Judgments of Meaning in Life, Religious Beliefs, and the Experience of Cognitive (Dis)Fluency

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Abstract

The primary aim of the current studies was to test whether religiousness interacted with self-reported levels of meaning in life (MIL) to predict the ease or difficulty in judging one's MIL, the search for meaning itself, and religious doubt. Undergraduate students in Study 1 ($N = 111$) and adult participants recruited online in Study 2 ($N = 206$) completed measures of religious beliefs, MIL, cognitive fluency related to MIL, and related variables. Study 3 merged these data sets. In Study 4 ($N = 255$), online participants completed measures of religious beliefs, cognitive fluency related to religious beliefs, and MIL. Studies 1 and 2 showed that highly religious people with lower MIL reported greater difficulty making their MIL judgments than other people. Study 3 showed that they were also more likely to search for MIL and that disfluency mediated this effect. Study 4 demonstrated that they also reported more difficult judgments of religious beliefs and more religious doubts than their religious peers with high MIL. The current studies demonstrate that the experience of ease or difficulty associated with MIL judgments represents an important yet largely unexamined aspect of MIL. Our findings have implications for understanding the cognitive mechanisms underlying responses to meaning threats.

The experience of meaning in life (MIL) is a fundamental feature of human existence that shapes how people understand and interact with the world (Heintzelman & King, 2014). People with a well-developed sense of meaning in life draw connections between their everyday experiences to form a coherent understanding of who they are and what they should be doing (Baumeister, 1991; Steger, 2012). A meaningful life motivates people by providing a sense of purpose and direction (e.g., Ryff & Singer, 1998) and relates to many indicators of well-being and psychological health (e.g., happiness, successful adjustment and coping, life satisfaction; see Steger, 2012). Recent research identifies a host of variables that contribute to MIL, including one's current mood (e.g., Hicks & King, 2008; King, Hicks, Krull, & Del Gaiso, 2006; van Tilburg & Igou, 2011), religious beliefs (e.g., Park, 2013), nostalgic reflection on the past (Routledge et al., 2011), social relationships (Lambert et al., 2013), and the perception of knowing one's "true" self (Schlegel, Hicks, King, & Arndt, 2011).

The current studies extend this literature by examining individual differences in the metacognitive experience of making MIL judgments (i.e., the subjective ease or difficultly in rating the extent to which one's life is meaningful). Extensive research has identified many correlates of self-reported MIL; however, it is unknown whether personality characteristics such as religious beliefs also contribute to the metacognitive experience (e.g., the ease or difficulty) of making those judgments. Additionally, it is unclear whether these individual differences predict psychological outcomes (e.g., positive and negative affect, depression, searching for meaning) over and above MIL judgments themselves. Before describing the specific predictions and rationale for the current studies, we first review research on the metacognitive experience of ease or difficulty and its relation to judgment and decision-making processes.

Metacognition and Subjective Judgments

Fluency refers to the subjective experience of ease or difficulty associated with processing information or completing a mental task (Oppenheimer, 2008). Alter and Oppenheimer (2009, p. 220) succinctly outline this construct, stating:

> As a rule, every cognitive task can be described along a continuum from *effortless* to *highly effortful*, which produces a corresponding metacognitive experience that ranges from *fluent* to *disfluent*, respectively. Thus, for example, watching a film at the cinema is more visually fluent than watching the same film on a small black and white television from the far end of a large room.

Previous research has examined the role of fluency as a metacognitive cue in judgment and decision making, often by

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manipulating the experience of fluency (Alter & Oppenheimer, 2009). Individuals who make judgments under fluent conditions report greater confidence in their judgments, and they judge fluent stimuli as more likable, true, frequent, or familiar (depending on the domain of judgment; for a comprehensive review, see Alter & Oppenheimer, 2009). The effects of fluency on confidence are particularly important because confidence predicts how stable and resistant to change one's judgments are, as well as how predictive they are of future behavior and thoughts (e.g., Briñol, DeMarree, & Petty, 2010; DeMarree & Morrison, 2012).

Recent research suggests that the metacognitive experience of fluency influences judgments of MIL. For example, Schlegel et al. (2011) found that the ease of thinking about an important source of meaning, one's "true self," predicted self-reports of meaning in life (see also Schlegel, Hicks, Davis, Hirsch, & Smith, 2013). Trent, Lavelock, and King (2013) directly manipulated the fluency of a MIL questionnaire by displaying the items in easy-to-read (fluent condition) or difficult-to-read (disfluent condition) fonts. Participants who completed the questionnaire in an easy-to-read font reported higher levels of MIL than those who completed the questionnaire in a difficult-to-read font. While these results support the role of fluency in judgments of MIL, researchers have yet to directly examine individual differences in the experience of fluency when making those judgments (e.g., how easy/difficult it was to consider and rate their MIL), as well as any variables that may contribute to such metacognitive experiences. In the current studies, we specifically examine how religious beliefs relate to the experience of fluency when thinking about the meaningfulness of one's life.

Religion and Meaning in Life

Religious beliefs are a common and central component of many individuals' meaning systems (e.g., Emmons, 2005; Park, 2013). Religion can provide individuals with a core set of beliefs and values, and a deep sense of purpose and direction (e.g., Baumeister, 1991). Accordingly, researchers have identified religion as a meaning system that shapes how people understand themselves and make sense of the world (e.g., Park, 2013; Silberman, 2005).

There is considerable empirical support for the association between religion and MIL. Studies have demonstrated strong positive relationships between self-reported MIL and intrinsic religiousness (e.g., Steger, Frazier, Oishi, & Kaler, 2006), as well as general measures of religiousness (e.g., Hicks & King, 2008; Steger & Frazier, 2005). Religious conversion and the social support provided by a religious community also promote feelings of meaning (Krause, 2008; Paloutzian, 1981). In fact, researchers have suggested that MIL may partially explain the association between religiousness and positive psychological health outcomes (e.g., George, Ellison, & Larson, 2002; Steger & Frazier, 2005). While religion is certainly not unique in acting as a potential source of MIL, the link between religion and MIL is a robust one, widely supported by both theoretical perspectives and empirical research.

Religion and Metacognitive Features of MIL Judgments

We suggest that many religious people are also likely to experience metacognitive fluency when thinking about meaning. Fluency is experienced across a wide variety of domains, including the ease by which one can retrieve relevant information from memory (e.g., recalling what makes life feel meaningful) or make a decision (Alter & Oppenheimer, 2009). For highly religious individuals, religion provides an easily accessible source of meaning that should facilitate easy MIL judgments. For some religious individuals, a lifetime of deep thought and reflection may foster chronic and stable sources of information that make MIL judgments fluent. Religion may also provide a well-rehearsed answer to the question of meaning in life even if people have not thought too deeply about the specific question before. In either case, strong religiousness should provide highly accessible and relevant information that serves to promote the experience of fluency when considering the subjective experience of meaning.

Empirical research supports the proposition that religious beliefs contribute to accessible sources of meaning. For example, religious beliefs are clearly reflected in important goals and personal strivings reported by religious individuals (e.g., Emmons, 2005; Emmons, Cheung, & Tehrani, 1998). Highly religious people are also less influenced by their current mood when judging the meaningfulness of their lives compared to their nonreligious counterparts (Hicks & King, 2008), suggesting that many religious individuals rely on this highly accessible information when judging the meaningfulness of their lives (e.g., Forgas, 1995).

