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Divine struggles and whole person functioning: a 9-year longitudinal study of middle-aged U.S. adults

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ABSTRACT

Objective: This longitudinal study examined the associations of divine struggles with 25 psychological distress, psychological well-being, social well-being, prosociality, physical health, and health behavior outcomes assessed approximately nine years later.
Methods: We used three waves of data from the National Survey of Midlife Development in the United States ($N = 4041$): M1 (1995–1996), M2 (2004–2006), and M3 (2013–2014). Following the analytic template for outcome-wide longitudinal designs, our primary analysis employed a series of regression models to estimate the associations between a continuous measure of divine struggles assessed at M2 with each outcome assessed at M3. All models adjusted for a rich set of covariates, including prior values of all outcomes.
Results: There was modest evidence suggesting that divine struggles were associated with worse subsequent functioning on one or more outcomes for each domain except health behaviors (effect sizes were generally very small).
Conclusions: Divine struggles have the potential to degrade long-term functioning across multiple domains of life. Practitioners should attend to and address divine struggles in their clinical work.

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Introduction

Much of the empirical literature on religion and spirituality in times of stress has focused on positive religious/spiritual (R/S) resources (Koenig et al., 2012). More recently, researchers have broadened their attention to consider R/S struggles, defined as tensions, strains, or conflicts around sacred matters (Pargament & Exline, 2022). A growing body of empirical research has explored the implications of R/S struggles for individual functioning, the bulk of which has focused on the psychological domain (Bockrath et al., 2022). Although most work in this area has been cross-sectional

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(Cowden et al., 2022; Lemke et al., 2023), increasing longitudinal evidence suggests that R/S struggles are predictive of higher psychological distress and lower psychological well-being (for a meta-analysis, see Bockrath et al., 2022). Compared to psychological outcomes, research has seldom examined potential causal effects of R/S struggles on indicators of individual functioning in other domains of life (e.g. physical health and social well-being). As a result, scholars have yet to develop a more complete understanding of how R/S struggles might affect the *whole* person (Pargament & Exline, 2022). In addition, most longitudinal studies have typically focused on estimating the short or medium-term effects of R/S struggles. For example, in their meta-analysis of 32 longitudinal studies involving R/S struggles and psychological adjustment outcomes, Bockrath et al. (2022) reported that the average length of time between baseline and follow-up assessments was 33 weeks; only three of the studies that were included had a follow-up that extended past one year (the longest lag to follow-up was approximately 209 weeks). Therefore, additional evidence is needed to determine whether R/S struggles may have longer-term implications for whole person functioning.

To address some of these gaps in existing knowledge, the present study uses longitudinal data from a sample of middle-aged adults in the U.S. to examine the associations of R/S struggles with indicators of individual functioning assessed approximately nine years later. We focus specifically on one of the most central R/S struggles, divine struggles, and include a wide range of outcomes that collectively provide an indication of whole person functioning.

Overview of divine struggles

Exline et al. (2014) identified six types of R/S struggles: interpersonal struggles, doubt-related struggles, moral struggles, struggles with demonic/evil forces, struggles of ultimate meaning, and divine struggles. Of these, divine struggles—involving experiences such as feeling punished or abandoned by God—arguably lie closest to the heart of R/S life (Pargament & Exline, 2022), and therefore could have the strongest implications for a person's well-being.

In his theory of religion and attachment, Kirkpatrick (2005) noted that an individual's relationship with God often corresponds with their relationship to a parent. Much like relationships to parents, a person's relationship to the divine can be perceived as secure and comforting. However, as with parental relationships, an individual's relationship to the divine can also be marked by tensions, strain, or conflict. Although positive, comforting experiences are far more common than negative feelings and experiences with God, divine struggles are not unusual. For example, in one study of 69 patients in the U.S. with advanced cancer, 22% agreed that their cancer was a punishment from God for their lack of devotion and sins (Winkelman et al., 2011). In the same sample, 29% wondered to some degree whether they had been abandoned by God. Divine struggles tend to be more frequently reported by people who identify as religious; however, previous studies have shown that it is not uncommon for non-religious individuals, including atheists, to experience divine struggles as well (Sedlar et al., 2018).

There are good reasons to suspect that divine struggles are not inconsequential for the functioning of the whole person. Divine struggles may be quite disorienting, challenging, or threatening to the individual's world view, core values, resources, and ultimate purposes for living (Pargament & Exline, 2022). For example, feeling punished by God can elicit shame, guilt, and questions about self-worth, whereas feeling abandoned by God can bring up fundamental concerns about isolation in the world. In short, divine struggles may trigger or exacerbate unfulfilled longings for self-worth, connectedness, meaning, security, fairness, and intimacy with the sacred itself. Perhaps not surprisingly then, empirical studies have linked divine struggles to indicators of psychological functioning.

