = -.08 (*SE* = .05), *β* = -.09, *p* = .16, *95% CI* [-.23, .10], I-sharing condition, *b* = -.10 (*SE* = .12), *β* = -.06, *p* = .37, *95% CI* [-.34, .14], or their interaction had any effect on quest, *b* = -.08 (*SE* = .08), *β* = -.07, *p* = .29, *95% CI* [-.33, .13].

A second path model of EI predicting well-being through quest was also conducted. Although EI was negatively associated with quest (*a* path), increased isolation positively predicted stress, depression, and anxiety (*c* paths). Existential isolation was also associated with reduced spiritual well-being and meaning presence. In terms of the *b*-paths, quest was related to greater depression, anxiety, stress (marginal), and the composite prayer/church attendance measure, as well as reduced presence of meaning and spiritual well-being. When assessing mediation, no indirect effect of EI through quest was found for stress (β = -.01, *p* = .47, *95% CI* [-.04, .01]), presence of meaning (β = .02, *p* = .12, *95% CI* [-.002, .05]), anxiety (β = -.02, *p* = .07, *95% CI* [-.06, < .001]), depression (β = -.02, *p* = .10, *95% CI* [-.05, .001]), spiritual well-being (β = .03, *p* = .06, 95% *CI* [-.001, .07]), or the short spiritual health index (β = -.03, *p* = .06, *95% CI* [-.07, .001]).

The results of Study 4 built upon the previous studies in several ways. First, mirroring the correlational results of Studies 2-3, quest was negatively related to EI. Although not initially expected (i.e., Study 1), but as previously argued, these findings make sense because quest is associated with greater acceptance, understanding, and openness to grow (Batson, 1976). Striving to uphold this worldview could outweigh risks associated with EI and lead to positive consequences (Greenberg et al., 2014). In support, high quest orientation not only predicted lower EI, but also reduced isolation beliefs to further predict well-being. Thus, Study 4 provides needed insight into ways to promote health among quest individuals. This is especially important with the knowledge that this group suffers from poorer well-being across emotional, psychological, and spiritual facets (Arrowood et al., 2014; Genia, 1996; Lavric & Flere, 2010; van Tongeren et al., 2014). Reducing EI could thereby be an important avenue to promote well-

being in high quest persons, although special care should be taken to ensure a successful shared

connection prime.

Table 10.

Inferential Statistics for the path model of quest predicting existential isolation and well-being
(Study 4).

	b	*SE*	β	95% C.I.	
Existential Isolation					
Quest	-.16	.07	-.12*	-30	-.01
Stress					
Existential Isolation	.29	.07	.24***	.16	.43
Quest	.15	.09	.10^	-.03	.32
Depression					
Existential Isolation	.34	.07	.29***	.23	.47
Quest	.23	.09	.16**	.08	.41
Anxiety					
Existential Isolation	.23	.06	.21***	.11	.35
Quest	.25	.08	.18**	.10	.41
Presence of Meaning					
Existential Isolation	-.22	.07	-.19**	-.39	-.07
Quest	-.21	.09	-.14*	-.41	-.03
Spiritual Well-being					
Existential Isolation	-.20	.05	-.21***	-.32	-.08
Quest	-.29	.07	-.24***	-.42	-.15
Short Spiritual Well-being					
Existential Isolation	.03	.06	.03	-.11	.17
Quest	.30	.08	.23***	.15	.43

Note. ^ *p* < .10. * *p* < .05. ** *p* < .01. *** *p* < .001

Table 11.

Indirect effects of quest on well-being through existential isolation for the path model (Study 4).

	β	95% C.I.	
Stress	-.03*	-.07	-.001
Depression	-.04*	-.08	-.001
Anxiety	-.03*	-.06	>-.000
Presence of Meaning	.02*	<.000	.06
Spiritual Well-being	.03*	.001	.06
Short Spiritual Well-being	-.003	-.03	.02

*Note. ^ p < .10. * p < .05. ** p < .01. *** p < .001*

That being said, the I-sharing manipulation failed to influence either EI or quest in the current sample. According to past research (e.g., Pinel et al., 2003), I-sharing is when two individuals feel connected, as though their experience and internal states are the same. Although the quest individuals likely should have agreed with the religious doubt essay, it is hard to determine whether participants felt existentially connected to the author. Indeed, the results showed that the prompts did nothing to influence this connection, as participants preferred the me-sharer over the I-sharer. These non-significant results may have been due to the nature of the study in that other work has individuals complete the manipulation in-person while actively interacting with other participants or confederates (Pinel et al., 2003; 2017). This suggests an important caveat to I-sharing, in that a simple agreement with the author is not enough to feel linked, but instead, requires a more powerful *existential* connection.