Religious individuals typically report high levels of MIL. This is not only an empirical observation, but also an inherent part of our understanding of religion (Park, 2013; Silberman, 2005). What happens, then, when highly religious individuals feel that their own lives lack meaning? Such a situation might arise from a traumatic experience, philosophical reflection, or chronic depression (e.g., Janoff-Bulman, 1992). When these individuals find themselves reporting lower MIL, would they still experience fluency when making their MIL judgments? Researchers suggest that inconsistent cognitions create a feeling of disfluency (Winkielman, Huber, Kavanagh, & Schwarz, 2012). That is, with conflicting information, judgments are likely experienced as difficult to make. Based on this proposition, we believe that when MIL and religious beliefs contradict each other, such as when highly religious individuals feel their lives lack meaning, people will experience disfluency when contemplating the meaningfulness of their lives.

Search for Meaning as a Consequence of Disfluent Meaning Judgments

Recent research suggests the experience of fluency influences the strategies people employ when reasoning. When information is disfluent, for example, its signals a lack of confidence that prompts individuals to slow down and consider the information more carefully (Alter, Oppenheimer, Epley, & Eyre, 2007; Oppenheimer, 2008; Song & Schwarz, 2008). In contrast, the experience of fluency signals confidence to trust one's initial response (Oppenheimer, 2008). Based on this perspective, we predict that disfluency associated with MIL judgments should similarly compel people to put more effort into thoughts about the meaningfulness of their lives.

One variable that is directly related to this type of effortful processing is search for MIL (Steger et al., 2006; Steger, Kashdan, Sullivan, & Lorentz, 2008). Search for MIL refers to "the strength, intensity, and activity of people's desire and efforts to establish and/or augment their understanding of the meaning, significance, and purpose of their lives" (Steger et al., 2008, p. 200) and reflects an active approach toward understanding one's sense of personal meaning. We predict that highly religious people who report lower levels of MIL (and subsequent disfluency) should indicate a higher search for meaning compared to other individuals.

Importantly, this prediction is congruent with classic and contemporary models focused on the need for meaning (Frankl, 1963; Heintzelman & King, 2014) and cognitive consistency[1] (e.g., Festinger, 1957; Gawronski, 2012; see also Greenberg, Pyszczynski, & Solomon, 1986; Hogg, 2007; Jonas et al., 2014). For instance, the meaning maintenance model (Heine, Proulx, & Vohs, 2006; Proulx & Inzlicht, 2012) proposes that violations of our current expectancies produce feelings of aversive arousal that motivate compensation efforts directed at relieving the aversive arousal (but see also Harmon-Jones & Harmon-Jones, 2012; Routledge & Vess, 2012). Individuals may reduce this type of aversive arousal in a variety of ways (Proulx & Inzlicht, 2012). For instance, individuals may assimilate the inconsistent experience in a way that fits with their current understandings, or they may accommodate the inconsistent experience by modifying their current understandings to be compatible with the experience (Piaget, 1960). That is, individuals may actively assemble new understandings or meaning frameworks in response to meaning threats, further suggesting that lower levels of MIL may enhance the search for meaning for some individuals.

Disfluency and Judgments of Religious Beliefs

Until now, we have focused on how the inconsistency between religiousness and perceived MIL leads to the experience of difficulty when judging one's MIL. Importantly, however, based on our reasoning, highly religious individuals who possess lower levels of MIL should also have difficulty evaluating their own religious beliefs. The metacognitive difficulty should temper confidence with one's ratings (Alter & Oppenheimer, 2009), and perhaps foster doubt in one's religious beliefs. Religious doubt represents a state of uncertainty in one's religious beliefs that often arises from "seeing the validity of two seemingly inconsistent points of view" (Krause, 2006, p. 95). While previous research has shown that manipulating the fluency of items associated with religion lowers levels of religiousness (Gervais & Norenzayan, 2012), it is unclear how individual differences in fluency are associated with these judgments. Complementing our examination of MIL judgments, in Study 4, we explore how the inconsistency between strong religious beliefs and lowered MIL contributes to the experience of ease or difficulty of rating one's religiousness and, ultimately, religious doubt.

The Current Studies

In the current studies, we assessed the subjective experience of fluency in making MIL (and religiousness) judgments. In addition to examining the general relationship between the ease of judgments and relevant psychological variables (i.e., positive and negative affect, depression, search for meaning), the current studies explored the role religiousness plays as a predictor of fluency in this context. Specifically, we tested how religiousness interacts with MIL to predict judgment ease. Based on the notion that strong religious beliefs and higher levels of MIL are consistent with one another, we predicted that highly religious people who report higher levels of MIL would find their judgments relatively easy to make, whereas highly religious people who report lower levels of MIL would find their judgments more difficult due to the inconsistency between their religious beliefs and sense of meaning.

Study 1 specifically assessed religious commitment and the experience of ease when making MIL judgments in a sample of undergraduate students. Study 2 expanded the analysis to a wider variety of religion measures in an online adult sample and addressed several questions raised by the first study. Study 3 integrated the previous data sets to examine search for meaning as a potential response to the inconsistency between strong religious beliefs and low MIL. Finally, Study 4 provided an exploratory analysis of how this inconsistency predicted the ease of considering one's religious beliefs and overall religious doubt.

STUDY 1

In Study 1, we tested how religious commitment and MIL interacted to predict the ease of rating meaning items. We also explored the independent predictive utility of these ease ratings by computing partial correlations between MIL ease (controlling for MIL) and measures of depression, positive and negative affect, and search for meaning.

Method

Participants. One hundred eleven Texas A&M University undergraduate introductory psychology students (59 females) participated in the study and received credit toward the research component of their course. Participants were 18–21 years of age ($M = 18.82$, $SD = 0.82$), predominantly White (82.0%) and non-Hispanic (86.5%).[2]

Materials and Procedure. After signing up to participate in the study, participants received a link to an online survey consisting of the following measures and several general personality questionnaires (e.g., Big Five personality dimensions) included to obscure the purpose of the study from participants.

Positive affect (PA) and negative affect (NA) were first assessed by having participants rate how much they experienced five positive feelings (e.g., "happy," "joyful"; $M = 5.05$, $SD = 1.01$, $\alpha = .90$) and five negative feelings (e.g., "worried/anxious," "unhappy"; $M = 3.46$, $SD = .98$, $\alpha = .72$) on a 7-point scale ($1 = not\ at\ all$, $7 = extremely$). This measure of PA and NA was constructed based on Diener and Emmons (1985).

Participants then completed the Presence subscale of the Meaning in Life Questionnaire (MLQ; Steger et al., 2006). Using a 7-point scale ($1 = not\ at\ all\ true$, $7 = extremely\ true$), participants rated five statements reflecting presence of meaning in life (e.g., "I understand my life's meaning"). A composite MIL presence score was computed, with higher values reflecting greater MIL ($M = 5.01$, $SD = 1.36$, $\alpha = .91$).

Next, each of the five presence of meaning items were shown individually (e.g., Item 1: "I understand my life's meaning"), and participants indicated how easy or difficult it had been for them to respond to each item earlier in the session on a 7-point scale ($1 = extremely\ difficult\ to\ answer$, $3 = somewhat\ difficult$, $5 = somewhat\ easy$, $7 = extremely\ easy\ to\ answer$; $M = 4.57$, $SD = 1.23$, $\alpha = .76$).

To provide a measure of psychological distress, participants completed the Depression subscale from the Personality Assessment Inventory (PAI; Morey, 1991). The Depression subscale consists of 24 items rated on a 4-point scale

($1 = false,\ not\ at\ all\ true$, $4 = very\ true$). Composite scores were computed for depression ($M = 1.74$, $SD = .44$, $\alpha = .90$), with higher scores reflecting greater levels of depression.

Next, participants completed the Religious Commitment Inventory (RCI-10; Worthington et al., 2003). Participants indicated their agreement with 10 statements assessing religious commitment (e.g., "Religious beliefs influence all my dealings in life," "I enjoy working in the activities of my religious organization") on a 7-point scale ($1 = strongly\ disagree$, $7 = strongly\ agree$). Previous research has identified two highly correlated factors (interpersonal and intrapersonal religious commitment) of the RCI-10 and found a single-factor solution to be most parsimonious (Worthington et al., 2003). Accordingly, we report results using the total religious commitment scores computed from all 10 items ($M = 4.17$, $SD = 1.63$, $\alpha = .96$).