Divine struggles and functioning of the whole person

Several cross-sectional studies have linked divine struggles considered broadly to greater psychological distress within a variety of groups, such as the U.S. general adult population (Abu-Raiya et al., 2015), female sexual assault survivors in the U.S. (Ahrens et al., 2010), and U.S. military veterans (Raines et al., 2017). A smaller but noteworthy set of longitudinal studies has yielded similar findings. For example, a two-week intensive longitudinal study with U.S. adults found that divine struggles predicted higher depression symptoms (Gutierrez et al., 2017). Park et al. (2018) found that divine struggles were associated with higher depression symptoms and negative affect over a 2.5-year study involving African American adults. In a 12-month longitudinal study of U.S. adults with cystic fibrosis, feeling abandoned by God (but not punished by God) predicted greater depression symptoms (Sherman et al., 2021). Similarly, a study of medically ill older adult patients in the U.S. found that feeling abandoned by God was associated with increased depression two years later (Pargament et al., 2004).

Fewer studies have considered the relationship of divine struggles to psychological well-being. These studies, most of which are cross-sectional in design, have generally shown divine struggles to be associated with lower levels of psychological well-being. One longitudinal study with African American adults found that divine struggles at baseline predicted lower self-esteem and meaning in life approximately 2.5 years later (Park et al., 2018). Over a two-year period, feeling abandoned by God predicted declines in quality of life among medically ill older adult patients in the U.S. (Pargament et al., 2004).

Although several studies (including some longitudinal ones) have linked R/S struggles to worse physical health (e.g. Trevino et al., 2010), only a few have focused specifically on the role of divine struggles. These studies point to negative ties between divine struggles and physical health. In a three-month follow-up study of adult patients in the U.S. with congestive heart failure, divine struggles predicted more nights of hospitalization and, to a lesser extent, greater physical impairment (Park et al., 2011). Feeling punished by God was associated with faster disease progression over four years among U.S. adults living with HIV (Ironson et al., 2011), and declines over two years in independent physical functioning among medically ill older U.S. adults (Pargament et al., 2004). Feelings of abandonment by God also increased the risk of

mortality over two years among medically ill older adults in the U.S. (Pargament et al., 2001).

Empirical studies of the connections between divine struggles and health behaviors have been sparse. One cross-sectional study with undergraduate students in the U.S. reported that divine struggles were associated with signs of disordered eating, including extreme fasting, purging, and excessive exercise (Exline et al., 2016). In a longitudinal study with African American adults, Holt et al. (2017) found that divine struggles were unrelated to changes in health behaviors (e.g. fruit consumption vegetable, alcohol use, cigarette smoking, physical exercise, and preventive health screenings) over a five-year period.

Relatively few studies have reported on the relationship of divine struggles with indicators of social well-being and prosociality. In one exception, Jouriles et al. (2020) reported cross-sectional evidence indicating that sexually abused adolescents in the U.S. who experienced divine struggles reported feeling more negatively evaluated by others (Study 1), greater perceived alienation from others (Studies 1 and 2), and greater conflict with their caregivers (Study 2). In an interesting set of experimental studies that suggested feeling punished by God may constrain antisocial behavior, Shariff and Norenzayan (2011) found that college students in the U.S. who viewed God as more punishing were less likely to cheat on what they believed was an anonymous computer task.

The present study

Although previous research has been an important stepping-stone and foundation to build from, the existing body of evidence on the relationship of divine struggles with individual functioning is largely based on cross-sectional data or longitudinal studies with short or medium-term lags between assessments of divine struggles and the outcome of interest. As a result, little is known about the longer-term implications of divine struggles for individual functioning, and additional research is needed with longitudinal data that allows for a clear temporal sequence of cause and effect. Based on the evidence that has accumulated so far, divine struggles generally appear to be related to worse functioning in different domains of life. However, more robust evidence exists for some domains of individual functioning than others, and most studies have focused on one or a few indicators that correspond with a single domain of functioning. Applying a multidimensional conception of wholeness could provide a useful opportunity to develop a more integrative and holistic understanding of how divine struggles (and R/S struggles more broadly) are associated with the functioning of the whole person. To enrich the empirical literature in this area, the current study uses longitudinal data from a national sample of middle-aged U.S. adults to examine the associations of divine struggles with 25 psychological distress, psychological well-being, social well-being, prosociality, physical health, and health behavior outcomes assessed approximately nine years later. We expected that divine struggles would generally be associated with worse subsequent functioning on the outcomes, but that there would be some variation in the magnitude of the observed associations.

