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Daily Spiritual Experiences and Self-Rated Health in the Midlife in the United States (MIDUS) Study: Indirect Effects via Purpose in Life

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Spirituality is an important construct that extends beyond religiousness and may promote health. Daily spiritual experiences capture individuals' everyday relationship to the transcendent, including experiences of deep peace and connection. Although daily spiritual experiences are believed to be relevant for overall health, limited research has examined such relationships and pathways. The present study investigated cross-sectional and prospective associations between daily spiritual experiences and self-rated health in waves two and three of the Midlife in the United States (MIDUS) study. Purpose in life was examined as an indirect pathway through which daily spiritual experiences relate to health. Daily spiritual experiences at wave two were associated with better self-rated health at wave two, $B(SE) = .03(.01)$, $p < .001$, when controlling for demographic factors. They were also associated with better self-rated health 8–10 years later (wave three) when controlling for demographic factors, $B(SE) = .02(.01)$, $p < .001$, and wave two self-rated health, $B(SE) = .01(.01)$, $p = .038$, respectively. Purpose in life at wave two was a significant indirect effect through which daily spiritual experiences predicted self-rated health at wave three. Associations between daily spiritual experiences and self-rated health remained significant after controlling for religious identification in supplemental analyses. Daily spirituality may have protective benefits for health in part through its relationship with purpose in life, a stress-buffering resource that promotes coping, self-regulation, and health behavior engagement. Future research should continue investigating the relationship between spirituality as a distinct construct from religiousness, objective health indicators, and additional biopsychosocial mechanisms in diverse, longitudinal samples.

Keywords: spirituality, self-rated health, purpose in life, midlife and older adults

Supplemental materials: https://doi.org/10.1037/rel0000605.supp

Spirituality is an integral part of many people's lives that may positively affect health and promote psychological well-being. Although for some individuals, spirituality is intimately associated with or derived from organized religion, in general, spirituality encompasses broader themes of the search for, and/or connectedness to, that which is sacred and transcendent (Koenig et al., 2012), and therefore extends beyond religiousness. Given national declines in religious affiliation and attendance, as well as growth in the proportion of the population identifying as "spiritual but not religious" (Gallup, 2023; Pew Research Center, 2017), spirituality per se should be examined more closely as a potential promoter of population health and well-being. In particular, daily spiritual experiences may be salient for health because they represent the "ordinary" or "mundane" experiences of one's awareness of and relationship to the transcendent in daily life (Underwood, 2006; Underwood & Teresi, 2002). Daily spiritual experiences capture inner attitudes, feelings, and sensations that characterize an individual's daily experience with the transcendent (Underwood, 2006). Here we consider how daily spiritual experiences cross-sectionally and prospectively predict self-rated health 8–10 years later in a national sample of midlife and older adults. We also examine the extent to which associations between daily spiritual experiences and self-rated health occur through purpose in life, an important aspect of psychological well-being that reflects one's sense of direction and goals in life that foster meaning.

Self-rated health is a key population health outcome because it goes beyond characterizing health as the mere absence of disease, and captures a broader, subjective assessment of perceived health status which may reflect a range of contextual factors that affect health and well-being. Self-rated health reflects medical diagnoses, functional limitations, bodily sensations and symptoms, personality factors, and genetic predispositions and is affected by various reference groups, earlier health experiences, and health expectations (Jylhä, 2009; Stephan et al., 2020). Importantly, self-rated health is

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related to a range of objective health indicators, including biomarker levels and general physical functioning (Kananen et al., 2021; Krause & Jay, 1994). Specifically, individuals who report higher self-rated health also have lower allostatic load (Vie et al., 2014), better immune system functioning (S. Cohen et al., 2015), and lower risk of chronic disease (Latham & Peek, 2013). Self-rated health is likewise a strong predictor of mortality (Jylhä, 2009) and provides critical insights into overall perceptions of health not otherwise captured by objective medical ratings (Idler & Benyamini, 1997; Maddox & Douglass, 1973).

Both spirituality generally and spirituality in daily life have been associated with self-rated health in prior research. For example, in a large study conducted among 18,000 residents in China, Wu et al. (2013) demonstrated that those with poorer "spiritual status" (i.e., one-item measure: "Overall, how would you rate your spirituality?") had a higher likelihood of reporting lower self-rated health scores. Daily spiritual experiences likewise significantly predicted better self-rated health across a variety of populations, including diverse samples of older adults (Kalkstein & Tower, 2009; Skarupski et al., 2010), a sample of women from the 1998 U.S. General Social Survey (Maselko & Kubzansky, 2006), and a community-based sample of U.S. South Asian adults (Kent et al., 2020). Notably, however, not all studies find protective associations between spirituality and health, supporting the need for further investigation. For example, Koenig et al. (2004) reported null associations between multiple measures of spirituality (e.g., daily spiritual experiences, self-rated spirituality, "spiritual but not religious" self-categorization, and observer-rated spirituality) and self-rated health in a population of hospitalized older adult patients, and spiritual health and self-rated physical health were also not associated in a population-based sample of Canadian adults (Ratner et al., 1998).

Existing theoretical models posit that spirituality affects downstream health via increasing positive psychological outcomes, such as increased meaning, well-being, and connectedness (Koenig, 2008). Spirituality encompasses facets of the internal or personal experience, such as peace and fulfillment, a sense of connectedness to that which is greater than oneself, and one's search for or contemplation of meaning and purpose in life (Zimmer et al., 2016). Specifically, daily experiences of spirituality including connectedness and peacefulness may impact health via buffering against stress and promoting positive psychological resources (Underwood & Teresi, 2002). For example, when faced with adversity, finding strength within a transcendent source, feeling gratitude, or experiencing comfort from a sense of "divine help" are daily spiritual experiences that may help foster resilience and promote a sense of meaning or purpose in life (Underwood & Vagnini, 2022). Further, experiences of "being moved by the beauty of life" or "experiencing a profound sense of caring for others" may themselves serve as individual sources of meaning and purpose that individuals can access in their daily lives, thereby promoting health and well-being. Thus, these theoretical models suggest that purpose in life may play a key mechanistic role through which daily spiritual experiences translate into benefits for health.