Finally, participants completed the MIL Search subscale of the MLQ ($M = 4.75$, $SD = 1.61$, $\alpha = .94$; Steger et al., 2006), rating their agreement with five statements (e.g., "I am searching for meaning in my life") reflecting search for MIL on a 7-point scale ($1 = not\ at\ all\ true$, $7 = extremely\ true$).

Results and Discussion

To verify that participants understood the instructions for the MIL ease rating task, participants were asked to indicate their understanding on a 4-point scale ($1 = very\ well$, $2 = somewhat\ well$, $3 = somewhat\ poorly$, $4 = very\ poorly$; $M = 1.46$, $SD = .67$). Only one participant reported understanding the instructions very poorly, and over 90% of participants reported understanding the instructions somewhat well or very well, suggesting that the instructions for the MIL ease rating task were sufficiently clear.

Bivariate correlations among the variables in Study 1 are reported below the diagonal in Table 1. To examine the predictive value of MIL ease ratings independent from MIL ratings themselves, partial correlation coefficients were computed. We examined the partial correlations between MIL ease (controlling for MIL presence) and search for meaning, depression,

Table 1 Bivariate Correlations Among Variables in Study 1 (Below Diagonal) and Study 2 (Above Diagonal)

	1	2	3	4	5	6	7	8
1. MIL presence	—	−.36	.27	−.65	.29	.63	−.62	.17*
2. MIL search	−.40	—	−.31	.29	−.05^{ns}	−.20	.27	−.13†
3. MIL ease	.62	−.40	—	−.27	.00^{ns}	.21	−.21	.25
4. PAI depression	−.37	.30	−.38	—	−.09^{ns}	−.67	.78	−.14*
5. RCI/composite religion	.58	−.23	.49	−.31	—	.22	−.20	.01^{ns}
6. PA	.42	−.34	.33	−.58	.39	—	−.57	.10^{ns}
7. NA	−.31	.41	−.33	.59	−.27	−.53	—	−.10^{ns}
8. Self-monitoring ease								—

Note. MIL = meaning in life; PAI = Personality Assessment Inventory; RCI = Religious Commitment Inventory; PA = positive affect; NA = negative affect. RCI/composite religion refers to religious commitment in Study 1 and the composite religion variable in Study 2. A full correlation table for Study 2 with all religion variables presented independently is provided in the supplementary materials.
$^{ns}p > .10$. $^{\dagger}p < .10$. *$p < .05$. All other correlations were significant at $p < .01$.
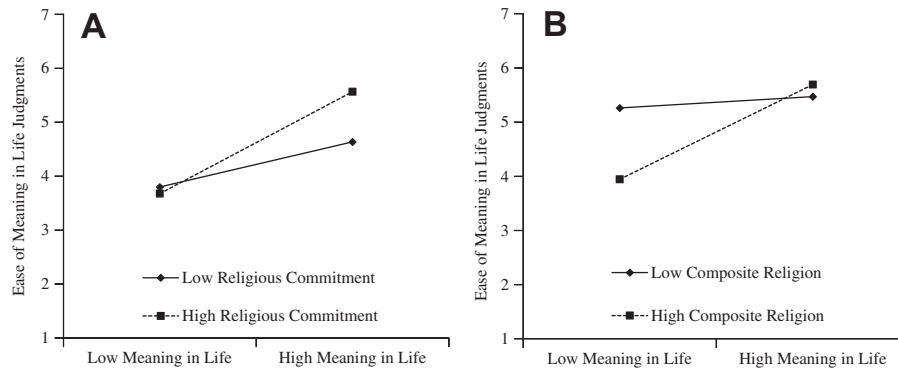
Figure I Ease of meaning in life (MIL) judgments as a function of MIL and religious commitment in Study 1 (Panel A), and MIL and the composite religion variable in Study 2 (Panel B). Predicted values are plotted at one standard deviation above and below the means of MIL and each religion variable.

religious commitment, PA, and NA, as well as the partial correlations between MIL (controlling for MIL ease) and these variables. A complete table of partial correlations is provided in the supplementary materials. MIL ease was a significant predictor of all variables except PA, even when controlling for MIL ratings. These results provide support for the predictive utility of metacognitive ratings of MIL judgments over and above MIL ratings themselves.

We next computed a hierarchical regression equation to examine the interaction between MIL and religious commitment predicting the reported ease of participants' MIL judgments.[3] MIL and religious commitment were mean-centered and entered on the first step of a regression predicting MIL ease ratings, and the product of these scores was entered as the interaction term on the second step. The main effects entered on the first step contributed significantly ($R^2 = .41$, $p < .001$), with both MIL ($b = .46$, $b_{SE} = .08$, $\beta = .51$, $p < .001$) and religious commitment ($b = .14$, $b_{SE} = .07$, $\beta = .19$, $p = .043$) significantly predicting MIL ease ratings.[4] However, these main effects were qualified by a significant MIL × Religious Commitment interaction ($b = .12$, $b_{SE} = .04$, $\beta = .22$, $p = .007$; R^2 change = .04) entered on the second step. Simple slope analyses conducted at one standard deviation above or below the mean of religious commitment revealed that MIL was more strongly associated with MIL ease for participants higher in religious commitment ($b = .69$, $b_{SE} = .12$, $\beta = .77$, $p < .001$) compared to participants lower in religious commitment ($b = .31$, $b_{SE} = .10$, $\beta = .34$, $p = .002$). These results are illustrated in Figure 1 (Panel A).

Study 1 demonstrated that MIL ease ratings predicted search for meaning, depression, religious commitment, and NA over and above the influence of the MIL ratings themselves, and we found that MIL significantly interacted with religious commitment to predict MIL ease ratings, consistent with our hypotheses. MIL was a strong predictor of MIL ease for highly religious participants (one standard deviation above the sample mean), as they tended to experience judgments of high MIL as relatively easy, and judgments of lower MIL as relatively difficult. Less religious participants (one standard

deviation below the sample mean) showed a similar pattern; however, MIL was a significantly weaker predictor of MIL ease. These findings are consistent with religious beliefs being a fundamental part of religious individuals' systems of meaning, and they provide an initial look at the metacognitive experience of MIL judgments.

STUDY 2

One of the goals of Study 2 was to test the robustness of the observed interaction effect. Adult participants were recruited online in an effort to collect a more diverse sample. In addition to religious commitment, we included other measures of religiousness, religious fundamentalism, intrinsic religion, and religious meaning to provide convergent evidence for a general relationship between religiousness and ease of MIL judgments. These varying measures of religion assess different facets of religious belief, but at a basic level all reflect the extent to which religion is a meaningful and important part of one's life. Religious fundamentalism reflects a belief that one set of religious teachings is fundamentally true and must be followed and vigorously defended, and that those who follow these teachings have a special relationship with the deity (Altemeyer & Hunsberger, 2004). Individuals with an intrinsic orientation toward religion value religion for its own sake and incorporate their religious beliefs as a central part of their life (Allport & Ross, 1967; Gorusch & McPherson, 1989).[5] We also included a measure that specifically assessed the extent to which participants see religion as providing them with a sense of meaning and purpose (Krause, 2003).

Finally, we assessed the experience of ease or difficulty in a domain that is largely unrelated to religion or meaning in life in order to provide some clarification of the observed effects. If religious beliefs interact with MIL to predict MIL ease because religion is an important part of some people's meaning systems, we would not expect these effects to influence or be influenced by the experience of ease in another domain that is not particularly relevant to judgments of MIL. Thus, in Study 2, we assessed self-monitoring and ease of making the

self-monitoring ratings to test these predictions. We controlled for self-monitoring ease in our primary analyses to ensure our observed effects were over and above ease experienced in an irrelevant domain. Additionally, we tested the prediction that religiousness and MIL will not interact to predict fluency in an irrelevant domain (self-monitoring ease), but will interact to predict fluency in a relevant domain (MIL ease).