Methods

Transparency and openness

The data that support the findings of this study are available from the Inter-university Consortium for Political and Social Research (ICPSR) at https://www.icpsr.umich.edu/web/ICPSR/series/203 (reference numbers ICPSR 2760, ICPSR 4652, and ICPSR 36346). The data analytic plan for this study was not preregistered. All analysis code is available upon reasonable request.

Study sample

This study uses three waves of data from the National Survey of Midlife Development in the United States (MIDUS). The first wave of data was collected in 1995–1996 (M1). Participants were recruited using random-digit-dialing to obtain a national sample that included 7108 non-institutionalized, English-speaking adults between the ages of 25 and 74, with an oversampling of older adults and men. A telephone interview was first administered, with those who completed the telephone interview subsequently mailed a self-administered questionnaire (SAQ). Approximately 70% ($N = 4963$) of respondents were re-contacted for a second wave of the study between 2004 and 2006 (M2), and a third follow-up survey was conducted in 2013–2014 (M3). Largely mirroring the data collection approach at M1, a combination of telephone interview and SAQ were used at M2 and M3. The analytic sample for this study included all participants who completed both the phone interview and the SAQ at M2, the wave in which the exposure was assessed ($N = 4041$).

Measures

Exposure

Two adapted items from the RCOPE (Pargament et al., 2000) were used to assess divine struggles at M2: (1) abandoned by God (i.e. 'I wonder whether God has abandoned me') and (2) punished by God (i.e. 'I feel God is punishing me for my sins or lack of spirituality'). Participants responded to the items by reflecting on how they generally cope with major life problems. A four-point scale was used to rate each item ('none,' 'a little,' 'some,' and 'a great deal'). We averaged responses to the two items for a total divine struggles score, with higher values reflecting greater divine struggles ($\alpha = 0.69$).

Outcomes

We examined 25 outcomes across six domains that provide an indication of whole person functioning: psychological distress, psychological well-being, social well-being, prosociality, physical health, and health behaviors. All outcomes were selected *blinded ex post* (i.e. variables were chosen as outcomes before any analyses were performed), each of which was taken from M3. Applying a multidimensional, whole person approach to individual functioning, this set of outcomes was selected because they tap into distinct facets of individual functioning across multiple

domains of human life (Höltge et al., 2022; Lee et al., 2022). Outcomes included (1) four indicators of psychological distress (anxiety symptoms, depression symptoms, panic attack symptoms, and negative affect); (2) five indicators of psychological well-being (positive affect, personal growth, environmental mastery, purpose in life, and life satisfaction); (3) four indicators of social well-being (social integration, positive relations with others, relational support, and frequency of social contact); (4) four indicators of prosociality (volunteering, financial support to civic/religious institutions, contribute to others' welfare, and social contribution); (5) four indicators of physical health (number of chronic conditions, functional limitations, self-rated health, and overweight/obesity); and (6) four health behaviors (alcohol-related problems, current/former smoking, recreational drug use, and physical inactivity). Additional information about the measurement of each outcome is reported in Supplemental Text 1.

Covariates

To reduce concerns about potential confounding, we adjusted for a range of covariates. Given the nearly 10-year time lag between M1 and M2, taking covariates from the wave prior to the exposure of divine struggles at M2 (i.e. M1) may not provide adequate confounding control (VanderWeele et al., 2020). Hence, with the exception of selected covariates that were only available at M1, we adjusted for covariates assessed at M2. We selected covariates based on data that were available and in accordance with the modified disjunctive cause criterion (VanderWeele, 2019). Following this approach, a set of covariates should include variables that might reasonably be a cause (or close proxy for a cause) of the exposure, the outcome, or both, and exclude any instrumental variables (i.e. mediators).

Covariates included sociodemographic characteristics (age, sex, racial status, nativity status at M1, marital status, child dependents, educational attainment, employment status, annual household income, household wealth, homeownership, health insurance status, sexual orientation, and neighborhood quality), abuse by parents during childhood at M1, R/S factors (religious service attendance, spiritual identity, and religious coping), the Big Five personality traits (extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness), and sense of control. Further details about the covariates can be found in Supplemental Text 1.

Data analyses

Statistical processing was performed in Stata 17.0. In descriptive analyses, we used independent samples *t*-tests and Chi-square tests of independence to explore the distribution of participant characteristics at M2 (except for nativity status and abuse by parents during childhood, which were assessed at M1) by divine struggles (none vs. any divine struggles) at M2. The primary analysis utilized an outcome-wide approach, which involved performing a series of regression models to estimate the associations of divine struggles assessed at M2 with each of the outcomes assessed at M3 (one outcome at a time). Each model controlled for the full set of covariates.