I-sharing may also be more powerful when building directly off the quest worldview. Quest-oriented persons are especially curious, valuing their spirituality in order to seek answers (Batson, 1976). Although the trait is often considered the self-directed quest for knowledge (Burris et al., 1996), two or more individuals seeking truth together would likely serve a powerful way to promote shared experience and existential connectedness. This is supported by

research showing that increased association stems from when people encounter religious experiences together and discuss their thoughts and feelings following such events (Hood et al., 2018). Persons high in quest are more likely than their fundamentalist counterparts to seek out small group discussions and organizations to dive into the material more deeply (Batson, 1976). By doing this, quest individuals are engaging in a form of I-sharing by openly discussing novel ideas in an attempt to gain a deeper truth. This naturally occurring I-sharing may also explain why the current participants experienced reduced EI as a function of quest given that they may have felt more existentially connected to others.

Finally, the alternative mediation results in Study 4 helped to clarify the direction of these findings. That is, unlike Study 3, quest did not significantly influence the relationship between EI and well-being. One issue may have been power as half the desired number of persons took part in this work. Alternatively, these non-significant findings are reasonable, given that quest is a stable personality variable that is relatively consistent across the lifespan (Batson & Schoenrade, 1991). It seems unlikely that isolation would be powerful enough to affect one's long-standing religious personality. With that being said, the results directionally mimicked Study 3's findings with EI predicting lower quest, which in turn was associated with greater well-being. These findings are consistent with an EEP perspective demonstrating that individuals become more certain in their beliefs to maintain self-esteem and psychological equanimity, particularly in the face of threats (Pyszczynski et al., 2015).

General Discussion

Using an EEP perspective (Pyszczynski et al., 2015), the current studies sought to shed light on EI among quest-oriented individuals, a religious population who focuses on spiritual openness and doubt (van Tongeren et al., 2016). To do this, this work had three broad aims

tested across four different studies. First, one goal was to explore the relationship between EI and

quest. This was done both correlationally (Studies 1-4) and experimentally (Study 2). The results

painted a somewhat inconsistent picture. Initial evidence found a positive, albeit small,

relationship between religious doubt and EI (Study 1). Although the quest manipulation in Study

2 was unsuccessful, the same experiment found that trait quest was related to lower feelings of

EI. This finding was further replicated in Studies 3-4, demonstrating that religious doubts and

uncertainty were associated with reduced EI.

Second, the present work was interested in examining whether the relationship between

religious quest and EI influenced participants' psychological and spiritual health. This was

accomplished in two experiments (Studies 3-4) that yielded a similar pattern of results.

Specifically, participants experienced decreased anxiety, depression, stress, and increased life

meaning and spirituality from EI reductions associated with religious uncertainty. Interestingly,

when the direct effects of quest and isolation were examined on their own in regard to health,

negative relationships emerged, consistent with prior work in both literatures (Constantino et al.,

2019; Genia, 1996; Helm, Greenberg et al., 2019; van Tongeren et al., 2016). These findings

suggest an interplay between variables, such that reduced EI may be an important avenue to

consider in improving quest-oriented persons' well-being.

The third and final goal was to understand the relationship between quest and EI within

the context of existential connection, or I-sharing (Study 4). Following Pinel and colleagues

(2004) and Yalom (1980), it was hypothesized that quest-oriented individuals induced to I-share

with another would experience diminished feelings of EI. This reduction, in turn, should be

related to heightened psychological, existential, and spiritual well-being. The results of Study 4

did not support this hypothesis but were informative nonetheless. To be existentially connected,

it appears that individuals must have something more in common than having the same religious opinion as a person on the internet. Although not examined in the current work, it is possible that the prime elicited me-sharing (i.e., an objective commonality) rather than I-sharing (i.e., a truly unique subjective encounter with another individual; James, 1890). Previous research would suggest that it takes an actual interaction with a person who is presently in the moment to share this unique experience. Given that Study 4 was conducted in the midst of the coronavirus pandemic while individuals were sheltering in place, having persons simultaneously connect presented a challenge that future research should address.

Although not an initial goal, Studies 3-4 also examined evidence for an alternative mediation pathway to establish a directional chain between quest, EI, and well-being outcomes (or, alternatively, isolation, religious uncertainty, & health). The indirect effects of the third experiment revealed that the reduction in quest following heightened EI was associated with better psychological and spiritual well-being. These findings were not replicated in Study 4; however, this experiment was somewhat underpowered with results approaching traditional significance while maintaining the same direction and magnitude as Study 3. It thus seems as though there is a feedback loop between EI and quest. That is, when individuals are isolated, they become more certain in their beliefs to defend against existential concerns (Pyszczynski, Sullivan, et al., 2015). This serves a protective function to increase well-being and diminish the detrimental effects of EI (Helm, Greenberg et al., 2019). Similarly, quest individuals, with their goals of pro-sociality and group formation, seem well-shielded from isolation concerns, resulting in improved health.