Method

Participants. Two hundred six individuals (88 females) were recruited from Amazon's Mechanical Turk platform (www.mturk.com), an effective online source of high-quality data (Buhrmester, Kwang, & Gosling, 2011), and were paid $0.75 for their participation. Participants were from the United States only, diverse in age ($M = 34.6$, $SD = 12.1$, range = 18–71), and predominantly White (77.2%) and non-Hispanic (94.2%). Participants were also asked to choose the best descriptor of their religious beliefs from the following choices: Jewish, Protestant, Hindu, Catholic, Buddhist, Muslim, Spiritual but not Religious, Atheist/Agnostic, or Other (please specify). The most frequent descriptor of religious beliefs was Atheist/Agnostic (28.6%), followed by Protestant (24.3%), Catholic (16.0%), Other (13.1%), Spiritual but not Religious (9.7%), Jewish (3.4%), Buddhist (2.4%), Muslim (1.0%), and Hindu (0.5%). Two participants (1.0%) did not report their religious beliefs. Further investigation of the "Other" responses revealed that the majority (70.4%) of these participants indicated that they held Christian beliefs (e.g., by typing "Christian" in the provided "please specify" box). In all, 49.5% of the total sample reported holding Christian beliefs (i.e., Catholic, Protestant, or Christian specified for "Other").

Materials and Procedure. After signing up to participate in the study, participants received a link to an online survey consisting of the following measures and several general personality questionnaires included to obscure the purpose of the study from participants.

Participants first completed the measure of PA ($M = 4.72$, $SD = 1.34$, $\alpha = .94$) and NA ($M = 3.13$, $SD = 1.45$, $\alpha = .90$) described in Study 1.

Next, participants completed the measures of MIL presence ($M = 4.87$, $SD = 1.56$, $\alpha = .94$; Steger et al., 2006) and MIL presence ease ($M = 5.21$, $SD = 1.36$, $\alpha = .89$) used in Study 1 before completing the religious measures described below.[6]

The first religion measure participants completed was a four-item general measure of religiousness (Steger & Frazier, 2005) that assesses frequency of religious service attendance, frequency of prayer, and subjective feelings of religiousness and spirituality. Because each item is assessed on a different scale (e.g., *at least once a week* to *never*, *very religious* to *not at all religious*), responses were standardized before computing an average score ($M = -.01$, $SD = .81$, $\alpha = .84$), with positive values reflecting greater religiousness than average and negative values reflecting less religiousness than average.

Religious fundamentalism was assessed using the Revised Religious Fundamentalism Scale (Altemeyer & Hunsberger, 2004), in which participants indicated their agreement with each of 12 statements on an 8-point scale (1 = *very strongly disagree*, 8 = *very strongly agree*; $M = 3.34$, $SD = 2.19$, $\alpha = .97$).

Intrinsic religion was assessed using the I/E-Revised scale (Gorusch & McPherson, 1989). Participants indicated their agreement with the eight intrinsic religion items on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*; $M = 3.85$, $SD = 1.39$, $\alpha = .82$).

Finally, participants completed the same measure of religious commitment ($M = 3.17$, $SD = 1.81$, $\alpha = .96$; Worthington et al., 2003) used in Study 1.

After the religion measures, participants completed the measure of depression described in Study 1 ($M = 1.81$, $SD = .62$, $\alpha = .95$), followed by the Search subscale of the MLQ ($M = 4.39$, $SD = 1.76$, $\alpha = .97$; Steger et al., 2006).

We next assessed ease on a task largely unrelated to judgments of MIL by having participants complete the same procedure used to assess MIL ease, as described in Study 1, but substituting items assessing self-monitoring for the MIL items. We selected five items from the Self-Monitoring Scale (Snyder, 1974) that did not seem to be directly related to MIL (e.g., "I laugh more when I watch a comedy with others than when alone"). After indicating their agreement with each self-monitoring item, participants reported how easy or difficult it was for them to answer each item, analogous to the MIL ease assessment described in Study 1. These ratings of ease for the self-monitoring items were combined to form a composite self-monitoring ease score ($M = 5.58$, $SD = .99$, $\alpha = .79$).

Finally, participants completed a measure of religious meaning (Krause, 2003) that reflected the extent to which religion, in particular, provided them with a sense of meaning and purpose in life. Participants indicated their agreement with six statements (e.g., "My faith gives me a sense of direction in my life") on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*; $M = 3.77$, $SD = 2.15$, $\alpha = .97$).

Results and Discussion

Bivariate correlations among the variables in Study 2 are reported above the diagonal in Table 1. Similar to Study 1, an examination of partial correlation coefficients revealed that MIL ease (controlling for MIL) was a significant predictor of MIL search and a marginal predictor of depression; however, MIL ease was unrelated to religious commitment, PA, or NA in this sample. A complete table of partial correlations is provided in the supplementary materials.

Independent regression analyses were conducted examining the interaction between MIL and each religion measure (mean-centered) predicting MIL ease ratings. The interactions between the religion measures of interest (i.e., Steger & Frazier's [2005] religiousness measure, religious fundamentalism, intrinsic religion, religious commitment, and religious

meaning) and MIL predicting MIL ease were each significant and consistent with the findings from Study 1, as well as one another (all interaction term ps < .033). Additionally, the religion variables were all highly correlated with one another (rs > .77). There were no substantial differences in the significance or pattern of results among the analyses using different religion measures. A table with results from each analysis is provided in the supplementary materials, along with a correlation table with each religion variable presented independently.

To illustrate the general pattern of these results, we ran another regression analysis with a composite religion variable computed by averaging the z-scores of each religion measure. The composite religion variable ($b = -.12$, $b_{SE} = .10$, $\beta = -.08$, $p = .249$) did not significantly predict MIL ease ratings; however, the main effect of MIL ($b = .25$, $b_{SE} = .06$, $\beta = .29$, $p < .001$) was significant in the first step ($R^2 = .08$, $p < .001$). The MIL × Composite Religion interaction ($b = .27$, $b_{SE} = .07$, $\beta = .28$, $p < .001$) entered on the second step (R^2 change = .06) was also significant.[7] Simple slope analyses conducted at one standard deviation above and below the mean of the composite religion variable revealed that MIL was more strongly associated with ease for participants higher in the composite religion variable ($b = .56$, $b_{SE} = .10$, $\beta = .64$, $p < .001$) compared to participants lower in the composite religion variable ($b = .07$, $b_{SE} = .08$, $\beta = .08$, $p = .387$). These results are illustrated in Figure 1 (Panel B).

Ease of Answering Unrelated Items. To verify that our primary findings were not influenced by the experience of ease or fluency in a domain largely unrelated to MIL, we repeated our primary analysis controlling for the experience of ease when making ratings of self-monitoring. Self-monitoring ease was mean-centered and included as a covariate in the regression predicting MIL ease from MIL, the composite religion variable, and their interaction. Self-monitoring ease was a significant predictor of MIL ease ($b = .27$, $b_{SE} = .09$, $\beta = .20$, $p = .003$), but, importantly, MIL and composite religion still significantly interacted to predict MIL ease ($b = .26$, $b_{SE} = .07$, $\beta = .27$, $p < .001$). Additionally, we computed a regression predicting self-monitoring ease from MIL, the composite religion variable, and their interaction to test whether these variables might also predict the experience of ease in a domain largely unrelated to MIL. MIL ($b = .12$, $b_{SE} = .05$, $\beta = .18$, $p = .012$) did significantly predict self-monitoring ease in the first step ($R^2 = .03$, $p = .04$); however, composite religion ($b = -.04$, $b_{SE} = .08$, $\beta = -.04$, $p = .576$) was not a significant predictor. The MIL × Composite Religion interaction entered on the second step (R^2 change < .01) was also nonsignificant ($b = .04$, $b_{SE} = .06$, $\beta = .05$, $p = .535$). Overall, these null findings suggest that religious beliefs interact with MIL ratings to predict the ease with which people can make MIL judgments, and they do not necessarily generalize to the ease or difficulty of judgments unrelated to meaning.