A few empirical studies have demonstrated such relationships between daily spiritual experiences and meaning and purpose in life. For instance, daily spiritual experiences prospectively predicted meaning in life among heart failure patients and cancer survivors (George & Park, 2013; George & Park, 2017), and meaning in life has been demonstrated to mediate associations between daily spiritual experiences and other aspects of psychological well-being (Wnuk & Marcinkowski, 2014). Further, a substantial body of literature supports that meaning and purpose in life are associated with health and mortality outcomes broadly (e.g., Boylan et al., 2022, 2023; R. Cohen et al., 2016), and better self-rated health, specifically (Czekierda et al., 2017; Ryff et al., 2015). Taken together, though these studies have established direct links between daily spiritual experiences and purpose in life, and purpose in life and health, the indirect path from daily spiritual experiences to self-rated health *through* purpose in life remains largely unexplored, especially in large, longitudinal samples.

Daily spiritual experiences are an important facet of spirituality that may foster purpose in life and better self-rated health. However, broadly, literature on spirituality and health is often limited by reliance on cross-sectional designs, the use of relatively crude measures of spirituality, and measures that do not distinguish spirituality as separate from religiousness. Although prior research has begun to establish more specific linkages between daily spirituality and health, studies examining associations between daily spirituality and health, and the role of purpose in life as an underlying pathway of this relationship in large, longitudinal samples are sparse. Taken together, the present study aimed to advance the literature on spirituality and health by (a) focusing on a specific, validated construct of spirituality (i.e., daily spiritual experiences); (b) examining cross-sectional and prospective associations between daily spiritual experiences and self-rated health; and (c) considering the extent to which purpose in life is an underlying mechanism through which daily spirituality and prospective self-rated health are associated among a national sample of adults from the Midlife in the United States (MIDUS) study. We derived two hypotheses: (1) that a greater frequency of daily spiritual experiences would be associated with better self-rated health and (2) that the prospective relationship between daily spiritual experiences and self-rated health would be partially explained by an indirect effect through purpose in life.

Method

Sample

Data came from waves two and three of the MIDUS study, a national longitudinal sample of middle-aged and older adults. Wave one of MIDUS (M1) began in 1995 and included 7,108 respondents recruited via random-digit-dialing with oversampling across five cities, siblings of main-sample respondents, and a national sample of twins (Brim et al., 2004). Participants were eligible if they were aged 25–74, noninstitutionalized, English-speaking, and living in the contiguous United States (MIDUS, n.d.-b). A second wave of data ($N = 5,555$) was collected in 2004–2006 (M2) from those who participated in M1, with a 75% retention rate after adjusting for mortality (Radler & Ryff, 2010). During M2, an oversample of Black and African American adults was recruited from Milwaukee, Wisconsin to increase representation in MIDUS ($n = 592$). Within census blocks in which at least 40% of residents were Black, door-to-door canvassing was used to screen for individuals on the basis of race, gender, age, and income (to match the M1 survey distribution). Roughly half of the Milwaukee sample resided in census blocks with a median household income below $40,000. The inclusion criteria required that participants self-identified as Black or African American, lived in a noninstitutionalized setting, were able to speak English with sufficient literacy to complete a self-administered

questionnaire, and were healthy enough to complete a 40-min interview. Participants were interviewed at home using a computer-assisted personal interview and audio computer-assisted self-interview. In 2013–2015, a third wave of data was collected (M3) from those who participated in M2 ($N = 3,683$), with a 77% response rate after adjusting for mortality from M2 to M3 (MIDUS, n.d.-c). In an analysis of MIDUS attrition, those who dropped out or died after the first wave (attrition at M2) or died before the third wave (attrition at M3) were, at baseline (M1), more likely to be older, male, unmarried, have lower levels of education, and report poorer subjective physical health compared to participants who completed all three waves of MIDUS (Radler & Ryff, 2010; Song et al., 2021). Those who dropped out before the third wave (nondeath attrition at M3) were more likely to be older and childless at baseline (M1) compared with completers of all three waves (Song et al., 2021). Respondents completed a phone interview and a Self-Administered Questionnaire at each wave of the study. Written informed consent was provided by all participants. Data collection for MIDUS is reviewed and approved by institutional review boards (Protocol No. 2016-1051) at the University of Wisconsin–Madison (MIDUS, n.d.-a; Radler, 2014). MIDUS data are publicly available online (https://www.icpsr.umich.edu/web/DAIRL/series/203).

Measures

Daily Spiritual Experiences

Daily spiritual experiences were measured at MIDUS wave two. This construct was measured using five items that MIDUS adapted (Ryff et al., 2017) from the original 16-item Daily Spiritual Experiences scale (DSES) developed by Underwood and Teresi (2002) in response to recommendations from the Fetzer Institute/National Institute on Aging Working Group (1999). Items included, "On a daily basis, how often do you experience … 'a feeling of deep inner peace or harmony,' 'a feeling of being deeply moved by the beauty of life,' 'a feeling of strong connection to all of life,' 'a sense of deep appreciation,' and 'a profound sense of caring for others.'" Responses were indicated on a scale ranging from (1) *often* to (4) *never*. The scale's internal consistency rating was $\alpha = .89$ for the M2 total sample (Ryff et al., 2017). All items were reverse-coded and summed so that higher scale scores indicated more frequent daily spiritual experiences (Ryff et al., 2017).

Notably, MIDUS modified some of the items from the original DSES scale to include more secular language. For example, "I am spiritually touched by the beauty of creation" and "I feel thankful for my blessings" from the original scale were adapted to "a feeling of being deeply moved by the beauty of life" and "a sense of deep appreciation," respectively. Eleven items were omitted entirely from MIDUS's DSES, including items with explicit language related to theism and spirituality (e.g., "I feel god's presence," "I find strength in my religion or spirituality," "I feel guided by God in the midst of daily activities," "I feel god's love for me, directly"). Although the decision to adapt the DSES has not been explained in prior MIDUS data documentation or literature to our knowledge, this scale was likely shortened and adapted to decrease participant burden and promote accessibility through more secular language.

