

Routines and Meaning in Life

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Abstract

Previous research links the experience of meaning in life (MIL) with environmental structure and the coherence of external stimuli. The current studies directly test the association between one source of structure in everyday life—routines—and MIL. First, Study 1 ($N = 317$) found a positive relationship between trait preference for routine and MIL. Study 2 expanded upon this cross-sectional finding with experience sampling data ($N = 85$; 2,590 episodes) showing that the degree to which current, naturally occurring, behavior followed a typical routine positively related to participants' momentary feelings of MIL. These findings have implications for conceptualizations of MIL, suggesting a previously unnoted, mundane, and ubiquitous source of MIL. The potential roles of boredom and novelty and individual and situational differences for these effects are discussed.

Keywords

meaning in life, routines, well-being, experience sampling method

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Human beings derive meaning and maintain well-being through the organization of time.

—Meyer (1922, p. 6)

Meaning in life (MIL) is considered a cornerstone of well-being (Wong & Fry, 1998), a central human motivation (Frankl, 1963/1984), and a necessity of life (Maslow, 1968). Meaning is a desired feeling state that humans strive to attain, and its absence is decidedly disruptive (Janoff-Bulman, 1992). A large and growing body of research justifies the value given to MIL as a crucial aspect of human functioning. Self-reports of MIL are associated with superior physical (e.g., Boyle, Barnes, Buchman, & Bennett, 2009; Kim, Sun, Park, Kubzansky, & Peterson, 2013; Krause, 2009; Roepke, Jayawickreme, & Riffle, 2014; Steger, Mann, Michels, & Cooper, 2009), cognitive (e.g., Boyle, Buchman, Barnes, & Bennett, 2010), social (Stillman, Lambert, Fincham, & Baumeister, 2011), occupational (Littman-Ovadia & Steger, 2010), and psychological (e.g., Mascaro & Rosen, 2005; Owens, Steger, Whitesell, & Herrerra, 2009; Steger & Kashdan, 2009) functioning. Given its wide-ranging benefits, understanding what makes life meaningful is an important goal. In this article, we propose that mundane routines are among the many things that can make life feel meaningful.

Routines, defined as “. . . automatic sets of consecutive actions,” are a common part of everyday existence and exemplify the adaptive function of learning (Avni-Babad, 2011, p. 224). Once a problem has been solved through a behavioral strategy that works, it makes sense that such a solution might be overlearned and become a part of an organism's automatic

repertoire. Successfully enacting routines serves to conserve energy and increase perceptual effectiveness by preserving personal resources for allocation to more pressing aspects of human cognitive, emotional, and behavioral performance (Dunn, 2000). According to this definition, examples of routines can include behaviors that encompass regularities of daily (or weekly, etc.) living, such as one's morning regimen, daily coffee run, or a couple's weekly date night.

Given the amassed benefits of MIL noted above and the elevated status it occupies in the realm of well-being and human values (e.g., Crandall & Rasmussen, 1975; Rokeach, 1973; Schwartz & Boehnke, 2004), it may be somewhat surprising to predict an association between MIL and quotidian routines. Yet, research shows that MIL is a commonplace human experience (Heintzelman & King, 2014a) and that, although it is certainly important (and at times extraordinary), MIL may be fostered by mundane experiences such as viewing stimuli arranged in repeating patterns or being in a good mood (e.g., Heintzelman, Trent, & King, 2013; King, Hicks, Krull, & Del Gaiso, 2006). Furthermore, the idea that routines might relate to MIL follows from a number of sources to which we will now turn, including connections

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between features of routines and definitional aspects of MIL and the effects of coherence and structure on MIL.

Why Might Routine Relate to MIL?

First, the notion that routines might be positively related to MIL is suggested in the definition of MIL. Most definitions of this construct include the notion that a meaningful life is characterized by at least three aspects: significance, purpose, and coherence (Martela & Steger, 2016). Significance encompasses the motivation to matter to something larger than the self, which can be accomplished via maintaining strong relationships or forging a legacy. In this sense, routines may be a route to significance as these behavioral programs are formed within cultural and social contexts and follow norms and cultural rules and restraints (Gallimore & Lopez, 2002). Engaging in routinized behaviors, then, may connect a person to a larger context, potentially promoting a sense of meaning. As noted by Ludwig (1997),

Routine can provide linkages between one's personal history and one's ecological, sociohistorical, and cultural contexts throughout one's life and contribute to a continuous sense of self that is created and reflected through everyday practices. Routine is therefore meaningful and adaptive. (p. 226)

The enactment of (at least some) routines may reflect engagement in a larger cultural script.

Routines may also be routes to enacting chronically important goals, which can engender a sense of purpose, which refers to engagement in goal-oriented pursuits and having direction in life. For example, research demonstrating that habitual behavioral programs are controlled by associative cues also shows that, nevertheless, actors perceive such habitualized behaviors as being guided by his or her goals (Neal, Wood, Labrecque, & Lally, 2012).

Finally, and perhaps most directly, routines are likely intertwined with MIL via the component of coherence. Coherence refers to the degree to which one's life is characterized by comprehensibility—the extent to which life makes sense and is characterized by reliable connections (e.g., Baumeister, 1991; Baumeister & Vohs, 2002). Research shows that the existence of structure in the environment enhances MIL (Heintzelman et al., 2013) as well as purposeful behavior (Kay, Laurin, Fitzsimons, & Landau, 2014). Moreover, exposure to stimuli characterized by associative links leads to higher MIL compared with exposure to the same stimuli without those links. For example, in one study, participants read 30 words arranged as coherent linguistic triads (sharing overlearned associative links) versus the same words arranged as incoherent triads. MIL was higher after reading the coherent (vs. incoherent) triads (Heintzelman et al., 2013).