Consistent with Study 1, the results of Study 2 demonstrated that the relationship between MIL and MIL ease was consistently moderated by many indicators of religious beliefs. For highly religious participants, MIL was a strong positive predictor of MIL ease, as they found it much more difficult to make judgments of lower MIL compared to higher MIL. In contrast, MIL was unrelated to MIL ease for less religious participants. We also examined the experience of ease in ratings of self-monitoring, a domain largely unrelated to MIL. Our results remained consistent controlling for self-monitoring ease, and MIL did not interact with the religious measures to predict self-monitoring ease, suggesting that the current findings do not generalize to any potential experience of ease, but are instead more specific to MIL judgments.

STUDY 3

If highly religious individuals who have lower MIL find the act of considering their experience of meaning to be especially difficult, are they also motivated to take actions that might help resolve these difficulties (e.g., Oppenheimer, 2008)? In Study 3, we test this possibility by combining the data from the previous studies to see whether MIL and religious beliefs also interact to predict search for MIL. If individuals are motivated to find and maintain a sense of meaning (e.g., Heine et al., 2006), we predict that one way highly religious individuals with lower MIL (and disfluent MIL judgments) might pursue this goal is by actively searching for MIL. Study 3 tests this hypothesis.

Method

Participants. Data from Studies 1 and 2 were combined to produce a data set with a total of 317 participants. Demographic information is reported in each respective study.

Materials and Procedure. Participants completed the materials as described in the Method section of the specific study in which they participated. The variables that were retained in the combined data set included MIL presence ($M = 4.92$, $SD = 1.49$; Steger et al., 2006), MIL ease ($M = 4.98$, $SD = 1.35$), religious commitment ($M = 3.52$, $SD = 1.81$; Worthington et al., 2003), and MIL search ($M = 4.52$, $SD = 1.71$; Steger et al., 2006).

Results and Discussion

As a preliminary analysis, we conducted one-way ANOVAs to determine whether scores on the variables of interest were significantly different across studies. Descriptive information is provided in the Method sections of the previous studies. Neither MIL search, $t_{(315)} = 1.75$, $p = .081$, $d = .21$, nor MIL presence, $t_{(315)} = .84$, $p = .40$, $d = .10$, differed between studies.

Participants in Study 1 reported greater religious commitment than participants in Study 2, $t_{(315)} = 4.82$, $p < .001$, $d = .57$. This difference between the samples is not particularly surprising, given that participants in Study 1 were drawn from undergraduates at a university with a highly religious student body, whereas participants in Study 2 were recruited from a much more diverse online participant pool. Participants in Study 1 also reported lower MIL ease ratings than participants in Study 2, $t_{(315)} = -4.10$, $p < .001$, $d = .48$.

To test whether presence of MIL and religious commitment interacted to predict search for MIL, a hierarchical regression equation was computed. Presence of MIL significantly predicted search for MIL ($b = -.46$, $b_{SE} = .06$, $\beta = -.40$, $p < .001$), and religious commitment marginally predicted search for MIL ($b = .09$, $b_{SE} = .05$, $\beta = .10$, $p = .075$) in the first step of the regression ($R^2 = .14$, $p < .001$). Importantly, these main effects were qualified by a significant MIL $\times$ Religious Commitment interaction ($b = -.11$, $b_{SE} = .04$, $\beta = -.17$, $p = .005$) entered on the second step (R^2 change $= .02$).[8] Presence of MIL was more strongly associated with search for MIL for participants higher in religious commitment ($b = -.70$, $b_{SE} = .11$, $\beta = -.61$, $p < .001$) compared to participants lower in religious commitment ($b = -.32$, $b_{SE} = .08$, $\beta = -.28$, $p < .001$). Highly religious participants reported moderate levels of search when MIL was high, but much higher levels of search when MIL was lower. Less religious participants generally reported moderate levels of search, with only somewhat elevated search when MIL was lower. These results are illustrated in Figure 2.

A supplementary mediation analysis was conducted using the PROCESS macro and procedures described by Hayes (2013) to examine MIL ease as a potential mediator of the effect of MIL and religious commitment on search for MIL. We examined MIL ease as a mediator based on the notion that the experience of inconsistency or disfluency may motivate people to take steps to resolve the discrepancy (e.g., Festinger, 1957). In the current context, the inconsistency between religious commitment and feelings of low MIL is thought to lead to disfluency, which motivates people to resolve the discrepancy by searching for MIL. If the search for MIL is successful, the individual's enhanced sense of MIL would be less inconsistent with his or her religious commitment. Religious commitment was entered as the predictor variable, MIL was entered as the moderator, search for MIL was entered as the dependent variable, and MIL ease was entered as the proposed mediator. Bias-corrected bootstrap 95% confidence intervals with 50,000 bootstrap samples were used for the analyses (Hayes, 2013; Hayes & Scharkow, 2013). The confidence interval for the indirect effect of the MIL $\times$ Religious Commitment interaction on search for MIL through MIL ease did not include zero, $b = -.03$, $b_{SE} = .01$, 95% CI [$-.0591$, $-.0078$], indicating that MIL ease was a significant mediator. Similar to simple slopes, conditional indirect effects can be computed for the effect of religious commitment on search for MIL through MIL ease at values above and below the mean of MIL (Hayes, 2013). At one standard deviation below the mean of MIL, the indirect effect of religious commitment on search for MIL through MIL ease was significant and positive, $b = .06$, $b_{SE} = .03$, 95% CI [.0116, .1410]. In contrast, the indirect effect of religious commitment on search for MIL through MIL ease at one standard deviation above the mean of MIL was negative, $b = -.02$, $b_{SE} = .01$, 95% CI [$-.0544$, $-.0002$]. The output for this analysis, including values for all direct and indirect effects, is included in the supplementary materials. To summarize, for participants with lower MIL, religious commitment was associated with greater search for meaning. For participants with higher MIL, religious commitment was associated with less search for meaning. These effects were mediated by the experience of MIL ease.

Study 3 demonstrates that highly religious individuals with lower MIL are more likely to search for meaning than other individuals. A supplementary mediation analysis supported MIL ease as a mediator of the effect of MIL and religious beliefs on search for MIL. These findings are consistent with religious beliefs being a fundamental part of religious individuals' systems of meaning, motivating individuals to search for MIL when they are faced with fundamental inconsistencies, such as strongly endorsing religious beliefs yet failing to find MIL. These results contribute to the psychological literature on search for MIL (e.g., Steger et al., 2008) by demonstrating that beliefs typically associated with higher MIL (i.e., religious beliefs) can actually predict search for MIL when levels of MIL are inconsistent with those beliefs.
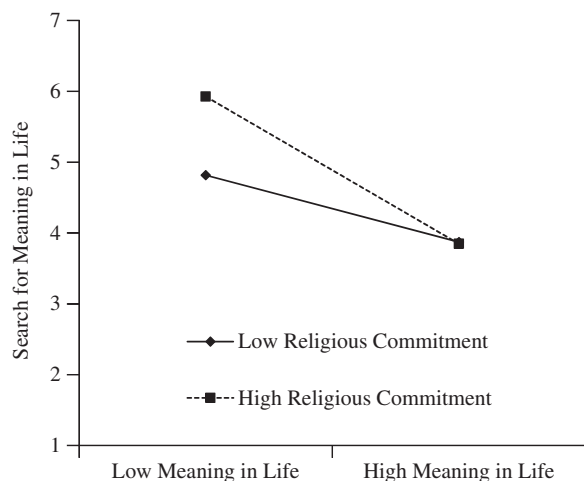

Figure 2 Study 3: Meaning in life (MIL) search as a function of MIL and religious commitment. Predicted values are plotted at one standard deviation above and below the means of MIL and religious commitment.