More generally, although the negative relationship between quest and EI ran counter to Study 1 and my initial hypothesis, they make sense when thinking about the larger literature on

religious uncertainty. According to van Tongeren and colleagues (2016), quest is considered a growth-focused form of religiosity, leading persons to form diverse social groups with varying beliefs. Non-overlapping worldviews, even if threatening, are taken as an important part of their religious questing. Both forms of defense are an important to high quest individuals' values, an action that leads to existential security (Pyszczynski et al., 2015). Research has found that although quest-oriented persons value openness to alternative worldviews, they also react negatively to those who are close-minded and fundamentalist (Batson et al., 2007). Demographic data supports this argument by showing that high quest orientation is more characteristic of spiritual denominations that promote openness and critical reflection over dogmatic acceptance (Francis et al., 2019). Therefore, these diverse beliefs may be both existentially comforting and threatening to a person high in quest given the appropriate context.

Aside from exploring the associative link between quest and EI, the current work was also interested in examining how spiritual uncertainty is related to well-being. Quest has largely been demonstrated to predict reduced health on mental, spiritual, and existential grounds (see e.g., Hill et al., 2004; Lavrič & Flere, 2010). This trend was generally replicated when examining quest by itself, as both Studies 3 and 4 both found, to varying degrees, that quest predicted greater stress, anxiety, depression (see also, Genia, 1996), reduced life meaning (i.e., existential well-being; van Tongeren et al., 2016), and decreased spirituality (Pargament, 1997). The present work builds upon past literature to demonstrate that doubts, in and of themselves, leave believers vulnerable. Without religious certainty, individuals are unable to use this worldview to cope with daily stressors (Park, 2020). Similarly, by valuing belief openness and growth, persons high in quest are confronted with a large amount of information as part of their journey, some of which would be distressing (e.g., "What is man's purpose?" "Does a god really exist?"). As Hood and

colleagues (1985) note, the negative effects of quest are due, in part, to their existential curiosity, leading them to encounter the bad with the good.

As the present results demonstrate, however, the relationship between quest and negative health may be reduced by variations in EI. This is interesting because many researchers have shown that quest-oriented individuals have difficulty managing existential concerns (see e.g., Arrowood et al., 2018; Jong & Halberstadt, 2016; van Tongeren et al., 2014), leading some to question why these spiritual beliefs are maintained given how much trouble they cause (Arrowood et al., 2020; Vail et al., 2010). The present work adds to this literature by demonstrating that doubts and uncertainties have an important existential benefit for believers. That is, high quest-oriented individuals appear to be more existentially connected to others, even those who are different, and such connections can actually improve well-being. Given work in the EEP literature showing that belief certainty is a primary way to benefit health (Greenberg et al., 2014), the present studies demonstrate an important alternative to this notion of existential security. As Hood and colleagues (1985) suggest, however, quest is a worldview for the religiously mature - those who are readily able and willing to tackle difficult questions and reach complex conclusions. This means that the benefits afforded by such an orientation may not carry over to everyone, such as the average believer.

Although the current results, in large part, supported the negative relationship between quest and EI, it is also important to consider the opposite pattern of results as found in Study 1. Work within EEP suggests that cultural worldviews require the validation of others in order to be effective (Greenberg et al., 2014). In other words, although high quest persons agree that doubts are important, the specific beliefs that they hold may not be validated by others, including similarly religiously uncertain individuals. This suggests that such persons *should* feel

existentially isolated. The state-trait existential isolation model (Helm, Greenberg, et al., 2019) may provide some insight on this issue. Specifically, the context of beliefs may hold power in promoting connection versus isolation. If a high quest-oriented person is continually at odds with their worldview (more so than they are in harmony with them), then trait EI is likely to manifest. Conversely, if religious uncertainty is generally shared within the immediate context, then existential connectedness should be promoted, preventing trait EI from manifesting. One direction for future research is to continue to explore factors (e.g., state vs. trait) that contribute to these different pathways, with carryover effects to well-being and increased I-sharing success (i.e., state instances of EI).

The null results of Study 2 are also informative considering the larger literatures on quest and EI. The manipulation check found that the prime successfully increased doubt but did not contribute to isolating beliefs. It would be interesting to see if manipulating EI would affect religious uncertainty, as a lack of understanding by others, should lead to a heightened questioning of cultural values (Helm et al., 2018). This may be one factor that contributes to the manifestation of quest. In other words, religious doubts do not form overnight and are likely to develop from educational attainment and/or theological inconsistency (Puffer et al., 2008). If a person turns to belief but instead feels isolated, detriments to well-being should emerge given his/her inability to connect on an experiential level with other believers (Constantino et al., 2019; Pinel et al., 2017), especially regarding one's faith (Exline & Ross, 2005). When religion does not meet people's needs or provide necessary coping, but instead promotes disharmony, then individuals are likely to start doubting their spirituality (Beck & Jessup, 2004; Puffer et al., 2008). Thus, EI serves as a way for religious doubts to manifest and eventually form quest religiosity.