Purpose in Life

At M2, purpose in life was measured using the seven-item subscale from the Psychological Well-Being Scale (Ryff, 1989). An example item is, "Some people wander aimlessly through life, but I am not one of them." Responses were indicated on a scale ranging from (1) *strongly agree* to (7) *strongly disagree*. The subscale's internal consistency rating was $\alpha = .70$ for the M2 total sample (Ryff et al., 2017). All items were reverse-coded and summed so that higher scale scores indicated more purpose in life (Ryff et al., 2017).

Self-Rated Health

Self-rated health was collected during the phone interviews at both M2 and M3 and was measured with the item: "In general, would you say your physical health is excellent, very good, good, fair, or poor?" Response options ranged from 1 to 5 and were reverse-coded so that higher scale scores indicated better self-rated health. This variable was analyzed as a continuous variable.

Demographic Covariates

Demographic covariates included age (continuous), sex (1 = female, 0 = male), race (1 = White, 0 = other), educational attainment (continuous), and marital status (1 = married/cohabitating, 0 = other). Educational attainment was measured with 12 categories that ranged from (1) *no school/some grade school* to (12) *PhD, MD, or other professional degree*. All continuous variables were mean centered.

Religious Identification

Religious identification was included as a covariate in supplemental analyses to examine the extent to which daily spirituality predicted self-rated health above and beyond religious identification. Religious identification is a six-item scale with response options ranging from (1) *very* to (4) *not at all* and an internal consistency rating of $\alpha = .90$ for the M2 total sample (Ryff et al., 2017). Sample items include, "How religious are you?" "How important is religion in your life?" and "How closely do you identify with being a member of your religious group?" All items were reverse-coded and summed so that higher scale scores indicated greater religious identification (Ryff et al., 2017).

Statistical Analyses

SPSS Version 29.0 was used to conduct all analyses. The analytic sample for cross-sectional analyses included 4,379 participants who provided data on daily spiritual experiences at M2, including 403 participants from the Milwaukee sample. The analytic sample for prospective analyses included 3,155 participants who provided data on daily spiritual experiences at M2 and self-rated health at M3. Missing data were minimal, with less than 0.5% missing on each study variable. To investigate how respondents who completed M2 only compared to respondents who completed both M2 and M3 within the analytic sample, samples *t* tests were run to compare daily spiritual experiences, religious identification, and self-rated health between groups.

Regarding the study aims, first, ordinary least squares (OLS) regression was used to examine cross-sectional associations between daily spiritual experiences and self-rated health at M2. Cross-sectional models included age, sex, race, education, and marital status as covariates. Second, OLS regression was also used to examine prospective

associations of daily spiritual experiences at M2 as a predictor of self-rated health 8–10 years later at M3. Model 1 included age, sex, race, education, and marital status as covariates. Model 2 added self-rated health at M2 to the model to examine whether daily spiritual experiences predicted changes in self-rated health from M2 to M3. In supplemental analyses, religious identification was added to separate models as a covariate. Third, an indirect effects analysis was conducted using the PROCESS macro (Version 4, Model 4) for SPSS to examine the indirect effect of daily spiritual experiences at M2 on self-rated health at M3 via purpose in life at M2 (Hayes, 2022). Effects were estimated using a percentile bootstrap estimation approach with 5,000 samples. Effects are reported in an unstandardized metric. Covariates included age, sex, race, education, marital status, and M2 self-rated health.

Transparency and Openness

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. All MIDUS data are publicly available online at https://www.icpsr.umich.edu/web/DAIRL/series/203. Data were analyzed using SPSS Version 29.0 and the SPSS PROCESS macro Version 4. This study's design and hypotheses were preregistered. This study's analysis code and original preregistration are available at the project's Open Science Framework page at https://osf.io/n2d6y/.

Results

Sample Descriptives

At M2, the sample had a M_{age} of 55.82 years (SD = 12.33) and was 56.22% female, 83.38% White, 67.25% married or cohabitating, and 36.38% obtained a bachelor's degree or higher, as indicated in Table 1. Bivariate correlations, presented in Table 2, showed that M2 daily spiritual experiences were significantly and positively correlated with M2 and M3 self-rated health (rs = .04, ps < .05) and purpose (r = .29, p < .001). Those who reported more frequent daily spiritual experiences at M2 were significantly older, female, non-White, and unmarried. Those who reported having higher self-rated health at M2 were younger, more likely to be White, more likely to be married, and had higher educational attainment. Likewise, individuals who reported having higher self-rated health at M3 were more likely to be White, married, more highly educated and were also more likely to identify as male.

Supplemental Table S1 compares M2 only and M2 and M3 completers within the analytic sample. Respondents who completed M2 only versus M2 and M3 did not differ significantly on daily spiritual experiences or religious identification. However, there was a significant difference in self-rated health, whereby M2 and M3 completers reported significantly better self-rated health at M2 compared with respondents who did not complete M3.

Table 1
Sample Descriptives of Analytic Sample

Variable	*M* (*SD*) or %
Age, in years	55.82 (12.33)
Sex (% female)	56.22
Race (% White)	83.38
Education	
% ≤high school education	34.74
% ≥bachelor's degree or higher	36.38
Marital status (% married/cohabitating)	67.25
Daily spiritual experiences at M2 (range = 5–20)	15.82 (3.20)
Purpose in life at M2 (range = 10–49)	38.41 (6.99)
Self-rated health at M2 (n = 4,378; range *poor* to *excellent*)	3.51 (1.03)
Self-rated health at M3 (n = 3,155; range *poor* to *excellent*)	3.38 (1.04)

Note. N = 4,379. Analytic sample includes M2 core and Milwaukee 1 cohorts for all variables except self-rated health at M3 which includes M3 core and Milwaukee 2 cohorts. Valid percentages are indicated.