Coherence and structure have also been included as central features or underlying assumptions of many psychological theories of MIL. For instance, the meaning-making model

(Park, 2010) has at its foundation an assumption that humans have global meaning systems that provide a structured framework with which to interpret experiences. The meaning maintenance model (Heine, Proulx, & Vohs, 2006) has a similar guiding principle that people have a need to perceive events in a manner that fits with their expected relationships and organizational structure of the world. Finally, research in terror management theory has identified the need for structure as a relevant factor interceding between existential threats and MIL (Vess, Routledge, Landau, & Arndt, 2009). Clearly, the important role of structure in the experience of MIL is widely acknowledged throughout MIL scholarship. If MIL is, in part, a function of the experience of reliable connections, then behaviors that support and maintain a sense of such connections (i.e., routines) might relate to MIL.

The potential association between routine and MIL has been directly examined in only one study, to our knowledge. In work to validate their Time Structure Questionnaire, Bond and Feather (1988) found that their Structured Routine subscale, which contains items such as “Do you have a daily routine which you follow?” and “Do you plan your activities so that they fall into a particular pattern during the day?” was positively correlated with the Purpose in Life Test (PIL, Crumbaugh & Maholick, 1964), $r = .25$. Certainly this association supports our hypothesis, but it was not a focus of that research.

Additional research on the association between routine and well-being adds support for the potential relationship between routines and MIL. Some correlational research suggests that routines (e.g., consistently sitting in the same seat in a classroom or routinely visiting the same neighborhoods) are associated with feelings of comfort, confidence, safety, and control (Avni-Babad, 2011). Among participants experiencing a loss (i.e., death of a loved one, failed relationship, laboratory lottery), Norton and Gino (2014) found that engaging in a ritual of mourning mitigated feelings of grief and promoted feelings of control. Furthermore, nurses who worked routine shifts reported higher quality of work life compared with those keeping more sporadic work schedules (Baba & Jamal, 1991). Finally, in families with young children, the practice of rituals related to marital satisfaction (Fiese, Hooker, Kotary, & Schwagler, 1993) and routines were especially important for family functioning, broadly (Fiese et al., 2002).

Unemployment provides an interesting context in which to consider this potential relationship. Employment, in addition to being a context in which goals are pursued and relationships are forged, also provides structure to a person's life. It is not surprising that unemployment is related to mental health problems (McKee-Ryan, Song, Wanberg, & Kinicki, 2005) and decreased well-being (Lucas, Clark, Georgellis, & Diener, 2004). Most interesting for our purposes, maintaining a rigid time structure in unemployment attenuates these well-being detriments (McKee-Ryan et al., 2005; Van Hove & Lootens, 2013).

Why Might Routines Not Relate to MIL?

This research notwithstanding, there are also studies, particularly with aging populations (e.g., Zisberg, Zysberg, Young, & Schepp, 2009), indicating that a preference for living a life filled with routines can be associated with lowered well-being and more distress. For example, in an experience sampling study of elderly adults, those who endorsed items such as “In general, I like to do the same things each day” were more likely to report anxiety and depression (Bouisson, 2002; Bouisson & Swendsen, 2003). Research regarding the association between routine and well-being, then, has produced mixed results, or at least suggested this association is bounded by other identifiable factors, such as age. Yet beyond these inconsistencies across this literature (or life span), there are additional, potentially compelling, reasons to question whether routine should relate to MIL, as we now consider.

One disadvantage of a preference for following routines is its association with aspects of cognitive rigidity (Tournier, Mathey, & Postal, 2012) such as functional fixedness, which refers to the tendency to employ routine modes of thought and action to a problem, fixating on only its most typical solution. Of course, in the problem solving literature, functional fixedness is generally viewed as an obstacle to effective problem solving, limiting such valued outcomes as insight learning or creativity (e.g., German & Barrett, 2005; McCaffrey, 2012). Operating in this manner—doing things the way they have always been done—is also counter to those central aspects of a meaningful life that involve feeling personally significant (making an impact) and purposeful (being goal-directed). Instead, the experiences of purpose and meaning are more typically embedded in cognitive achievements such as flexibility and creativity—those capacities that defy the trap of routine.

One cognitive capacity that directly challenges the fixedness of routine is mindfulness. Mindfulness has been defined as “a receptive attention to and awareness of present events and experiences,” and this “capacity for awareness and attention permits the individual to ‘be present’ to reality as it is rather than to react to it or *habitually process it* through conceptual filters” (Brown, Ryan, & Creswell, 2007, p. 212, emphasis added). Thus, at least superficially, mindfulness might be the opposite of engaging in routine styles of thinking (Laureiro-Martinez, 2014). Moreover, mindfulness has been described as *the foil* of routine: Mindfulness “can undercut habitual automatic evaluations and routines” (Brown et al., 2007, p. 217). Mindfulness relates to a host of positive outcomes, including a tendency to be immune to functional fixedness (Greenberg, Reiner, & Meiran, 2012). Although research has not addressed the specific association between MIL and mindfulness, the accumulated evidence points to a likely correlation between mindfulness (perhaps rather than routine) and MIL.