STUDY 4

While it seems clear that highly religious individuals experience a subjective sense of difficulty when making judgments of lower MIL compared to higher MIL, we do not yet know

whether this difficulty is specific to judgments of MIL or whether it would also extend to the context of religious beliefs. That is, do highly religious individuals who report lower levels of MIL also experience difficulty answering questions related to their religious beliefs? If the experience of disfluency is the result of inconsistencies between strong religious beliefs and low MIL, it seems plausible that this disfluency would be evident in both judgments of MIL and religious beliefs. The inconsistency between strong religious beliefs and low MIL may cast doubt on one's religious beliefs just as it does one's MIL, as they are both domains directly relevant to the inconsistency. However, it is important to consider that there may be important differences between MIL and religious beliefs relevant to these predictions. For instance, the religious beliefs of highly religious people may be particularly robust and held with great conviction, whereas judgments of MIL are more fluid and responsive to cues such as inconsistency. Although recent research suggests that directly manipulating the fluency of religious judgments can influence those judgments (Gervais & Norenzayan, 2012), it is unclear whether the experience of fluency in a more naturalistic (nonmanipulated) context will actually predict religious doubts. Study 4 offers an exploratory test of these possibilities.

Method

Participants. Two hundred fifty-five individuals (119 females, two not reported) recruited from Amazon's Mechanical Turk platform participated in the study and were compensated with a payment of $0.50. Participants were from the United States only, diverse in age ($M = 31.9$, $SD = 12.0$, range = 18–72), and predominantly White (76.5%) and non-Hispanic (92.2%). The most frequent descriptor of religious beliefs was Atheist/Agnostic (34.1%), followed by Catholic (20.8%), Protestant (17.6%), Spiritual but not Religious (11.0%), Other (9.8%), Buddhist (2.7%), Hindu (1.2%), Jewish (1.2%), and Muslim (0.8%). Further investigation of the "Other" responses again revealed that the majority (68.0%) of these participants indicated that they held Christian beliefs. In all, 45.1% of the total sample reported holding Christian beliefs.

Materials and Procedure. After signing up to participate in the study, participants received a link to an online survey to complete consisting of the following measures and several general personality questionnaires included to obscure the purpose of the study from participants.

Participants first completed the measure of PA ($M = 4.65$, $SD = 1.34$, $\alpha = .94$) and NA ($M = 3.08$, $SD = 1.39$, $\alpha = .90$) described in Study 1.

Participants completed the measure of MIL ($M = 4.55$, $SD = 1.64$, $\alpha = .95$; Steger et al., 2006) used in the previous studies before completing the measure of religious commitment described in Study 1 ($M = 2.92$, $SD = 1.78$, $\alpha = .97$; Worthington et al., 2003).[9]

Ease of religious commitment ratings was assessed with the same procedure used to assess ease of MIL ratings in the previous studies. Each of the 10 Religious Commitment Inventory items (Worthington et al., 2003) was presented individually (e.g., Item 7: "Religious beliefs influence all my dealings in life"), and participants indicated how easy or difficult it was for them to respond to each item earlier in the session on a 7-point scale (1 = *extremely difficult to answer*, 3 = *somewhat difficult*, 5 = *somewhat easy*, 7 = *extremely easy to answer*; $M = 5.77$, $SD = 1.56$, $\alpha = .94$). Because some of the items in the religious commitment scale are less subjective and refer to specific behaviors (e.g., "I make financial contributions to my religious organization"), we also included two face-valid, subjective items in addition to the Religious Commitment Inventory that assessed religious/spiritual beliefs very generally ("I consider myself a very religious person" and "I consider myself a very spiritual person"). These items were averaged to produce a face-valid religious/spiritual belief composite ($M = 3.21$, $SD = 1.90$, $\alpha = .79$). Participants also reported the ease of completing these items using the same procedure as religious commitment ease ($M = 5.77$, $SD = 1.56$, $\alpha = .86$).

Participants then completed the MIL Search subscale of the MLQ ($M = 4.42$, $SD = 1.66$, $\alpha = .96$; Steger et al., 2006). Finally, participants completed a measure of religious doubt adapted from Krause (2001, 2004). Participants indicated their agreement with each of five statements (e.g., "I often doubt my religious or spiritual beliefs" and "I often doubt that the solution to my problems can be found in the Bible") on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*; $M = 4.33$, $SD = 1.78$, $\alpha = .91$).

Results and Discussion

Bivariate correlations among the variables in Study 4 are reported in Table 2.

Ease of Religious Ratings. We first examined ease of reporting religious beliefs by computing a regression equation predicting ease on the face-valid religious/spiritual belief items from actual ratings on the religious/spiritual belief items and MIL. The religious/spiritual belief composite ($b = -.23$, $b_{SE} = .05$, $\beta = -.28$, $p < .001$) was a significant predictor of ease, whereas the main effect of MIL ($b = .09$, $b_{SE} = .06$, $\beta = .10$, $p = .134$) was not significant in the first step ($R^2 = .07$, $p < .001$). However, these main effects were qualified by a significant MIL × Face-Valid Religious/Spiritual Belief interaction ($b = .13$, $b_{SE} = .03$, $\beta = .25$, $p < .001$) entered on the second step (R^2 change = .06). MIL was more strongly associated with ease for participants higher in religious/spiritual beliefs ($b = .39$, $b_{SE} = .09$, $\beta = .41$, $p < .001$) compared to participants lower in religious/spiritual beliefs ($b = -.09$, $b_{SE} = .08$, $\beta = -.10$, $p = .234$). People lower in religious/spiritual beliefs reported high levels of ease when rating their religious/spiritual beliefs regardless of their feelings of MIL,

Table 2 Study 4: Bivariate correlations among variables

	1	2	3	4	5	6	7	8	9
1. MIL presence	—								
2. MIL search	−.20	—							
3. RCI	.37	−.05^{ns}	—						
4. RCI ease	−.12†	−.11†	−.37	—					
5. Two-item religious/spiritual beliefs	.39	−.01^{ns}	.89	−.36	—				
6. Two-item religious/spiritual beliefs ease	−.01^{ns}	−.14*	−.23	.74	−.24	—			
7. Religious doubt	−.40	.11†	−.68	.24	−.65	.12†	—		
8. PA	.65	−.04^{ns}	.26	−.09^{ns}	.32	−.00^{ns}	−.29	—	
9. NA	−.49	.22	−.16	−.05^{ns}	−.19	−.06^{ns}	.24	−.55	—

Note. MIL = meaning in life; RCI = Religious Commitment Inventory; PA = positive affect; NA = negative affect.
$^{ns}p > .10.$ $^{†}p < .10.$ *$p < .05.$ All other correlations were significant at $p < .01.$
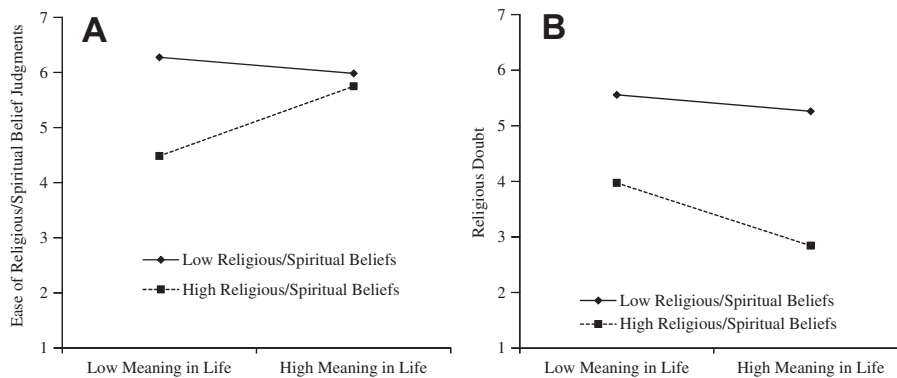

Figure 3 Study 4: Ease of religious/spiritual belief judgments as a function of meaning in life (MIL) and religious/spiritual beliefs (Panel A), and religious doubt as a function of MIL and religious/spiritual beliefs (Panel B). Predicted values are plotted at one standard deviation above and below the means of MIL and religious/spiritual beliefs.

whereas people higher in religious/spiritual beliefs reported high ease when MIL was high but experienced more difficulty rating their religious/spiritual beliefs when MIL was lower. These results are illustrated in Figure 3 (Panel A).