Existential isolation may also shift depending on one's immediate environment (Pinel et al., 2017; Yalom, 1980). For instance, average isolation feelings may lessen when around other likeminded individuals who have similar internal worldviews (Helm, Greenberg et al., 2019). This same person, however, would experience heightened EI when confronted with others who do not have similar internal states. Regarding quest, such persons may experience heightened isolation when spiritual certainty is salient (e.g., a quest individual in a fundamentalist congregation). This might explain the hostility that quest persons exhibit toward fundamentalists (Batson et al., 2008), as this type of religious threat should increase EI among those with spiritual doubt. Alternatively, quest may be associated with reduced isolation when the environment supports tolerance and acceptance. Even when interacting with fundamentalists, Batson and colleagues found that quest individuals valued the interaction and viewed it to grow so long as the encounter did not promote close-minded acceptance. This could further explain why high quest persons are drawn to certain religious groups and away from others (Francis et al., 2019). In short, it is possible that more fundamentally religious people may evoke feelings of EI. This possibility leads to many future studies to see what environmental context predicts connectedness versus isolation in those who are more quest oriented.

Limitations and Future Directions

Although the current work provides evidence that quest is associated with feelings of EI, there are some limitations that should be addressed. First, the inconsistency in findings between the first and subsequent studies may have been a function of a statistical aberration. The small effect sizes observed throughout, combined with the heightened power within most of the studies, may have led to an overinflated error risk of finding an effect, despite no actual effect. This could be the case in Study 1, Studies 2-4, or a combination of both, with neither outcome

being correct. At the same time, however, given that there was a convergence in findings within 75% of the studies, including those that had adequate power, these concerns are likely to be minimal.

Additionally, it is important to consider the results of Studies 2-4 within the immediate temporal context. During data collection of these studies, a nationwide shelter-in-place order was enacted, causing most people to experience physical isolation for months (Welna, 2020). This was problematic, theoretically and practically, as persons were naturally experiencing heightened interpersonal isolation, a condition associated with increased EI (Helm et al., 2018). Thus, these findings may be affected due to a raised baseline of EI within the population. When looking at the results of Study 2, however, there were small to moderate positive correlations with other forms of isolation - patterns that were almost identical to those by Pinel et al. (2017). Studies 3 and 4 were collected soon after the second study, suggesting that sample characteristics should have been similar, minimizing the chance for trait EI to increase, as it takes considerable time to do so (Helm, Greenberg et al., 2019). Nevertheless, once the widespread quarantine is lifted, the field would benefit from further replication with minimized isolation threat in the environment.

Further, although quest is a multi-religious construct, the current work was predominantly Christian, suggesting the need for additional replication using more diverse spiritual samples. Indeed, other religions (e.g., Buddhism) are especially likely to value doubt in their pursuit of religious and spiritual growth (Miller & Kelley, 2005). Therefore, the present findings may not extend to other religions beyond Christianity. Similarly, the current samples were comprised primarily of young, American females. There is considerable work to suggest that women are more likely to be religious than men, especially in Judeo-Christian populations

(Pew, 2018). As a result, these effects may only replicate within women, but moreover, only young, Christian females grappling with spiritual doubts.

Although quest seems well-suited to understand existential issues within religion, there remain other spiritual orientations to which the current work can apply. For instance, extrinsic individuals are most motivated by external gains that they receive from religion, often prioritizing the social advantages of belief (Allport & Ross, 1967). As a result, EI should be especially troubling to these persons, as they should be more likely to cling to the social validation of others. Perhaps, more interestingly, individuals high in trait EI may be motivated to become extrinsically religious to meet their belongingness needs. On the other hand, intrinsics, who focus on their personal relationship with the deity and deprioritize their social standing within religion (Donahue, 1985), may not be as affected by EI. At the same time, however, given that intrinsic persons focus on spiritual connectedness, feeling isolated from their primary deity may lead to exaggerated spikes in EI, more so than other experiences of isolation or loneliness.

Despite these limitations, the current work is advantageous for a couple of reasons. First, although quest-oriented persons experience heightened existential vulnerability (Jong & Halberstadt, 2016; Vail et al., 2010), their openness allows them to grow and understand complex issues from all perspectives (Weeks & Geisler, 2019). This makes high quest persons especially well-suited to I-share with others, even non-questers (although this will likely be limited when dealing with fundamentalists; Batson et al., 2007). Thus, quest orientation may serve as a naturally occurring source of I-sharing, explaining why this characteristic is often valued in religious society (e.g., Martin Luther, Pope Benedict, Buddha). Future research could utilize high quest individuals when trying to elicit feelings of existential connectedness. Of course, the doubts and uncertainty in quest would likely be existentially threatening to

fundamentalists or other types of non-quest individuals (see e.g., Schaafsma & Williams, 2012), so this possibility should be explored as well.