Although mindfulness and routine engagement may seem opposed, it is important to note that mindfulness is a state of mind while routine refers to behavior. Thus, a person can be engaged in a routine behavior while still being mindfully present to that routine. In addition, despite their differences, mindfulness and the “automatic pilot” that may characterize the enactment of routinized behavior share a relatively quiet, worry-free, or less preoccupied inner life (though for different reasons). In addition, they would both seem to be states in which the self is less focal to awareness (or hypo-egoic states; Leary, Adams, & Tate, 2006). In this sense, it is important to know if the quietude provided by routine holds the key to its link to MIL. As such, we included mindfulness in this work to examine its relationship to routines and MIL.

Overview of Current Studies

We present two studies examining the potential association between routines and MIL. There are individual differences in preferences for routine (Reich & Williams, 2003), and Study 1 tested the prediction that this preference would positively correlate with MIL. In Study 2, we employed the experience sampling method (ESM) to examine whether individuals experience greater feelings of MIL when they are engaging in a routine behavior compared with when they are behaving in a less routine manner.

Study 1: Preference for Routine, Mindfulness, and MIL

In Study 1, we measured individual differences in trait preference for routine, which refers to preferences for thinking and behaving in accordance with stable routines. In this study, we utilized a reliable measure of this construct (Reich & Zautra, 1991) to directly examine the relationship between MIL and individual differences in the tendency to prefer routines. In addition, we included a measure of mindfulness to continue to probe the ways that routines and mindfulness relate to the experience of MIL. Finally, note that it might be expected that MIL would be especially related to the coherence aspect of MIL. At the time of data collection, there was no established measure of these components (though see, George & Park, 2017). As such, we drew on existing measures of MIL (and generated ad hoc items as needed) to measure each component of meaning separately to examine the possibility that coherence, purpose, and significance relate differently to engaging in routines.

Method

Participants and procedures. Three hundred seventeen Amazon Mechanical Turk workers participated in this study and were compensated US\$1. A sensitivity analysis conducted with G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007) shows that the minimum detectable effect size with a sample

Table 1. Correlations Among All Variables, Study 1 ($N = 317$).

| | Meaning | Purpose | Significance | Coherence | Routine | Disruption | Mindfulness |
|-------------------------|---------|---------|--------------|-----------|---------|------------|-------------|
| MIL Composite | .95*** | .92*** | .95*** | .91*** | .26*** | -.04 | .27*** |
| Meaning | | .89*** | .89*** | .87*** | .24*** | -.04 | .28*** |
| Purpose | | | .84*** | .82*** | .20*** | -.08 | .32*** |
| Significance | | | | .80*** | .17** | -.08 | .22*** |
| Coherence | | | | | .33*** | .01 | .26*** |
| Routine | | | | | | .65*** | .10 |
| Disliking Disruption | | | | | | | -.07 |

Note. MIL = meaning in life.

** $p < .01$. *** $p < .001$.

of this size with 80% power and .05 alpha level is $r = .11$. Participants included 169 women and 143 men (five not reporting gender) and ranged in age from 18 to 72, $M(SD) = 35.16(12.06)$. The sample reported race/ethnicity information as follows: 76% White/European American, 7% Black/African American, 6% Latinx, 6% Asian, 3% “other,” and 2% not reporting race/ethnicity.

Participants completed the Having Order and Routine subscale from the Trait Routinization scale (Reich & Zautra, 1991). This subscale consists of eight items (e.g., “I find that a well-ordered mode of life with regular hours is the one for me,” and “I do pretty much the same things every day”) which were rated from 1 (*strongly disagree*) to 7 (*strongly agree*), $\alpha = .86$, $M(SD) = 4.45(1.18)$. This measure predicts the occurrence of fewer undesired events (Reich & Zautra, 1991) and is related to a personal need for structure (Neuberg & Newsome, 1993). In addition, they also completed the Disliking Disruption subscale included in this measure. The Disruption subscale has six items (e.g., “It bothers me when something unexpected interrupts my daily routine”), rated on the same scale, $\alpha = .82$, $M(SD) = 4.00(1.27)$. This subscale relates negatively to well-being outcomes (Zisberg, Kaabiya, & Siegel, 2015). Research has supported the validity of self-reports of preference for routine, showing that those who report doing the same things everyday are likely to be doing the same things everyday (Bouisson, 2002; Bouisson & Swendsen, 2003). Next, participants completed the Mindful Attention Awareness Scale (Brown & Ryan, 2003). This scale contains 15 items (e.g., “I find myself doing things without paying attention,” reverse coded) tapping trait mindfulness, $\alpha = .91$, $M(SD) = 4.65(1.16)$.

To assess MIL, participants rated 18 items drawn from various measures of MIL as well as ad hoc items, $\alpha = .94$, $M(SD) = 4.85(1.09)$. Of these, three items asked about meaning directly, $\alpha = .94$, $M(SD) = 5.04(1.47)$, for example, “Overall, my life is meaningful.” Additional items were generated with the purpose of measuring each of the three components of MIL (Martela & Steger, 2016). Five items assessed sense of purpose, or having goals and direction, α

$= .88$, $M(SD) = 5.26(1.22)$, for example, “In life, I have goals and aims.” Six items assessed participants’ feelings of significance, $\alpha = .92$, $M(SD) = 4.70(1.33)$, for example, “I feel as though I have made a difference to many people.” Finally, four items tapped a sense of coherence, $\alpha = .85$, $M(SD) = 4.86(1.25)$, for example, “Overall, my life experiences make sense.” Online supplements including all MIL items and the full data set are openly available, https://osf.io/mkb5c/?view_only=53b1ce6b9c5040cb8df8c52736f6974c.