Examining the MIL × Religious Commitment interaction predicting religious commitment ease provided similar results. Religious commitment ($b = −.25$, $b_{SE} = .04$, $β = −.38$, $p < .001$) was a significant predictor of religious commitment ease, whereas the main effect of MIL ($b = .02$, $b_{SE} = .05$, $β = .02$, $p = .702$) was not significant in the first step ($R^2 = .14$, $p < .001$). The main effects were qualified by a significant MIL × Religious Commitment interaction ($b = .11$, $b_{SE} = .02$, $β = .28$, $p < .001$) entered on the second step (R^2 change = .07). MIL was more strongly associated with ease for participants higher in religious commitment ($b = .26$, $b_{SE} = .07$, $β = .37$, $p < .001$) compared to participants lower in religious commitment ($b = −.13$, $b_{SE} = .05$, $β = −.19$, $p = .012$). People lower in religious commitment reported high levels of ease when rating their religious commitment regardless of their feelings of MIL, whereas people higher in religious commitment reported high ease when MIL was high but experienced more difficulty rating their religious commitment when MIL was lower.

Religious Doubt. We next examined religious doubt as predicted by MIL and the face-valid religion measure. The face-valid religion measure ($b = −.55$, $b_{SE} = .05$, $β = −.58$, $p < .001$) and MIL ($b = −.19$, $b_{SE} = .06$, $β = −.17$, $p = .001$) were both significant predictors of religious doubt in the first step ($R^2 = .45$, $p < .001$). However, these main effects were qualified by a significant MIL × Face-Valid Religion interaction ($b = −.07$, $b_{SE} = .03$, $β = −.12$, $p = .014$) entered on the second step (R^2 change = .01). MIL was more strongly associated with religious doubt for participants higher in religiousness ($b = −.34$, $b_{SE} = .08$, $β = −.32$, $p < .001$) compared to participants lower in religiousness ($b = −.09$, $b_{SE} = .07$, $β = −.08$, $p = .184$). Participants lower in religiousness reported consistently high levels of religious doubt, as would be expected. However, highly religious participants reported greater religious doubt with feelings of lower MIL compared to higher MIL. These results are illustrated in Figure 3 (Panel B).

Finally, we examined the MIL × Religious Commitment interaction predicting religious doubt. Both religious commitment ($b = −.62$, $b_{SE} = .05$, $β = −.61$, $p < .001$) and MIL ($b = −.19$, $b_{SE} = .05$, $β = −.17$, $p < .001$) were significant predictors of religious doubt in the first step ($R^2 = .48$, $p < .001$).

The MIL × Religious Commitment interaction ($b = -.04$, $b_{SE} = .03$, $\beta = -.07$, $p = .136$) entered on the second step (R^2 change $= .01$) was in the same direction as the MIL × Face-Valid Religion Measure interaction, but it failed to reach significance.

To summarize the findings of Study 4, MIL interacted with religious beliefs to predict ease of making religious belief judgments and religious doubt in a manner consistent with the results of the previous studies. Highly religious participants with lower MIL found it particularly difficult to answer questions about their religious beliefs compared to less religious individuals or those with high MIL. Similarly, highly religious individuals with lower MIL also tended to report having more doubts about their religious beliefs than their religious counterparts with high MIL, though this effect was more evident for the face-valid religious/spiritual beliefs measure than the measure of religious commitment. These findings support the idea that the disfluency experienced by highly religious individuals with lower MIL is not specific to judgments of MIL, but also extends to their religious beliefs.

GENERAL DISCUSSION

The current research examined the experience of fluency as it relates to judgments of MIL and religious beliefs. We found support for our hypothesis that highly religious individuals who perceive higher levels of meaning in their lives find it easier to make those judgments, whereas highly religious individuals who perceive lower levels of MIL report more difficulty in these ratings. Study 1 found support for this prediction by measuring the subjective experience of ease when making MIL judgments. Study 2 confirmed the robustness of this finding in an online sample and demonstrated that the effect replicates across many facets of religious belief. Study 2 additionally demonstrated that the observed effect does not generalize to the experience of ease in an unrelated domain and, instead, related more strongly to the experience of ease when making judgments relevant to MIL. Examining the motivational consequences of perceived difficulty in MIL judgments, Study 3 found that highly religious people with lower levels of MIL also reported greater search for meaning. Finally, Study 4 found that these individuals were also more likely to find difficulty in rating their religious beliefs and expressed more doubt with their beliefs compared to religious people with high MIL. Together, these findings provide insight into how religion and MIL converge to influence cognitive fluency associated with relevant judgments and how these feelings contribute to the search for meaning and the questioning of one's worldview.

Religion serves as a fundamental source of meaning for many people (e.g., Baumeister, 1991; Park, 2005; Silberman, 2005). The current research illustrates a new and relatively unexamined way of looking at the relationship between religious beliefs and MIL. Whereas empirical research examining the relationships between the antecedents and consequences of religious beliefs is thriving, the metacognitive features of these cognitions remain unexplored, opening important avenues for future research.

Many theorists argue that the experience of meaning in life is a fundamental human motive (e.g., Frankl, 1963) and that people have developed innate mechanisms to cope with threats to meaning (e.g., Greenberg et al., 1986; Heine et al., 2006). Our studies suggest a potential cognitive marker that corresponds to these types of threats, with implications for understanding the mechanisms underlying how people revise (and perhaps reaffirm) their worldviews. To illustrate, if the metacognitive experience of difficulty prompts the search for meaning for religious people who possess lowered feelings of MIL (and presumably other people experiencing similar cognitive inconsistencies), it suggests that these feelings serve an adaptive function by helping people find evidence that their lives are indeed meaningful. The mediation analysis in Study 3 is consistent with this interpretation, showing that the difficulty in rating one's MIL mediated the effect of MIL and religious commitment on the search for meaning. Based on this perspective, we might predict that many people should eventually come to place more weight on alternative sources of meaning in order to reaffirm the importance of their existence (e.g., Heine et al., 2006). Moreover, this possibility suggests that people lose faith in their religious beliefs, in part, because of the difficulty they have deriving meaning in their daily existence (e.g., Baumeister, 1991).

While it is possible that religious doubt eventually leads people to place more value on alternative sources of meaning, the effortful "search" prompted by these feelings might also help some people further validate the importance of their religious beliefs. This possibility is in line with the argument that religious doubt may lead to a deeper and more mature faith (e.g., Tillich, 1987). As Allport noted, "the mature religious sentiment is ordinarily fashioned in the workshop of doubt" (1950, p. 73; also cited in Krause, 2006). Longitudinal studies are needed in order to test these competing hypotheses.