Second, the present research is beneficial within a therapeutic context. There is a growing desire among clinicians to implement faith into therapy (Exline & Ross, 2005), as many individuals report spiritual struggles as part of their underlying concerns (Pargament, 2002). From a quest perspective, focusing on an existential connection as part of treatment may increase emotional and psychological health. Similarly, there is growing concern within religious communities about how spiritual leaders can best cater to their congregations, given the large diversity of religious followers (Hoeft et al., 2013). The current work highlights these individual differences suggesting that quest persons may benefit from their existential connections with others. Clergy members can thus better serve their congregations by providing diverse opportunities for their parishioners to meet their religious needs across multiple avenues (e.g., large assemblies, small groups, social gatherings).

Conclusion

Regardless of their core foundations, religious beliefs remain an important motive in most people's lives. Although quest orientation may be considered a spiritual detriment, given the doubts and uncertainties surrounding beliefs, it can also serve as a bridge to link individuals together and increase their well-being. By feeling connected, all persons, not just those who are religious, are able to address some of the omnipresent human existential concerns that often plague our existence, on individual and societal levels. It thus seems important to take an all-encompassing view of religious orientation to fully understand how these personality constructs are maintained and what associations with deeper existential motives can be revealed. Focusing on personality differences inherent in all forms of belief, we can improve people's well-being by

understanding the motivations and surroundings that promote spiritual and existential harmony

and attempt to reduce those that cause discord.

Quest Scale (Batson & Schoenrade, 1991)

Please indicate to what extent you agree or disagree with the following statements.

1 = Strongly Disagree………………9 = Strongly Agree

1. I was not very interested in religion until I began to ask questions about the meaning and purpose of my life.

2. I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world.

3. My life experiences have led me to rethink my religious convictions.

4. God wasn't very important for me until I began to ask questions about the meaning of my own life.

5. It might be said that I value my religious doubts and uncertainties.

6. For me, doubting is an important part of what it means to be religious.

7. I find religious doubts upsetting.

8. Questions are far more central to my religious experience than are answers.

9. As I grow and change, I expect my religion also to grow and change.

10. I am constantly questioning my religious beliefs.

11. I do not expect my religious convictions to change in the next few years.

12. There are many religious issues on which my views are still changing.

Existential Isolation Scale (Pinel et al., 2017)

Please rate the extent to which you agree or disagree with each of the following statements:

1 = Strongly Disagree; 9 = Strongly Agree

1. I usually feel like people share my outlook on life.

2. I often have the same reactions of things that other people around me do.

3. People around me tend to react to things in our environment the same way I do.

4. People do not often share my perspective.

5. Other people usually do not understand my experiences.

6. People often have the same "take" or perspective on things that I do.

UCLA Loneliness Scale (Russell, 1996)

Please respond to each of the following statements in terms of how you are feeling right now. Indicate how true each statement is for you at this time, using the following scale:

      1 = disagree strongly

      2 = disagree

      3 = disagree slightly

      4 = neither disagree nor agree

      5 = agree slightly

      6 = agree

      7 = agree strongly

___1. Do you feel that you lack companionship?

___2. Do you feel that you have a lot in common with the people around you?

___3. Do you feel close to people?

___4. Do you feel left out?

___5. Do you feel that no one really knows you well?

___6. Do you feel isolated from others?

___7. Do you feel that there are people who really understand you?

___8. Do you feel that people are around you but not with you?

___9. Do you feel that there are people you can talk to?

___10. Do you feel that there are people you can turn to?

Alienation Scale (Jessor & Jessor, 1977)

Please respond to each of the following statements in terms of how you are feeling right now.

Indicate how true each statement is for you at this time, using the following scale:

1 = disagree strongly

2 = disagree

3 = disagree slightly

4 = neither disagree nor agree

5 = agree slightly

6 = agree

7 = agree strongly

1. I feel that the kids I know are not too friendly.

2. Most of my academic work in school seems worthwhile and meaningful to me.

3. I feel uncertain about who I really am.

4. I feel that my family is not as close to me as I would like.

5. When kids I know are having problems, it's my responsibility to try to help.

6. I wonder whether I'm becoming the kind of person I want to be.

7. It's hard to know how to act most of the time since you can't tell what others expect.

8. I feel left out of things that others are doing.

9. I can't really count on other people when you have problems or need help.

10. Most people don't seem to accept me when I'm just being myself.

11. I find it difficult to feel involved in the things I'm doing.

12. Hardly anyone I know is interested in how I really feel inside.

13. I generally feel that I have a lot of interests in common with the other students in this school.

14. I feel alone when I am with other people.

15. If I really had my choice I'd live my life in a way that I do.

Social Desirability Scale (Crowne & Marlowe, 1960)

Please respond to each of the following statements in terms of how you are feeling right now.