Results

Relationships among all variables are reported in Table 1. As predicted, preference for routine was positively related to the composite MIL measure as well as each of the facets assessed, while the Disliking Disruption subscale was unrelated to MIL. We next compared the correlations between preference for routine and the MIL facets focusing on the Coherence subscale, specifically (Lee & Preacher, 2013). The coherence items shared a stronger correlation with preference for routine than did the items tapping meaning ($Z = 3.28$, $p = .001$), purpose ($Z = 4.02$, $p < .001$), significance ($Z = 4.68$, $p < .001$), or the composite measure ($Z = 3.07$, $p = .002$).¹

Mindfulness was also positively related to MIL and preference for routine and mindfulness shared a slight (nonsignificant) positive relationship. When entered as simultaneous predictors, they both significantly and independently predicted the composite MIL scale (as well as each of the facets), preference for routine, $\beta = .23$, and mindfulness, $\beta = .25$, $p_s < .001$; $R^2 = .13$, $F(2, 314) = 23.09$, $p < .001$.

Summary of Study 1

We found that trait preference for routine positively related to MIL. Furthermore, the absence of a relationship between the Disliking Disruption subscale and MIL suggests that this association is about the presence of routine rather than the absence of disorder. Finally, we found independent relationships with MIL and preference for routines and mindfulness, suggesting that people who tend to be psychologically

present in moments can also prefer a life of routine and that both are associated with MIL. Study 1 offers support for a trait-level relationship between a preference for routines and MIL. Does actual enactment of routines relate to concurrent feelings of MIL? Study 2 utilizes the ESM to examine the momentary relationship between naturally occurring routine behaviors and concurrent feelings of MIL within person.

Given the intensive nature of ESM data collection, we utilized a convenient student sample for this study. While this limits the generalizability of our findings, age did not moderate the relationship between preference for routine and MIL in Study 1 (for the MIL composite, interaction $\beta = -.05, p = .38$; for coherence, interaction $\beta = -.02, p = .67$), allaying, to some extent, our concerns regarding the utilization of a student sample in Study 2.

Study 2: ESM Study

Does an individual experience a greater sense of MIL when engaging in routine behaviors compared with nonroutine behaviors? We predicted that the extent to which a person's current behavior aligns with a personal routine would positively relate to concurrent reports of MIL in Study 2. Examining the relationship between routine activity and MIL within person represents a stringent test of our focal association and provides a complimentary approach Study 1. These data also offer an opportunity to examine whether weekday versus weekend experiences might differ in the extent to which routine predicts MIL. Given that weekdays are more likely to be structured by work and school-related activities while weekends are more likely to be spent on less routine behaviors (Ryan, Bernstein, & Brown, 2010), we explore whether routine might be differentially associated with MIL on weekends versus weekdays.

While this study represents one of the first utilizations of the ESM to examine momentary ratings of MIL, there exists a body of research utilizing daily measures of MIL that provides support for the validity of utilizing similar momentary measures of MIL. First, daily measures of MIL exhibit convergent validity with trait measures of MIL ($r_s = .55$ to $.64$; Kashdan & Steger, 2007; Steger & Frazier, 2005; Steger, Kashdan, & Oishi, 2008). Furthermore, daily reports of MIL relate to daily spirituality and religious behaviors (Kashdan & Nezlek, 2012; Steger & Frazier, 2005), daily positive social and achievement events (Machell, Kashdan, Short, & Nezlek, 2015), and daily eudiamonic behaviors such as volunteering or writing out one's future goals (Steger et al., 2008). These findings support our assumption that momentary perceptions of MIL represent genuine construct fluctuations.

Method

Participants were 85 (45 women, 40 men) undergraduates who completed a series of surveys in partial fulfillment of a course research requirement, $M(SD)_{age} = 18.84(1.13)$. The

study was conducted toward the end of a semester so that participants would have already established routines. Upon registering for this study, 103 students completed prescreening to ensure they used a smartphone, would provide their university identification and cell phone number, and agreed to complete surveys 6 times a day for 7 days. A "no" response to any of these questions led to disqualification. Qualified students then completed the informed consent process; received study instructions; registered with the survey distribution website, SurveySignal; and provided demographic information.

Following registration, links to brief surveys were sent to participants' smartphones on six semirandom occasions from 9:00 a.m. to 9:00 p.m. each day for 7 days (42 prompts total). Five of the survey prompts were spaced randomly within equally spaced segments with a minimum distance between prompts set to 1 hr to prevent survey overlap. The sixth survey was sent at 9:00 p.m. daily. All survey links expired after 1 hr. Participants submitted 2,590 surveys (72.55% response rate), with participant episode counts ranging from 6 to 42, median = 33, mode = 40, $M(SD) = 30.47(9.29)$.