Daily Spiritual Experiences and Self-Rated Health

OLS regression assessed associations between daily spiritual experiences and self-rated health at both M2 and M3. In cross-sectional analyses, as presented in Table 3, a one-unit increase in daily spiritual experiences at M2 was associated with a .03 increase in self-rated health at M2 after controlling for age, sex, race, education, and marital status (p < .001). In prospective analyses, as presented in Table 4 (Model 1), a one-unit increase in daily spiritual experiences at M2 was associated with a .02 increase in self-rated health 8–10 years later in M3 when controlling for age, sex, race, education, and marital status (p < .001). When M2 self-rated health was controlled for in the prospective model (Table 4, Model 2), the association between daily spiritual experiences and M3 self-rated health weakened but remained statistically significant, $B(SE)$ = .01(.01), p = .038. Specifically, a one-unit increase in daily spiritual experiences at M2 was associated with a .01 change in self-rated health 8–10 years later.

To investigate whether daily spiritual experiences were associated with self-rated health above and beyond religiosity, additional OLS regression models were run with religious identification included as a covariate (see Supplemental Tables S2 and S3). Results demonstrated that associations between daily spiritual experiences and self-rated health remained significant in cross-sectional, $B(SE)$ = .03(.01), p < .001, and prospective, $B(SE)$ = .02(.01), p < .001, models when controlling for religious identification and demographic factors. When self-rated health at M2 was added to prospective models, the effect of daily spiritual experiences was attenuated, $B(SE)$ = .01(.01), p = .065.

Indirect Effect via Purpose in Life

The indirect effect of daily spiritual experiences on self-rated health through purpose in life was significantly different from zero (see Figure 1). Specifically, daily spiritual experiences were positively related to purpose in life (a = .67, p < .001, CI [.60, .74]) and purpose in life positively predicted prospective self-rated health while controlling for daily spiritual experiences (b = .01, p < .001, CI [.01, .02]). A bootstrap confidence interval for the indirect effect of daily spiritual experiences (*ab*) using 5,000 bootstrap samples was .00–.01, indicating evidence of an indirect effect of daily spiritual experiences on prospective self-rated health through purpose in life. The direct effect of daily spiritual experiences on prospective self-rated health was not statistically significant (c' = .00, p = .69, CI [−.03, .04]).

Discussion

Daily spiritual experiences are a key domain of religiousness and spirituality that is hypothesized to be relevant for physical health

Table 2
Bivariate Correlations for Key Study Variables and Covariates

Variable	1	2	3	4	5	6	7	8	9
1. Daily spiritual experiences	—	.04*	.04*	.29**	.23**	.21**	−.08**	.00	−.04*
2. M2 self-rated health		—	.56**	.28**	−.15**	−.02	.16**	.27**	.11**
3. M3 self-rated health			—	.22**	−.07*	−.04*	.20**	.24**	.12**
4. Purpose				—	−.05**	.01	.04*	.20**	.16**
5. Age					—	−.03	.09**	−.12**	−.05**
6. Sex (female)						—	−.05**	−.11**	−.17**
7. Race (White)							—	.15**	.25**
8. Educational attainment								—	.09**
9. Marital status (married)									—

* $p < .05$. ** $p \leq .001$.

(Fetzer Institute/National Institute on Aging Working Group, 1999). However, there are limited empirical investigations of daily spiritual experiences in relation to health outcomes, especially in large, longitudinal studies. In the present study, we addressed this gap by examining self-rated health—a key subjective indicator that is strongly predictive of objective physical health outcomes (Idler & Benyamini, 1997; Jylhä, 2009). We found that greater daily spiritual experiences predicted better self-rated health among midlife and older adults in the MIDUS sample. Specifically, results showed that daily spiritual experiences were associated with better self-rated health both cross-sectionally and prospectively (8–10 years later) when controlling for demographic factors. Daily spiritual experiences continued to predict self-rated health at M3 when M2 self-rated health was added into the model, suggesting that daily spiritual experiences may also predict changes in self-rated health over time.

Importantly, although such associations were statistically significant, observed effect sizes were small (ranging from .01 to .03), which may suggest limited practical significance of the relationship between daily spirituality and self-rated health. These small effect sizes may be due to a variety of reasons. Self-rated health is a broad outcome that may be influenced by a range of biopsychosocial determinants. As such, a single psychological resource such as daily spirituality is thus expected to explain a small portion of variance. Additionally, the 8–10 year time lag is substantial and the influence of daily spirituality at one time point is likely to attenuate over a decade of life changes. However, it is also important to consider that when applied at the population level, small increases in self-rated health can have significant implications for public health. Given that self-rated health is a robust predictor of mortality, a modest shift in this assessment may translate to a meaningful reduction in adverse health outcomes at the population level. Moreover, daily spiritual experiences represent a salient psychosocial resource that is low-cost and accessible to many, regardless of formal religious affiliation. Therefore, from a public health perspective, identifying and cultivating such psychosocial resources may offer a valuable target for future health-promoting interventions.

Table 3
Cross-Sectional Linear Regression Results With Daily Spiritual Experiences at M2 and Self-Rated Health at M2

Variable	*B*(*SE*)	*p*	95% CI
Daily spiritual experiences	.03(.01)	**<.001**	[.02, .04]
Age	−.01(.00)	**<.001**	[−.02, −.01]
Sex (female)	.00(.03)	.89	[−.06, .07]
Education	.09(.01)	**<.001**	[.08, .10]
Race (White)	.37(.04)	**<.001**	[.28, .45]
Marital status (married/cohabitating)	.12(.03)	**<.001**	[.05, .18]

Note. n = 4,350. Significant values appear in bold. R^2 = .12. CI = confidence interval; *SE* = standard error.

That daily spiritual experiences are relevant for self-rated health is consistent with hypotheses that daily spirituality is salient for overall health via promoting resiliency and positive psychological outcomes, both of which help to buffer against stress (Underwood & Teresi, 2002; Underwood & Vagnini, 2022). We examined purpose in life as a potential pathway underlying the relationship between daily spirituality and self-rated health, a research question that, to our knowledge, has not been tested before in a large, longitudinal sample of adults. Though regression models demonstrated a predictive link between daily spiritual experiences and self-rated health, path analysis clarified that this relationship is partially explained by an indirect effect through purpose in life. This suggests that daily spiritual experiences may promote prospective self-rated health, in part, through fostering a stronger sense of purpose in life, which in turn predicts better subjective health.