Indicate how true each statement is for you at this time, using the following scale:

1 = disagree strongly

2 = disagree

3 = disagree slightly

4 = neither disagree nor agree

5 = agree slightly

6 = agree

7 = agree strongly

1. Before voting I thoroughly investigate the qualifications of all the candidates.

2. I never hesitate to go out of my way to help someone in trouble.

3. It is sometimes hard for me to go on with my work if I am not encouraged.

4. I have never intensely disliked anyone.

5. On occasion I have had doubts about my ability to succeed in life.

6. I sometimes feel resentful when I don't get my way.

7. I am always careful about my manner of dress.

8. My table manners at home are as good as when I eat out in a restaurant.

9. If I could get into a movie without paying and be sure I was not seen I would probably do it.

10. On a few occasions, I have given up doing something because I thought too little of my ability.

11. I like to gossip at times.

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

13. No matter who I'm talking to, I'm always a good listener.

14. I can remember "playing sick" to get out of something.

15. There have been occasions when I took advantage of someone.

16. I'm always willing to admit it when I make a mistake.

17. I always try to practice what I preach.

18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

19. I sometimes try to get even rather than forgive and forget.

20. When I don't know something I don't at all mind admitting it.

21. I am always courteous, even to people who are disagreeable.

22. At times I have really insisted on having things my own way.

23. There have been occasions when I felt like smashing things.

24. I would never think of letting someone else be punished for my wrong-doings.

25. I never resent being asked to return a favor.

26. I have never been irked when people expressed ideas very different from my own.

27. I never make a long trip without checking the safety of my car.

28. There have been times when I was quite jealous of the good fortune of others.

29. I have almost never felt the urge to tell someone off.

30. I am sometimes irritated by people who ask favors of me.

31. I have never felt that I was punished without cause.

32. I sometimes think when people have a misfortune they only got what they deserved.

33. I have never deliberately said something that hurt someone's feelings

Need to Belong (Leary et al., 2013)

Instructions: For each of the statements below, indicate the degree to which you agree or disagree with the statement at this moment.

1 = Not at all; 5 = Extremely

_____ 1. If other people don't seem to accept me, I don't let it bother me.

_____ 2. I do not things that will make other people avoid or reject me.

_____ 3. I seldom worry about whether other people care about me.

_____ 4. I need to feel that there are people I can turn to in times of need.

_____ 5. I want other people to accept me.

_____ 6. I do not like being alone.

_____ 7. Being apart from my friends for long periods of time does not bother me.

_____ 8. I have a strong need to belong.

_____ 9. It bothers me a great deal when I am not included in other people's plans.

_____ 10. My feelings are easily hurt when I feel that others do not accept me.

Depression, Anxiety, Stress Scale (Antony et al., 1998)

Please rate the extent to which you agree or disagree with each of the following statements:

1 = Strongly Disagree; 7 = Strongly Agree

1. I found it hard to wind down

2. I was aware of dryness of my mouth

3. I couldn't seem to experience any positive feeling at all

4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)

5. I found it difficult to work up the initiative to do things

6. I tended to over-react to situations

7. I experienced trembling (e.g., in the hands)

8. I felt that I was using a lot of nervous energy

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

10. I felt that I had nothing to look forward to

11. I found myself getting agitated

12. I found it difficult to relax

13. I felt down-hearted and blue

14. I was intolerant of anything that kept me from getting on with what I was doing

15. I felt I was close to panic

16. I was unable to become enthusiastic about anything

17. I felt I wasn't worth much as a person

18. I felt that I was rather touchy

19. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart

rate increase, heart missing a beat)

20. I felt scared without any good reason

21. I felt that life was meaningless

Meaning in Life Scale (Steger et al., 2006).

Instructions: Please take a moment to think about what makes your life and existence feel important and significant to you. Respond to the following statements as truthfully and accurately as you can.

1 = Absolutely Untrue; 7 = Absolutely True

1. ___ I understand my life's meaning.

2. ___ I am looking for something that makes my life feel meaningful.

3. ___ I am always looking to find my life's purpose.

4. ___ My life has a clear sense of purpose.

5. ___ I have a good sense of what makes my life meaningful.

6. ___ I have discovered a satisfying life purpose.

7. ___ I am always searching for something that makes my life feel significant.

8. ___ I am seeking a purpose or mission for my life.

9. ___ My life has no clear purpose.

10. ___ I am searching for meaning in my life.

Spiritual Well-being Scale (Paloutzian & Ellison, 1991)

For each of the following statements select the choice that best indicates the extent of your agreement or disagreement as it describes your personal experience.