While power estimations for multilevel data are complex (Mathieu, Aguinis, Culpepper, & Chen, 2012), we generated sensitivity estimates given our focus on Level 1 effects utilizing G*Power 3.1 (Faul et al., 2007) specifying a within effect under mixed ANOVA, a sample size of 2,590 (episodes) with 85 groups (individuals) and 30 measurements (average number of episodes per participant) and found that our sampling would enable a detection of small effects ($f = .01$) with 80% power. Furthermore, the minimum detectable effect size for between-person mean comparisons with 85 participants at 80% power and .05 alpha level is $r = .21$.

For each survey, participants were asked to "Briefly describe, in a few words, what you are doing right now." Then, they rated three ad hoc items regarding the degree to which that current activity: "The activity I'm doing right now is a part of a routine I have," "My current activity is one that I'd typically be doing at this time of day/this day of the week," and "The activity I'm doing now is one I've done this way before and will continue to do this way in the future," from 1 (*not at all*) to 7 (*very much so*). We developed these items in the absence of a previously validated measure of the degree to which one's current behaviors follow a routine, prioritizing face validity and coverage of both routine scheduling and behavioral execution. We calculated a routine composite and leveraged generalizability theory (Cranford et al., 2006) to determine that the reliability of change within person (Equation 5). Means, variances, and reliabilities for all variables are reported in Table 2. Furthermore, we examined the activity listings at the highest and lowest levels of routine on this measure to assess the validity of the routine measure in capturing routine versus nonroutine activities. Among the 470 episodes rated at the highest level of routine (7), 70% involved being in class or studying (155 episodes), walking/commuting around campus (92 episodes), or eating (80 episodes).

Table 2. Descriptive Statistics, Study 2.

| | Aggregate mean | Variance | | Reliability of change |
|-----------------|----------------|----------------|---------------|-----------------------|
| | | Between-person | Within-person | |
| Meaning in Life | 4.40 | 0.33 | 1.45 | .91 |
| Routine | 4.70 | 0.60 | 2.76 | .73 |
| Mood | 4.47 | 0.52 | 1.13 | |

Alternately, no central themes emerged at the lowest level of routine (1). Across 10 randomly selected episodes, participants noted that they were “in a meeting with hall and RA,” “playing with my dogs,” “visiting family,” “bball,” “online shopping,” “driving home from a wedding,” “working on a group final report,” “doing an astronomy lab,” “downloading a sketching software,” and “at a play.”

Then, participants completed the five items from the Meaning in Life Questionnaire–Presence of Meaning subscale (Steger, Frazier, Oishi, & Kaler, 2006) to measure MIL with instructions to “rate the following items for how you are feeling *right now*,” on a scale from 1 (*not at all true*) to 7 (*extremely true*). Finally, participants responded to one item regarding mood: “Rate your current mood from very bad to very good,” on a scale from –3 (*very bad*) to 3 (*very good*), recoded 1 to 7. The dataset is openly available, https://osf.io/mkb5c/?view_only=53b1ce6b9c5040cb8df8c52736f6974c.

Results

Participant-level analyses. We first examined the data at the between-subjects level. Examining the mean ratings of MIL and routine calculated within each of the 85 participants across episodes, we found a positive correlation between participants’ mean ratings of MIL and routine, $r = .26, p = .015$. This correlation was not reduced in a series of partial correlations controlling for age, gender, and the number of surveys completed. Mean levels of mood were also related to mean MIL, $r = .64, p < .001$, as well as with mean routine, $r = .24, p = .026$. Controlling for mean mood reduced the relationship between mean MIL and mean routine, partial $r = .147, p = .183$.

Multilevel analyses. Next, we turned to our primary analyses, multilevel modeling accounting for the non-independence of the repeated measures experience sampling design. Episodes (Level 1) were nested within participants (Level 2). This analytical strategy allows the relationship between routine and MIL to vary across participants and enables an examination of within-person effects.

The intraclass correlation (ICC) for MIL was .817, suggesting that 81.7% of the total variance in MIL is accounted for by differences between individuals.

To test our central hypothesis, that deviations from person-centered mean levels of routine would predict momentary

fluctuations in feelings of MIL, routine was centered within participant in order, this slope was allowed to vary randomly, and we utilized an unstructured covariance matrix (analyses were conducted using SPSS version 24). In this model, we found within-person effects of routine on MIL, $b (SE) = 0.05 (0.009), t(56.34) = 5.13, p < .001$, 95% confidence interval (CI) = [0.028, 0.06]. To indicate multilevel effect sizes, we report the Level 1 pseudo R^2 value, which represents a proportional reduction in the unexplained within-person variance in MIL (Snijders & Bosker, 1994) with the same criteria for sizes of effects as typical R^2 with the thresholds of .02, .13, and .26 indicating small, medium, and large effects, respectively (Cohen, 1992). The Level 1 pseudo R^2 for the current model = .04, indicating a small effect.

We repeated these analyses including person-centered mood as a covariate and found consistent results: Controlling for mood, routine continued to predict MIL within person, $b (SE) = 0.04 (0.008), t(62.92) = 5.52, p < .001$, 95% CI = [0.028, 0.06], pseudo $R^2 = .04$. These findings support the hypothesis that engaging in a routine behavior is associated with momentary feelings of MIL. In addition, although the degree to which a person’s current behavior cohered to a routine predicted MIL on average, the variance of this random effect was also significant, $b (SE) = 0.002 (0.001), Z = 2.30, p = .02$, suggesting that the slope of the relationship between routine and MIL differs across participants.