Clearly, religion is a key component of the meaning system of many highly religious people; however, the extent to which their meaning systems are fundamentally different from the meaning systems of nonreligious individuals is less clear (for discussions of the uniqueness of religion to meaning systems, see Newton & McIntosh, 2013; Pargament, Magyar-Russell, & Murray-Swank, 2005; Silberman, 2005). Do nonreligious individuals find another, in some sense monolithic, source of meaning that serves a similar function (e.g., secular humanism), or do they instead rely on a multitude of sources that incrementally contribute to their system of meaning? Research examining such distinctions could provide valuable contributions to our understanding of religion as a meaning system, as well as the meaning systems of nonreligious people.

In a related vein, future research should examine how the effects in the current studies relate to other primary sources of MIL. For instance, personal goals (e.g., Emmons, 2005), social support (e.g., Krause, 2007), perceived true self-knowledge (Schlegel et al., 2011), and parenthood (e.g., Nelson, Kushlev,

English, Dunn, & Lyubomirsky, 2013) are all associated with the experience of meaning. Based on the current findings, for example, it is possible that deficits in MIL might cause an individual to doubt whether a profession that once imbued life with purpose and meaning is truly her calling. Future research can reveal whether other sources of meaning similarly interact with levels of MIL to predict the experience of fluency, the search for meaning, and doubt in the given domain, or whether the current findings are driven by unique features of religious worldviews.

LIMITATIONS

One limitation of the current studies is that the correlational designs preclude us from making any causal inferences regarding the relationships between the variables. There is reason to believe that both MIL and religiousness directly influence MIL ease, *and* the experience of ease directly influences judgments of meaning and religion (e.g., Gervais & Norenzayan, 2012; Trent et al., 2013). In our view, these potential causal pathways are not incompatible. Rather, they are likely part of a bidirectional relationship that has yet to be fully explored. Future research should consider alternative approaches to better understand the causal relationships among these variables with potential methodological and ethical issues in mind (i.e., successfully manipulating MIL and/or religiousness). It should be noted, however, that one benefit of the current methodology is that we were able to assess the experience of fluency in a more naturalistic context by asking participants about their experiences of ease or difficulty that occurred as they made their judgments.

Another important limitation is the relatively limited range of religious beliefs represented in the current studies. Religious participants were predominantly Christian; thus, the current findings may be most representative of Christian participants. An interesting question for future research is whether different religious affiliations and associated religious beliefs might be more or less compatible with low MIL. The present studies lack a sufficient number of religious participants with non-Christian beliefs (or various Christian beliefs) to provide a conclusive answer to this question.

It is also possible that the current findings might be more parsimoniously interpreted through the lens of cognitive dissonance theory (Festinger, 1957). While our predictions are based on current research and theory on the role of metacognitive difficulty in producing feelings of uncertainty and triggering effortful cognitive processes (e.g., Alter et al., 2007; Oppenheimer, 2008), some of our findings may be better understood as the result of our need to reduce the unpleasantness of possessing two conflicting cognitions (but see also Note 1). Finally, future research should examine potential behavioral consequences of the interaction between MIL and religiousness and consider other methods, such as measuring response times during judgment tasks, to provide a better understanding of the current effects.

CONCLUSION

When we ask a person to rate the meaningfulness of her life or how committed she is to her religion, we are typically interested in the content of these answers. Although knowing a person's level of MIL or religiousness is certainly important, the current research suggests that metacognitive features of such judgments can also provide us with valuable information about the individual. A highly religious person may report the same low MIL as a nonreligious person, yet the religious individual might lack confidence in that judgment and find it to be particularly difficult to make. This conflict between religious beliefs and MIL may contribute to a sense of doubt with one's beliefs and, in turn, motivate the individual to reinstate a sense of meaning through some other avenue. The current research is the first to examine individual differences in these processes as they relate to MIL, and we hope it will stimulate more research exploring this understudied component of our judgments.

Declaration of Conflicting Interests

Funding

Notes

1. The constructs of cognitive consistency and fluency are closely related, but are conceptually distinct. As described by Gawronski (2012, p. 654), "Cognitive (in)consistency refers to the content of the processed information (what?), whereas (dis)fluency refers to the ease of processing that information (how?)." These constructs may certainly influence one another, and we suggest that the cognitive inconsistency of strong religious beliefs and low levels of MIL will be reflected in the subjective ease of making those judgments.

2. Religious affiliation was unintentionally omitted from Study 1. In previous research that recruited from this sample (Davis & Hicks, 2013, Study 2), the vast majority of participants (86.6%) reported an affiliation with Christian beliefs, including 27.6% who indicated Protestant, 23.7% who indicated Catholic, and 35.3% who indicated "Other" but specified Christian beliefs (e.g., "Christian" or "Baptist"). Additionally, 5.1% reported that they were spiritual but not religious, 3.8% atheist/agnostic, 2.6% Muslim, 1.3% Hindu, and .6% Buddhist.

3. We also examined the proportion of participants who fell above or below the mean of MIL and religiousness in each study, and we found that at least some people who were more religious than the sample mean reported MIL levels lower than the sample mean across all

studies (13.5% in Study 1, 11.7% in Study 2, 12.9% in Study 4). Complete proportion information is provided in the supplementary materials.

4. All regression analyses reported across all studies were repeated including mean-centered PA and NA scores as predictors in order to control for the potential influence of affect on participant judgments (e.g., King et al., 2006; Schwarz & Clore, 1983). PA and NA were not significant predictors when included in the analyses and did not alter the interpretation of the results. As such, we report the regression results without PA and NA entered as predictors in the current studies.

5. Although we included extrinsic religion items from the I/E-Revised scale (Gorusch & McPherson, 1989) in the study, we do not report extrinsic religion in our main analyses because it reflects religious beliefs that are disconnected from a sense of spiritual meaning (e.g., Steger et al., 2006). Consistent with this disconnect, the extrinsic-personal and extrinsic-social religion variables did not significantly interact with MIL to predict MIL ease (ps > .380).

6. We also investigated the potential influence of order effects in Study 2. Participants in the first condition completed the study materials in the order described, whereas participants in the second condition completed the religious measures before the MIL and MIL ease measures. Scores on the variables in the primary analyses did not differ between order conditions. Order condition (dummy coded) did not significantly predict MIL ease when entered in the regression analyses, nor did it interact with any other variables to predict MIL ease.

7. We also repeated our analyses excluding participants who identified as atheist/agnostic. The interaction was actually stronger (b = .39, b_{SE} = .09, β = .39, p < .001) when these participants were excluded, suggesting that the observed results are not an artifact resulting from their inclusion in the analyses.

8. When the samples are examined independently, this interaction significantly predicts MIL search in the undergraduate sample in Study 1 (p = .012) and marginally predicts MIL search in the online sample in Study 2 (p = .063). Consistent with these findings, in Study 4, the MIL × Religious Commitment and MIL × Face-Valid Religion Measure interactions each significantly predicted MIL search (p = .013 and p = .003, respectively). The data from Study 4 were not included in the analyses of Study 3 because MIL ease was not assessed; however, complete regression results are provided in the supplementary materials.

9. Similar to the procedure described in Study 2, participants were randomly assigned to one of two counterbalancing conditions. Participants in the first condition completed the measures in the order described in the Method section. Participants in the second condition completed the religious measures before completing the MIL measures. Controlling for condition (dummy coded) did not alter the significance or pattern of results.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Supplementary Table 1. Partial correlations of MIL ease (controlling for MIL presence) and MIL presence (controlling for ease) with variables in Studies 1 and 2.

Supplementary Table 2. Number of participants above or below the average of MIL and religiousness in Study 1, Study 2, and Study 4.

Supplementary Table 3. MIL and religion variables predicting MIL ease, Study 2. Each religion variable was analyzed separately. MIL and the religion variable were mean-centered and entered in the first step of each regression equation predicting MIL ease. The interaction of MIL and the religion variable was entered on the second step.