1. I don't find much satisfaction in private prayer with God

2. I don't know who I am, where I came from, or where I'm going

3. I believe that God loves me and cares about me

4. I feel that life is a positive experience

5. I believe that God is impersonal and not interested in my daily situations

6. I feel unsettled about my future

7. I have a personally meaningful relationship with God

8. I feel very fulfilled and satisfied with life

9. I don't get much personal strength and support from my God

10. I feel a sense of well-being about the direction my life is headed in

11. I believe that God is concerned about my problems

12. I don't enjoy much about life

13. I don't have a personally satisfying relationship with God

14. I feel good about my future

15. My relationship with God helps me not to feel lonely

16. I feel that life is full of conflict and unhappiness

17. I feel most fulfilled when I'm in close communion with God

18. Life doesn't have much meaning

19. My relation with God contributes to my sense of well-being

20. I believe there is some real purpose for my life

Personal Need for Structure Scale (Neuberg & Newsom, 1993)

Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" answers to these questions. People are different, and we are interested in how you feel. Please respond according to the following 7-point scale:

1 = strongly disagree

2 = moderately disagree

3 = slightly disagree

4 = neutral

5 = slightly agree

6 = moderately agree

7 = strongly agree

1.   It upsets me to go into a situation without knowing what I can expect from it.

2.   I'm not bothered by things that interrupt my daily routine.

3.   I enjoy having a clear and structured mode of life.

4.   I like to have a place for everything and everything in its place.

5.   I enjoy being spontaneous.

6.   I find that a well-ordered life with regular hours makes my life tedious.

7.   I don't like situations that are uncertain.

8.   I hate to change my plans at the last minute.

9.   I hate to be with people who are unpredictable.

10.   I find that a consistent routine enables me to enjoy life more.

11.   I enjoy the exhilaration of being in unpredictable situations.

12.   I become uncomfortable when the rules in a situation are not clear.

Experiences in Close Relationships Scale (Brennan et al., 1998)

Please rate the extent to which you agree or disagree with each of the following statements:

1 = Strongly Disagree; 7 = Strongly Agree

1. I'm afraid that I will lose my partner's love.

2. I often worry that my partner will not want to stay with me.

3. I often worry that my partner doesn't really love me.

4. I worry that romantic partners won't care about me as much as I care about them.

5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.

6. I worry a lot about my relationships.

7. When my partner is out of sight, I worry that he or she might become interested in someone else.

8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.

9. I rarely worry about my partner leaving me.

10. My romantic partner makes me doubt myself.

11. I do not often worry about being abandoned.

12. I find that my partner(s) don't want to get as close as I would like.

13. Sometimes romantic partners change their feelings about me for no apparent reason.

14. My desire to be very close sometimes scares people away.

15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.

16. It makes me mad that I don't get the affection and support I need from my partner.

17. I worry that I won't measure up to other people.

18. My partner only seems to notice me when I'm angry.

19. I prefer not to show a partner how I feel deep down.

20. I feel comfortable sharing my private thoughts and feelings.

21. I find it difficult to allow myself to depend on romantic partners.

22. I am very comfortable being close to romantic partners.

23. I don't feel comfortable opening up to romantic partners.

24. I prefer not to be too close to romantic partners.

25. I get uncomfortable when a romantic partner wants to be very close.

26. I find it relatively easy to get close to my partner.

27. It's not difficult for me to get close to my partner.

28. I usually discuss my problems and concerns with my partner.

29. It helps to turn to my romantic partner in times of need.

30. I tell my partner just about everything.

31. I talk things over with my partner.

32. I am nervous when partners get too close to me.

33. I feel comfortable depending on romantic partners.

34. I find it easy to depend on romantic partners.

35. It's easy for me to be affectionate with my partner.

36. My partner really understands me and my needs.

Need for Meaning Scale (Abeyta & Routledge, 2018)

Please rate the extent to which you agree or disagree with each of the following statements:

1 = Strongly Disagree; 7 = Strongly Agree

1. If I cannot see the meaning in my life, I don't let it bother me.

2. I try hard not to do things that will make me feel like my life lacks meaning.

3. I seldom worry about the meaning of life.

4. I need to feel that life is full of meaning and purpose.

5. I want to feel meaningful.

6. I do not like to feel like life has no real meaning.

7. Being no more significant than any other organism on the planet does not bother me.

8. I have a strong need to find a sense of meaning or purpose in life.

9. It bothers me a great deal when I feel like my life lacks meaning or purpose.

10. I am easily distressed by the thought that my life is insignificant and meaningless.

I-sharing Essay (Arrowood et al., 2020)

I've begun to question my religion and beliefs much more in the past few years. I feel uncertain that the beliefs of my particular religion are the correct ones, as there are many types of religions with many different beliefs and I am not always sure that my religious teachings and beliefs are right. There are just so many beliefs in the world that claim to be correct while anything else is wrong and sinful, how can we really know which one is true? I also sometimes think that what my religion preaches and the actions they take with regard to specific things aren't in line with what I believe. I'm actually sure of it and this makes me want to explore what actually makes up my faith further. I still believe. I'm not an atheist, but I have my doubts that I want to explore and learn from. It's hard sometimes because others seem to be so certain in something that I know is not a full picture, but I'm just supposed to passively agree? When I think about things that have been disputed by science it makes me think that people are taking things too literally and that every part of the bible isn't to be taken literally. Or it means that the people that were in charge of religion back in the day were wrong about things. Maybe we should just be open to new possibilities and working with others, even from other faiths, to really live the "right" life.