Exploratory analyses: Weekdays and weekends. Our repeated sampling strategy affords additional exploratory analyses regarding day of the week. Although previous research has utilized repeated daily diary reports of MIL (e.g., Machell et al., 2015; Steger & Frazier, 2005), these studies have not explicitly examined MIL or its associations as a function of weekday. With the dearth of previous research regarding day of the week and MIL, we proceeded without a directional hypotheses regarding MIL differences for weekdays versus weekends. On one hand, it is sensible to expect that MIL would mimic weekend effects found for other indicators of psychological well-being. Alternately, MIL has moderate stability over longer periods of time (i.e., 1 year; Steger & Kashdan, 2007) and perhaps is fairly stable across days of the week. We did predict, however, that mood would be more positive on weekends compared with weekdays (e.g., Cranford et al., 2006; Ryan et al., 2010) whereas episodic routine enactment would be higher on weekdays compared with

Table 3. Average Participant Mean Levels on Weekdays Versus Weekends, Study 2.

| | Weekdays (<i>N</i> = 85) | Weekends (<i>N</i> = 79) | 95% CI of difference | Paired <i>t</i> tests | <i>d</i> |
|-----------------|---------------------------|---------------------------|----------------------|---------------------------|----------|
| Meaning in Life | 4.41 (1.25) | 4.45 (1.25) | [-0.13, 0.05] | $t(78) = -0.96, p = .34$ | 0.13 |
| Routine | 4.83 (0.78) | 4.32 (1.22) | [-0.44, -0.13] | $t(78) = 4.47, p < .001$ | 0.68 |
| Mood | 4.68 (0.76) | 4.98 (0.94) | [0.29, 0.75] | $t(78) = -3.61, p = .001$ | 0.42 |

Note. CI = confidence interval.

weekends. Centrally, we sought to explore whether routine differentially predicted MIL on weekdays and weekends. While we remained agnostic regarding the expectation for these differences, if they emerged, we expected them to reflect greater relevance of routine for MIL during the week.

Data description. To employ practically meaningfully and distinct categories in these analyses, we specified the weekend as Friday 5:00 p.m. to Sunday 5:00 p.m. ($n = 672$) and weekdays as Sunday after 5:00 p.m. to Friday before 5:00 p.m. ($n = 1,918$; Ryan et al., 2010). Participants completed six to 30 surveys on weekdays, averaging 22.56 (5.98) per participant, median and mode: 24, and 0 to 13 surveys on weekends (six participants completed 0), averaging 8.02 (3.85) per participant with six participants completing 0, median and mode: 10.

Descriptive statistics for participant means on weekdays and weekends are provided in Table 3 with paired *t* tests to compare weekday and weekend participant-level means. Participants' responses during weekdays reflected, on average, greater routine enactment, whereas their weekend responses reflected more positive mood, as we expected. There was no difference in MIL between the participants' average weekday responses compared with their average weekend responses.

Hierarchical analyses for weekdays and weekends. We next conducted multilevel analyses including the interaction between person mean-centered routine and dummy-coded day of the week (0: weekday, 1: weekend), predicting MIL. There was no interaction, $b (SE) = -0.02 (0.02)$, $t(58.84) = -0.79, p = .43$, 95% CI = [-0.06, 0.03], suggesting that routine enactment was similarly related to MIL on weekdays and weekends. Similarly, when controlling for mood in this analysis, there was still no interaction between routine and weekday code predicting MIL, $b (SE) = -0.03 (0.02)$, $t(59.23) = -0.16, p = .87$, 95% CI = [-0.04, 0.04].

We conducted two additional hierarchical linear models to examine the relationship between routine and MIL for reports completed on weekdays and weekends separately. Routine and mood were centered within participant using only the relevant episodes (i.e., weekday or weekend) to compute weekday and weekend participant mean-centered scores for each analysis. For the weekday reports, controlling for mood, routine predicted momentary MIL, $b (SE) = 0.04 (0.009)$, $t(67.37) = 4.45, p < .001$, 95% CI = [0.02, 0.06].

On weekends, controlling for mood, the extent to which one's behavior followed a typical personal routine did not reach traditional levels of statistical significance as a predictor of MIL in that experience, $b (SE) = 0.03 (0.02)$, $t(49.90) = 1.91, p = .06$, 95% CI = [-0.02, 0.06]. However, reflecting the null interaction, these effects were nearly identical. We finally examined models controlling for mood and weekday code (Liu & West, 2016) and the relationship between routine and MIL remained, 95% CI = [0.03, 0.06].

Summary of Study 2

Study 2 provides evidence for the relationship between routine enactment and feelings of MIL within persons across a number of naturally occurring behavioral contexts. The within-person design utilized in this study is an especially stringent test of this relationship, eliminating many potential confounds inherent in the previous between-subjects correlational study. Although the relationship between routine and MIL at the episode level represents a small effect, it is important to keep in mind that MIL (a) is a multiply determined feeling state and (b) is comprised of a fairly stable trait-like component (Steger & Kashdan, 2007). As such, observing an effect within this framework offers further support for the notion that routines play a role in the feeling of life as meaningful.

In addition, this study offers novel exploratory analyses suggesting that routines relate to MIL similarly across the week. However, our weekday analyses should be interpreted with caution as these analyses were entirely exploratory and utilized traditional hypotheses testing strategies without preconceived hypotheses and the episode number was smaller on the weekends compared with the weekdays. Nonetheless, as this study represents one of the first of its kind to (a) utilize the experience sampling methodology with multiple episodes per day and to (b) examine weekday versus weekend effects at all, we hope we can provide a basis for future research to proceed with further in-depth examination of MIL processes.