A robust literature suggests that purpose in life is a psychological resource in that it helps to buffer against stress, promotes better coping, and helps foster engagement in healthy behaviors; all of which ultimately lead to better health outcomes (Hooker et al., 2018; Kim et al., 2020, 2022; King & Hicks, 2021; Ryff, 2014). Purpose in life may be especially relevant to daily spiritual experiences given that both constructs encompass themes of transcendence. For example, daily spiritual experiences capture one's perception of and relationship to the transcendent in daily life and cultivating a sense of purpose in life typically involves seeking and making meaning through shifting one's focus from the self to that which is greater than oneself. Existing theoretical models support the important role that purpose may play in the connection between religiousness/spirituality and health as a potential harm-buffering positive psychological resource and/or as an integral component of self-regulation (Aldwin et al., 2014; Koenig, 2008).

The present study contributed to the literature on religiousness/spirituality and health in two important ways. First, most prior research in this area tends to examine religiousness and spirituality as a combined construct and focuses predominantly on religious beliefs and behaviors (e.g., religious service attendance) as primary predictors of health, and less on distinct connections between health

Table 4
Prospective Linear Regression Results With Daily Spiritual Experiences at M2 Predicting Self-Rated Health at M3

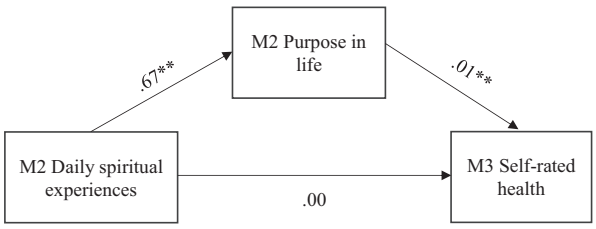
Variable	Model 1			Model 2		
	B(*SE*)	*p*	95% CI	*B*(*SE*)	*p*	95% CI
Daily spiritual experiences	.02(.01)	**<.001**	[.01, .04]	.01(.01)	**.038**	[.00, .02]
Age	−.01(.00)	**<.001**	[−.01, −.00]	−.00(.00)	**.005**	[−.01, −.00]
Sex (female)	−.02(.04)	.65	[−.09, .06]	−.00(.03)	.94	[−.07, .06]
Education	.08(.01)	**<.001**	[.07, .10]	.04(.01)	**<.001**	[.03, .05]
Race (White)	.47(.05)	**<.001**	[.36, .57]	.24(.05)	**<.001**	[.15, .33]
Marital status (married/cohabitating)	.12(.04)	**.002**	[.05, .20]	.09(.04)	**.012**	[.02, .16]
Self-rated health at M2				.55(.02)	**<.001**	[.52, .59]

Note. n = 3,139. Significant values appear in bold. R^2: Model 1 = .10; Model 2 = .33. CI = confidence interval; *SE* = standard error.

and spirituality (Lucchetti et al., 2011; Page et al., 2020). Although the two constructs overlap in important ways, because that which is "sacred" may be secular in nature (e.g., love, work), spirituality (i.e., the search for the sacred and relationship to that which is transcendent) can occur both inside and outside of established religious institutions (Pargament, 2013) and therefore should be examined in relation to health both within the context of religion and separately from it. Notably, supplemental analyses demonstrated that daily spiritual experiences predicted self-rated health above and beyond religious identification in cross-sectional and prospective models when controlling for demographic factors. However, this prospective association attenuated to nonsignificance when baseline (M2) self-rated health was also included in the model alongside religious identification. Together, these findings support that there may be uniquely salient and protective aspects of spirituality for health that are not fully captured by religiosity, although its unique contribution to *changes* in self-rated health over time may be subtle. Future research may aim to further elucidate the relationship between spirituality, religiosity, and health, including the extent to which these constructs moderate one another in their relationship to health.

Second, the literature on spirituality and health is often limited by unrefined measures of spirituality. The DSES is a direct measure of spirituality that incorporates many of the broader concepts of spirituality in a specific, everyday context (Underwood & Teresi, 2002). This measure of spirituality also captures ordinary concepts of the human experience (e.g., beauty, peace, interconnectedness) and is therefore more relevant for individuals who are unaffiliated with a specific religion (Kalkstein & Tower, 2009; Underwood & Teresi, 2002).

Figure 1
Daily Spiritual Experiences at M2 Predict Self-Rated Health at M3 Through Purpose in Life at M2



Note. n = 3,131. Indirect effect (ab) = .01(.00), 95% CI [.00, .01]. Model includes M2 self-rated health, age, sex, race, education, and marital status as covariates. Values represent unstandardized coefficients.
** $p < .001$.

Several limitations deserve consideration. First, racial and ethnic minority groups were underrepresented in this sample, which may reduce external validity. Furthermore, this study relied on data from participants who completed waves two and three of MIDUS, suggesting the sample may be subject to attrition bias. Specifically, our findings are based on a sample that is more likely to be younger, female, married, healthier, and more educated than the original cohort from wave one. As such, selection bias may restrict the generalizability of our findings. Future research is needed to test associations between multidimensional spirituality and health, including the psychological factors that may connect these factors, in more racially and ethnically diverse samples, as well as among populations inclusive of those at risk for attrition. Despite these limitations, the findings from this study add important evidence about this association in a large, longitudinal sample of midlife and older adults.

Second, this study relied on self-reported measures of spirituality and self-rated health which may be subject to inherent limitations, including recall and response biases, as well as limited specificity and sensitivity to change. Notably, the DSES is a retrospective, frequency-based measure of spirituality. Though it prompts participants to consider their experience of spirituality "on a daily basis," the response scale requires participants to provide a general summary of their perceived frequency, rather than a report of their actual experiences on a given day. Additionally, this study utilized a shortened and modified measure of daily spiritual experiences that was adapted by MIDUS from the original 16-item DSES. This modified version omitted language that was more explicitly spiritual and theistic in nature, such as "I feel guided by *god* in the midst of daily activities," and "I am *spiritually* touched by the beauty of creation." Although this adaptation was necessary for a large-scale survey and enhanced the accessibility of the construct by making it more secular, it may have consequences for construct validity. For example, the adapted measure may better capture feelings of awe and connectedness than spirituality. Future research should aim to use the full DSES to disentangle such effects on health. Furthermore, although self-rated health is a valuable proxy for health status and has been correlated with objective measures of health-related biomarkers in prior research (e.g., white cell count, hemoglobin, albumin, high-density lipoprotein cholesterol, C-reactive protein, interleukin-6, hemoglobin A1C; Christian et al., 2011; Jylhä et al., 2006; Kananen et al.,

2021), future research should consider examining objective indicators of health such as morbidity and mortality rates in relation to daily spiritual experiences.