Control Essay

I have only been at TCU for a year and a half, but I can easily call this school my home. My freshman year was a mix of high highs and low lows and I gained a lot of insight about myself with each experience. The biggest challenges consisted of learning how to study, how to manage my time, and how to approach more rigorous coursework. While I took AP courses in high school, I never felt so overwhelmed by the pure amount of reading and homework. It was difficult to balance social and academic life at first, but by the end of the year I was able to manage my time more efficiently. I felt more settled in and comfortable during my first semester of sophomore year. I had a solid group of friendships and relationships that I was excited to come back to and most of my classes were more focused towards my major. I currently live on campus and am thankful to have my own room and a share living space with my 3 roommates. We enjoy going out together or hanging out with a movie on in our room. I feel more in control of my schoolwork and my extracurriculars now. I prioritize the clubs and events that I want to participate in. This way, I can invest more time and energy into each area rather than spread myself too thin. Overall, TCU has challenged me academically, socially, and personally and I am glad to call TCU my home.

Essay Evaluations (Greenberg et al., 1994)

Please evaluate the previous essay using the following criteria.

1 = Not at all; 9 = Totally

1. How much do you like this person?

2. How intelligent did you think this person is?

3. How knowledgeable did you think this person is?

4. How much did you agree with this person's opinion?

5. From your perspective, how true do you think this person's opinion is?

Study Reactions

Do you have any thoughts or feelings about this experiment?

_____

_____

_____

Have you been in any other study that was similar to this one?   Yes   No

     If yes, please explain_____

   1. Did you discuss the details of this study with any other students prior to participating?
                   Yes   No

   2. Did you read all questions carefully and answer them honestly?

            1   2   3   4   5   6   7   8   9
    NOT AT ALL   VERY MUCH SO

   3. Are you familiar with terror management theory?   Yes   No

   4. Have you been in a study that asked you about your thoughts and feelings associated with
   death?
                Yes   No

Demographic Information

1. What is your gender identity?
   a. Female
   b. Male
   c. Nonbinary
   d. Other/not listed (please enter here: ___)
   e. Prefer not to respond

2. What is your age? _____

3. What is your relationship status?
   a. Single
   b. Casually dating someone
   c. In a committed relationship
   d. In a domestic partnership
   e. Engaged
   f. Married
   g. Separated
   h. Divorced
   i. Widowed

4. Which race best describes you?
   1. American Indian/Alaska Native   2. Asian
   3. Latino/Hispanic   4. Native Hawaiian or Other Pacific Islander
   5. White/non-Hispanic   6. Black or African-American
   7. Other (specify): _____

5. What is your religious or philosophical preference?

   1. Christian
   2. Protestant
   3. Catholic
   4. Jewish
   5. Muslim
   6. Atheist
   7. Agnostic
   8. Buddhist
   9. Hindu
   10. Other

Quality Control Items (Nielsen & Bauer, 2018)

Please answer each question using the following scale (your answer to these questions will not

impact your credit): 1 = Strongly Disagree; 5 = Strongly Agree.

1. I put enough effort toward this study

2. I gave this study enough attention

3. In your honest opinion, should we use your data in our analysis of this study?

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VITA

Robert Britton Arrowood was born on February 12, 1992, in Elizabethton, Tennessee. He is the son of Diane Gentry. He graduated from Unicoi County High School in 2010 and received his Bachelor of Ars degree with a major in Psychology from Tusculum College, Greeneville in 2014. He received his Master of Science degree focusing in Research Psychology from The University of Tennessee at Chattanooga, Chattanooga, in 2016.

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ABSTRACT

MAN'S QUEST FOR MEANING: EXISTENTIAL ISOLATION AND QUEST RELIGIOSITY

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The current work examined the association between existential isolation and religious quest

orientation (i.e., spiritual belief uncertainty) in four experiments. Specifically, Study 1

demonstrated a positive association between quest religiosity and trait existential isolation. In

Study 2, there was no change in existential isolation scores as a function of priming quest

uncertainty (vs. control conditions). However, supplemental results found that quest was

associated with reduced existential isolation. An additional goal of this work was to explore the

associative link between quest orientation, existential isolation, and well-being outcomes. Using

path modeling, Study 3 found that, contrary to the first experiment, greater quest religiosity was

associated with lower existential isolation, which in turn, predicted increased well-being. Study 4

attempted to build on the third experiment by promoting a sense of shared experience (i.e., I-

sharing). Although the I-sharing condition did not influence isolation, the same general trend

emerged in that heightened quest uncertainty contributed to better well-being through reduced

isolation beliefs. Taken together, these results suggest a complex picture when examining

existential isolation among the religiously skeptical, and that their openness and acceptance may

lead to better ability to cope with isolation.