General Discussion

These studies support the prediction that routines play a role in the experience of MIL. Study 1 demonstrated a positive association between preference for routine and MIL at the trait level and Study 2 utilized the ESM to provide further

evidence for this relationship within person across naturally occurring experiences. The extent that a participants' current behavior conformed to a typical routine was related to higher ratings of concurrent MIL, on average, compared with when that same person was engaging in a behavior that was less routine. Together, this work provides evidence for a positive relationship between routines and MIL.

Implications for MIL

These findings might be counterintuitive from a perspective on MIL that treats this experience as extraordinary. However, identifying routine as a quieter, and perhaps less profound, aspect of meaning fits with contemporary MIL theory and research. For instance, the meaning-as-information approach suggests that feelings of meaning track environmental coherence (Heintzelman & King, 2014b). These feelings, then, provide information about the extent to which experience is making sense. The current studies provide additional support to this approach to MIL, suggesting that the presence of associative links and regularities, here in the form of routines, supports MIL.

One implication of these findings is clear, the experiences that we often consider as important sources of MIL such as relationships, achievements, and positive experiences (e.g., Lambert et al., 2010) do not fully capture this important experience. MIL is not necessarily extraordinary, but can also emerge within mundane experiences in a lawful world (Heintzelman & King, 2014b). This recalibration of MIL as an easily attainable aspect of daily life fits well with recent work indicating the common nature of this experience (Heintzelman & King, 2014a). Although it may at times feel extraordinary, MIL can be tied to ordinary experiences.

In addition, these studies suggest that preference for and engagement in routines positively relate to MIL, broadly. While purpose, significance, and coherence represent three theoretically distinct components of MIL (Martela & Steger, 2016), we have argued elsewhere that these resonate consciously as a unified feeling state (Heintzelman & King, 2014b). In Study 1, while preference for routine was related to coherence most strongly, as one might expect, it was also related to purpose, significance, and general feelings of meaning. So while the relationship between routines and MIL might well be rooted in coherence, the aspects of MIL seem to be intertwined in such a manner that the experiences of one (i.e., coherence) bleed into the others (i.e., purpose and significance) and influence judgments of MIL, broadly.

Boredom and Novelty

To the extent that routines are characterized by simple repetitions, they might at times lead to a state of boredom (van den Bergh & Vrana, 1998), and so research regarding the psychological experience of boredom warrants consideration. Boredom has been defined as "a restless, irritable feeling that

the subject's current activity or situation holds no appeal" (Barbalet, 1999, p. 631). Furthermore, this state has been associated with meaning both definitionally and empirically. Barbalet (1999) suggests that "boredom emotionally registers in the absence of meaning and leads the actor in question towards meaning" (p. 631). Similarly, Westgate and Wilson (2018) posit meaning as a central component of boredom suggesting boredom arises following a mismatch between activities and valued goals and empirically demonstrate that deficits in meaning produce boredom. In other studies, participants exposed to boredom manipulations report greater feelings of meaninglessness compared with controls and these effects are mediated by the degree to which these participants reported feeling bored (van Tilburg & Igou, 2011). As such, the boredom that might follow from an over-adherence to routine might serve as a boundary condition in its connection with MIL.

This relationship is more complex, however, as boredom has also been suggested to be a defense against meaninglessness, serving a self-regulatory function in prompting the desire to restore a sense of meaningfulness and driving efforts to do so (Barbalet, 1999; van Tilburg & Igou, 2011, 2012). The link between routine behaviors and boredom might hinge upon the extent to which the behavior lacks direction. Only repetition devoid of function or purpose ought to lead to boredom (Barbalet, 1999). We might expect, then, that only when the link between a routine behavior and its underlying goal becomes severed this behavior might foster boredom, feelings of meaningless, and movement toward more meaningful activities. Perseverating on routines that are unconnected to one's goals might have differing effects on MIL. Testing these propositions empirically remains an important direction for future research.

Routines may be interrupted by novel experiences, but novelty is not antithetical to MIL. Novel events are not inherently threatening (Kagan, 2009). Indeed, typical responses to novelty include looking longer at the stimuli and disrupting ongoing activity (Scherer, Zentner, & Stern, 2004), characteristics crucial for associative learning (Horner & Tung, 2011; Kamin, 1968, 1969). Novelty can be characterized by associations and is likely a complement to routine, rather than a threat, in the experience of MIL. This proposition is supported by the lack of associations between the Disliking Disruption subscale of the trait preference for routine measure, which focuses on discomfort with unexpected interruptions, and MIL in the present studies. Engaging in routines seems to foster MIL, but unexpected or novel experiences do not seem to interrupt it.

Individual Differences and Non-Routine Behaviors

The degree to which enacting a routine relates to feelings of MIL might differ across individuals and situations. In Study 2, we found significant variation in the random slope for this effect suggesting that this relationship took different

forms across participants. This variation mimics the variation in relationships between other features of life and feelings of MIL across people. For example, while religiosity is generally related to a sense of MIL (e.g., Steger & Frazier, 2005), a deeper examination of these effects reveals that the magnitude of this relationship differs across demographic groups (Krause, 2003) and situations (Hicks & King, 2008) in informative ways. Following this approach, we encourage future research examining the role of individual and situational differences in the relationship between routines and MIL.