Third, the present findings do not represent a true causal indirect effect linking daily spiritual experiences, purpose in life, and self-rated health given the observational study design and the fact that daily spiritual experiences and purpose in life were both measured at the same time point. Future research should continue to investigate the causal mechanisms between spirituality and health using longitudinal data.

Fourth, despite a complicated network of associations between aspects of spirituality and health, the present study only considered one psychological mechanism (e.g., purpose in life). We focused on purpose in life given its conceptual relevance to daily spiritual experiences and its relationships with health. However, there are additional mechanistic factors that should be examined in future work. For example, positive social relationships foster positive emotionality and buffer against stress and therefore promote and sustain health and longevity (S. Cohen, 2004; Morelli et al., 2015). Daily spiritual experiences and positive social support overlap in that the DSES taps into a perceived sense of connectedness and caring for others. Therefore, social support and/or positive relations with others may be salient mediators of the relationship between daily spirituality and health. Furthermore, there may be other positive psychological resources linked to daily spirituality and health. For example, the DSES assesses "a sense of deep appreciation" and being "moved by the beauty of life." These items may capture feelings of gratitude and awe, respectively, which have both been linked to physical health in prior research (e.g., Hill et al., 2013; Monroy & Keltner, 2023). Spirituality and optimism may also be linked via their classification as "transcendent" strengths (Peterson & Seligman, 2004) and their capacity to generate positive future expectations (Ciarrocchi et al., 2008). Optimism has also been found to be a health-promoting psychological resource in prior literature (Rasmussen et al., 2009; Scheier et al., 2021). Therefore, it remains an important question for future research whether purpose in life is a unique pathway or if our finding reflects a broader underlying indirect effect of positive psychological functioning.

The present study extended prior research on religiousness, spirituality, and health through examining spirituality as an independent predictor of self-rated health, as well as purpose in life as a psychological mediator in a large, longitudinal sample of midlife and older adults. We found that daily spiritual experiences were positively associated with self-rated health both cross-sectionally and prospectively. Further, purpose in life was a significant indirect effect through which daily spirituality predicted self-rated health. Taken together, purpose in life is a positive psychological resource that may be promoted through daily spiritual experiences and may be protective for health and longevity. Future research should continue to examine aspects of spirituality that transcend specific institutional and denominational affiliations, beliefs, and behaviors, as well as elucidate the biopsychosocial pathways through which they impact a range of health indicators among diverse, longitudinal samples.

References

Aldwin, C., Park, C., Jeong, Y.-J., & Nath, R. (2014). Differing pathways between religiousness, spirituality, and health: A self-regulation perspective. *Psychology of Religion and Spirituality*, *6*(1), 9–21. https://doi.org/10.1037/a0034416

Boylan, J. M., Biggane, C., Shaffer, J. A., Wilson, C. L., Vagnini, K. M., & Masters, K. S. (2023). Do purpose in life and social support mediate the association between religiousness/spirituality and mortality? Evidence from the MIDUS National Sample. *International Journal of Environmental Research and Public Health*, *20*(12), Article 6112. https://doi.org/10.3390/ijerph20126112

Boylan, J. M., Tompkins, J. L., & Krueger, P. M. (2022). Psychological well-being, education, and mortality. *Health Psychology*, *41*(3), 225–234. https://doi.org/10.1037/hea0001159

Brim, O. G., Ryff, C. D., & Kessler, R. C. (2004). *How healthy are we? A national study of well-being at midlife*. University of Chicago Press.

Christian, L. M., Glaser, R., Porter, K., Malarkey, W. B., Beversdorf, D., & Kiecolt-Glaser, J. K. (2011). Poorer self-rated health is associated with elevated inflammatory markers among older adults. *Psychoneuroendocrinology*, *36*(10), 1495–1504. https://doi.org/10.1016/j.psyneuen.2011.04.003

Ciarrocchi, J. W., Dy-Liacco, G. S., & Deneke, E. (2008). Gods or rituals? Relational faith, spiritual discontent, and religious practices as predictors of hope and optimism. *The Journal of Positive Psychology*, *3*(2), 120–136. https://doi.org/10.1080/17439760701760666

Cohen, R., Bavishi, C., & Rozanski, A. (2016). Purpose in life and its relationship to all-cause mortality and cardiovascular events: A meta-analysis. *Psychosomatic Medicine*, *78*(2), 122–133. https://doi.org/10.1097/PSY.0000000000000274

Cohen, S. (2004). Social relationships and health. *American Psychologist*, *59*(8), 676–684. https://doi.org/10.1037/0003-066X.59.8.676

Cohen, S., Janicki-Deverts, D., & Doyle, W. J. (2015). Self-rated health in healthy adults and susceptibility to the common cold. *Psychosomatic Medicine*, *77*(9), 959–968. https://doi.org/10.1097/PSY.0000000000000232

Czekierda, K., Banik, A., Park, C. L., & Luszczynska, A. (2017). Meaning in life and physical health: Systematic review and meta-analysis. *Health Psychology Review*, *11*(4), 387–418. https://doi.org/10.1080/17437199.2017.1327325

Fetzer Institute/National Institute on Aging Working Group. (1999). *Multidimensional measurement of religiousness/spirituality for use in health research: A report of the Fetzer Institute/National Institute on Aging Working Group*. F. Institute. https://fetzer.org/wp-content/uploads/2025/05/Multidimensional_Measurement_of_Religousness_Spirituality.pdf

Gallup. (2023). *In U.S., 47% identify as religious, 33% as spiritual*. https://news.gallup.com/poll/511133/identify-religious-spiritual.aspx

George, L. S., & Park, C. L. (2013). Are meaning and purpose distinct? An examination of correlates and predictors. *The Journal of Positive Psychology*, *8*(5), 365–375. https://doi.org/10.1080/17439760.2013.805801

George, L. S., & Park, C. L. (2017). Does spirituality confer meaning in life among heart failure patients and cancer survivors? *Psychology of Religion and Spirituality*, *9*(1), 131–136. https://doi.org/10.1037/rel0000103

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). Guilford Press.