For one, researchers can focus on identifying relevant personality differences to test for moderations of the relationship between routines and MIL. Another strategy to unpack this relationship is to examine additional features of behaviors and their relevance for MIL. For instance, there are several categorically distinct patterns for nonroutine behaviors. For example, a person's behavior might not align with an established routine because he or she (a) does not have many established routines, (b) is acting outside of the routine in pursuit of a growth or learning experience, (c) has chosen to engage in a nonroutine, yet mundane, behavior, or (d) is experiencing problematic disruptions or hassles. These (and other behavioral features) would seem to predict different relationships with MIL. For instance, occasions of low routine enactment that represent problems and hassles might, themselves, detract from a sense that one's life is meaningful, offering an alternate explanation for the observed association between routines and MIL. However, among the 152 episodes for which routine was given the lowest score possible (1), only eight (5%) involved problems or hassles (e.g., illness). Rather, these low routine episodes often represented unique positive activities (e.g., going to a play). While it is unlikely that disruptive hassles explain our findings, additional research examining MIL in nonroutine experiences is warranted.

Limitations and Future Directions

The current studies provide direct evidence, at both the trait level and the concurrent experience level, for a positive relationship between routines and MIL. As with any line of research, this study is not without limitations, many pointing to important directions for future research. First, we note again that these identified effects were of a small magnitude. The trait level correlation between routines and MIL identified in Study 1 ($r = .26$) represents a small effect (though similar to average reported correlations within individual difference research—average $r = .19$; Gignac & Szodorai, 2016). The momentary effects in the ESM study were similarly small, in part due to the stability of MIL within individuals. Future work regarding of the role of routines in the experience of MIL and the potential applications informed by this relationship ought to be calibrated with a consideration of the small size of the observed effects.

Second, the correlational nature of the current work leaves room for the potential that an unknown third variable could account for the relationship between routines and MIL. While we have taken initial steps to testing the potential influence of some potentially relevant variables (mindfulness and mood), and have replicated the trait relationship within the context of within person momentary assessments which provides some added confidence that this relationship is not driven simply by an unmeasured third variable, future work ought to explore additional covariates in the context of this relationship. In addition, our correlational approach does not address questions regarding the direction of causality in this relationship. We have spoken of routines as a source of MIL, but of course, feelings of MIL might also enact the utilization of behavioral routines. We suspect that these variables actually form a cycle of mutual causation with routines facilitating feelings of MIL, which then cycle back around to reinforce subsequent use of those routines in the future. However, this prediction requires future experimental testing.

Identifying a relationship between routine preference and enactment and MIL generates a number of additional avenues for future research regarding the features of routines, individual differences, and situational contexts that might alter the degree or nature of this relationship. Among the features of routines that warrant further examination are whether the mundanity of a routine, the degree to which the routine is goal-congruent, and the role of autonomous selection versus external assignment to particular routines influence its relationship with MIL. In addition, an examination of the role of stress—both general and early stressful life circumstances and current situational stress—in this relationship is important in moving toward a more complete understanding of the generalizability of this research across contexts. Finally, it is possible to arrange already meaningful aspects of life into routines. Indeed many strong sources of MIL, including religion, relationships, and work, are often carried out in a routine manner. Does the degree to which these typically meaningful activities are executed in a routine fashion moderate (strengthen) their relationship with feelings of MIL?

Additional research is also needed to understand more completely the mechanisms that drive this relationship. We have suggested that routines provide structure for individuals to use in navigating the complex world and that this structure is essential to feeling that one's life is meaningful (Heine et al., 2006; Heintzelman & King, 2014b; Park, 2010; Vess et al., 2009). In addition, routines might serve to provide identity consistency across time (i.e., "I'm the type of person who does this") and a more integrated narrative identity relates to MIL (Bauer, McAdams, & Pals, 2008), so perhaps routines relate to MIL to the extent that they facilitate a coherent sense of self across time. Routines might also relate positively to MIL by increasing the frequency to which individuals engage in other meaning or goal-relevant activities. For instance, shared routines would seem to be essential for coordinating social lives. Finally, routines might simply allow individuals

to off-load their mundane behavioral concerns to free cognitive space for more meaningful pursuits. Each of these possibilities can be tested as mechanisms to explain the relationship between routines and MIL. We would expect that the answer to the question of what is driving this relationship might be some combination of these, and other, factors.

Conclusion

Experiencing life as meaningful is associated with an array of benefits. It is perhaps unsurprising, then, that the focus of much psychological research on this topic has to date focused on the similarly grand antecedents of this experience. The current studies demonstrate that additional, more mundane, experiences also play a role in the everyday experience of life as meaningful. Living a life characterized by routines was found to be associated with higher MIL. Life is not only made meaningful through extraordinary experiences but also in its daily living.

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Note

1. A curvilinear relationship with routine emerged for only one of five meaning in life (MIL) variables: purpose (quadratic effect: $\beta = .12, p = .032$), composite ($\beta = .10, p = .067$), meaning ($\beta = .11, p = .058$), significance ($\beta = .10, p = .096$), and coherence ($\beta = .07, p = .192$). For purpose, a primarily linear positive relationship accelerated slightly at higher levels of routine.

Supplemental Material

Supplemental material is available online with this article.

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