Hill, P. L., Allemand, M., & Roberts, B. W. (2013). Examining the pathways between gratitude and self-rated physical health across adulthood. *Personality and Individual Differences*, *54*(1), 92–96. https://doi.org/10.1016/j.paid.2012.08.011

Hooker, S. A., Masters, K. S., & Park, C. L. (2018). A meaningful life is a healthy life: A conceptual model linking meaning and meaning salience to health. *Review of General Psychology*, *22*(1), 11–24. https://doi.org/10.1037/gpr0000115

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior*, *38*(1), 21–37. https://doi.org/10.2307/2955359

Jylhä, M. (2009). What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Social Science & Medicine*, *69*(3), 307–316. https://doi.org/10.1016/j.socscimed.2009.05.013

Jylhä, M., Volpato, S., & Guralnik, J. M. (2006). Self-rated health showed a graded association with frequently used biomarkers in a large population

sample. *Journal of Clinical Epidemiology*, *59*(5), 465–471. https://doi.org/10.1016/j.jclinepi.2005.12.004

Kalkstein, S., & Tower, R. B. (2009). The Daily Spiritual Experiences Scale and well-being: Demographic comparisons and scale validation with older Jewish adults and a diverse internet sample. *Journal of Religion and Health*, *48*(4), 402–417. https://doi.org/10.1007/s10943-008-9203-0

Kananen, L., Enroth, L., Raitanen, J., Jylhävä, J., Bürkle, A., Moreno-Villanueva, M., Bernhardt, J., Toussaint, O., Grubeck-Loebenstein, B., Malavolta, M., Basso, A., Piacenza, F., Collino, S., Gonos, E. S., Sikora, E., Gradinaru, D., Jansen, E. H. J. M., Dollé, M. E. T., Salmon, M., … Jylhä, M. (2021). Self-rated health in individuals with and without disease is associated with multiple biomarkers representing multiple biological domains. *Scientific Reports*, *11*(1), Article 6139. https://doi.org/10.1038/s41598-021-85668-7

Kent, B. V., Stroope, S., Kanaya, A. M., Zhang, Y., Kandula, N. R., & Shields, A. E. (2020). Private religion/spirituality, self-rated health, and mental health among US South Asians. *Quality of Life Research*, *29*(2), 495–504. https://doi.org/10.1007/s11136-019-02321-7

Kim, E. S., Chen, Y., Nakamura, J. S., Ryff, C. D., & VanderWeele, T. J. (2022). Sense of purpose in life and subsequent physical, behavioral, and psychosocial health: An outcome-wide approach. *American Journal of Health Promotion*, *36*(1), 137–147. https://doi.org/10.1177/08901171211038545

Kim, E. S., Shiba, K., Boehm, J. K., & Kubzansky, L. D. (2020). Sense of purpose in life and five health behaviors in older adults. *Preventive Medicine*, *139*, Article 106172. https://doi.org/10.1016/j.ypmed.2020.106172

King, L. A., & Hicks, J. A. (2021). The science of meaning in life. *Annual Review of Psychology*, *72*(1), 561–584. https://doi.org/10.1146/annurev-psych-072420-122921

Koenig, H. G. (2008). Concerns about measuring "spirituality" in research. *Journal of Nervous and Mental Disease*, *196*(5), 349–355. https://doi.org/10.1097/NMD.0b013e31816ff796

Koenig, H. G., George, L. K., & Titus, P. (2004). Religion, spirituality, and health in medically ill hospitalized older patients. *Journal of the American Geriatrics Society*, *52*(4), 554–562. https://doi.org/10.1111/j.1532-5415.2004.52161.x

Koenig, H. G., King, D. E., & Carson, V. B. (2012). *Handbook of religion and health* (2nd ed.). Oxford University Press.

Krause, N. M., & Jay, G. M. (1994). What do global self-rated health items measure? *Medical Care*, *32*(9), 930–942. https://doi.org/10.1097/00005650-199409000-00004

Latham, K., & Peek, C. W. (2013). Self-rated health and morbidity onset among late midlife U.S. adults. *The Journals of Gerontology: Series B*, *68*(1), 107–116. https://doi.org/10.1093/geronb/gbs104

Lucchetti, G., Lucchetti, A. L. G., & Koenig, H. G. (2011). Impact of spirituality/religiosity on mortality: Comparison with other health interventions. *EXPLORE: The Journal of Science and Healing*, *7*(4), 234–238. https://doi.org/10.1016/j.explore.2011.04.005

Maddox, G. L., & Douglass, E. B. (1973). Self-assessment of health: A longitudinal study of elderly subjects. *Journal of Health and Social Behavior*, *14*(1), 87–93. https://doi.org/10.2307/2136940

Maselko, J., & Kubzansky, L. D. (2006). Gender differences in religious practices, spiritual experiences and health: Results from the US General Social Survey. *Social Science & Medicine*, *62*(11), 2848–2860. https://doi.org/10.1016/j.socscimed.2005.11.008

MIDUS. (n.d.-a). *IRB protocol numbers for MIDUS projects*. https://www.midus.wisc.edu/findings/midus_IRB.php

MIDUS. (n.d.-b). *Understanding data collection across MIDUS projects*. https://midus.wisc.edu/wp-content/uploads/2025/02/Understanding_MIDUS_Data_Collection_20250306.pdf

MIDUS. (n.d.-c). *Understanding MIDUS samples*. https://midus.wisc.edu/findings/Understanding_MIDUS_Samples_20241024.pdf

Monroy, M., & Keltner, D. (2023). Awe as a pathway to mental and physical health. *Perspectives on Psychological Science*, *18*(2), 309–320. https://doi.org/10.1177/17456916221094856

Morelli, S. A., Lee, I. A., Arnn, M. E., & Zaki, J. (2015). Emotional and instrumental support provision interact to predict well-being. *Emotion*, *15*(4), 484–493. https://doi.org/10.1037/emo0000084

Page, R. L., Peltzer, J. N., Burdette, A. M., & Hill, T. D. (2020). Religiosity and health: A holistic biopsychosocial perspective. *Journal of Holistic Nursing*, *38*(1), 89–101. https://doi.org/10.1177/0898010118783502

Pargament, K. I. (2013). Searching for the sacred: Toward a nonreductionistic theory of spirituality. In K. I. Pargament, J. J. Exline, & J. W. Jones (Eds.), *APA handbook of psychology, religion, and spirituality: Vol. 1. Context, theory, and research* (pp. 257–273). American Psychological Association. https://doi.org/10.1037/14045-014

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. American Psychological Association.

Pew Research Center. (2017). *More Americans now say they're spiritual but not religious*. https://www.pewresearch.org/short-reads/2017/09/06/more-americans-now-say-theyre-spiritual-but-not-religious/

Radler, B. T. (2014). The Midlife in the United States (MIDUS) series: A national longitudinal study of health and well-being. *Open Health Data*, *2*(1), Article e3. https://doi.org/10.5334/ohd.ai

Radler, B. T., & Ryff, C. D. (2010). Who participates? Accounting for longitudinal retention in the MIDUS national study of health and well-being. *Journal of Aging and Health*, *22*(3), 307–331. https://doi.org/10.1177/0898264309358617

Rasmussen, H. N., Scheier, M. F., & Greenhouse, J. B. (2009). Optimism and physical health: A meta-analytic review. *Annals of Behavioral Medicine*, *37*(3), 239–256. https://doi.org/10.1007/s12160-009-9111-x

Ratner, P. A., Johnson, J. L., & Jeffery, B. (1998). Examining emotional, physical, social, and spiritual health as determinants of self-rated health status. *American Journal of Health Promotion*, *12*(4), 275–282. https://doi.org/10.4278/0890-1171-12.4.275

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*(6), 1069–1081. https://doi.org/10.1037/0022-3514.57.6.1069

Ryff, C. D. (2014). Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*, *83*(1), 10–28. https://doi.org/10.1159/000353263

Ryff, C. D., Almeida, D., Ayanian, J., Carr, D., Cleary, P., Coe, C., Davidson, R., Krueger, R., Lachman, M., & Marks, N. (2017). *Documentation of psychosocial constructs and composite variables in MIDUS 2*. National Archive of Computerized Data on Aging. https://www.icpsr.umich.edu/web/NACDA/studies/4652/versions/V8

Ryff, C. D., Radler, B. T., & Friedman, E. M. (2015). Persistent psychological well-being predicts improved self-rated health over 9–10 years: Longitudinal evidence from MIDUS. *Health Psychology Open*, *2*(2), 1–11. https://doi.org/10.1177/2055102915601582

Scheier, M. F., Swanson, J. D., Barlow, M. A., Greenhouse, J. B., Wrosch, C., & Tindle, H. A. (2021). Optimism versus pessimism as predictors of physical health: A comprehensive reanalysis of dispositional optimism research. *American Psychologist*, *76*(3), 529–548. https://doi.org/10.1037/amp0000666

Skarupski, K. A., Fitchett, G., Evans, D. A., & Mendes de Leon, C. F. (2010). Daily spiritual experiences in a biracial, community-based population of older adults. *Aging & Mental Health*, *14*(7), 779–789. https://doi.org/10.1080/13607861003713265

Song, J., Radler, B. T., Lachman, M. E., Mailick, M. R., Si, Y., & Ryff, C. D. (2021). Who returns? Understanding varieties of longitudinal participation in MIDUS. *Journal of Aging and Health*, *33*(10), 896–907. https://doi.org/10.1177/08982643211018552

Stephan, Y., Sutin, A. R., Luchetti, M., Hognon, L., Canada, B., & Terracciano, A. (2020). Personality and self-rated health across eight cohort studies. *Social Science & Medicine*, *263*, Article 113245. https://doi.org/10.1016/j.socscimed.2020.113245

Underwood, L. G. (2006). Ordinary spiritual experience: Qualitative research, interpretive guidelines, and population distribution for the Daily

Spiritual Experience Scale. *Archiv Für Religionspsychologie*, *28*(1), 181–218. https://doi.org/10.1163/008467206777832562

Underwood, L. G., & Teresi, J. A. (2002). The Daily Spiritual Experience Scale: Development, theoretical description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data. *Annals of Behavioral Medicine*, *24*(1), 22–33. https://doi.org/10.1207/S15324796ABM2401_04

Underwood, L. G., & Vagnini, K. M. (2022). The Daily Spiritual Experience Scale: Empirical relationships to resiliency-related outcomes, addictions, and interventions. *Religions*, *13*(3), Article 237. https://doi.org/10.3390/rel13030237

Vie, T. L., Hufthammer, K. O., Holmen, T. L., Meland, E., & Breidablik, H. J. (2014). Is self-rated health a stable and predictive factor for allostatic load in early adulthood? Findings from the Nord Trøndelag Health Study (HUNT). *Social Science & Medicine*, *117*, 1–9. https://doi.org/10.1016/j.socscimed.2014.07.019

Wnuk, M., & Marcinkowski, J. T. (2014). Do existential variables mediate between religious–spiritual facets of functionality and psychological wellbeing. *Journal of Religion and Health*, *53*(1), 56–67. https://doi.org/10.1007/s10943-012-9597-6

Wu, S., Wang, R., Zhao, Y., Ma, X., Wu, M., Yan, X., & He, J. (2013). The relationship between self-rated health and objective health status: A population-based study. *BMC Public Health*, *13*(1), Article 320. https://doi.org/10.1186/1471-2458-13-320

Zimmer, Z., Jagger, C., Chiu, C.-T., Ofstedal, M. B., Rojo, F., & Saito, Y. (2016). Spirituality, religiosity, aging and health in global perspective: A review. *SSM—Population Health*, *2*, 373–381. https://doi.org/10.1016/j.ssmph.2016.04.009

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