Models also adjusted for prior values of all outcome variables assessed at M1, which can help to control for potential reverse causality and mitigate residual confounding (VanderWeele et al., 2020). We ran generalized linear models with a log link and Poisson distribution for binary outcomes, and linear regression models were used for continuous outcomes. All continuous outcomes were standardized ($M = 0$ and $SD = 1$). We imputed all missing data on the exposure, covariates, and outcomes using a multiple imputation by chained equations approach. After generating five imputed datasets, we performed analyses with each dataset and subsequently pooled the results using Rubin's (2004) rule.

We ran several additional analyses. First, we used *E*-values to evaluate the robustness of the associations that were observed to potential unmeasured confounding (VanderWeele & Ding, 2017). *E*-values estimate the minimum strength that an unmeasured confounder would need to be associated with both the exposure and the outcome (on the risk ratio scale) to entirely explain away their association. Second, we repeated the primary analysis after omitting neuroticism and religious coping as covariates. Third, we replicated the primary analysis after removing participants who were not religiously affiliated (i.e. those who identified as atheist, agnostic, or had no religious preference). Fourth, we performed complete-case analyses to compare the results with those that were obtained from the primary analysis using imputed data. Fifth, given the nearly 10-year lag between the M1 values of the outcomes that we adjusted for and the exposure of divine struggles at M2, it is possible that confounding control in our primary analysis may not have been entirely adequate (VanderWeele et al., 2020). As a result, we replicated the primary analysis while adjusting for prior values of all outcomes assessed at M2 rather than M1. Although there is a risk that covariates assessed contemporaneously with the exposure might be instrumental variables (i.e. mediators), this supplementary analysis provides an opportunity to evaluate the robustness of the results after applying a more conservative approach to confounding control. Sixth, we repeated the primary analysis with a categorical variation of divine struggles. Participants who provided a response of 'none' to both divine struggles items formed the *no divine struggles* group; those who reported any struggles for the abandoned by God item (i.e. 'a little,' 'some,' or 'a great deal') and provided a response of 'none' to the punished by God item formed the *abandoned by God* group; those who reported any struggles for the punished by God item (i.e. 'a little,' 'some,' or 'a great deal') and provided a response of 'none' to the abandoned by God item formed the *punished by God* group; and those who reported any struggles for both items formed the *abandoned & punished by God* group. In our analysis, the no divine struggles group served as the reference category.

Consistent with recent recommendations (e.g. VanderWeele & Mathur, 2019) and practices (e.g. Cowden et al., 2022), all tables corresponding with multivariate analyses include *p*-value cutoffs both before and after Bonferroni correction. This allows for evidence to be assessed using the conventional *p*-value threshold ($p < 0.05$) and the Bonferroni-corrected threshold ($p = 0.05/25$ outcomes: $p < 0.002$). Our interpretation of the results centers on effect sizes (rather than statistical significance) using guidelines provided by Funder and Ozer (2019).

Results

Descriptive analyses

Table 1 presents the distribution of participant characteristics by divine struggles. Nearly one third of participants (28.34%) reported experiencing divine struggles. Individuals who experienced any divine struggles at M2 tended to report worse functioning on the outcomes at M2 compared to those who did not report any divine struggles; except for alcohol-related problems and physical inactivity, there was reliable evidence of a difference between the two groups on each outcome.

Primary analysis

The results for associations between divine struggles at M2 and subsequent indicators of whole person functioning at M3 are presented in Table 2. Of the psychological distress outcomes, divine struggles were associated with very small increases in subsequent anxiety symptoms, negative affect, and depression symptoms (though none passed the Bonferroni-corrected $p < 0.002$ threshold). The effect size for the association of divine struggles with panic attack symptoms was negligible (it did not pass the conventional $p < 0.05$ threshold).

For the psychological well-being domain, divine struggles were associated with a very small decrease in life satisfaction (which passed the Bonferroni-corrected $p < 0.002$ threshold). Associations with lower subsequent purpose in life and personal growth were slightly smaller in magnitude (though neither passed the Bonferroni-corrected $p < 0.002$ threshold). Effect sizes for the associations of divine struggles with positive affect and environmental mastery were negligible (neither passed the conventional $p < 0.05$ threshold).

On the domain of social well-being, divine struggles were associated with a very small decrease in subsequent relational support (which passed the Bonferroni-corrected $p < 0.002$ threshold). The association between divine struggles and lower subsequent positive relations with others was slightly smaller in magnitude (though it did not pass the Bonferroni-corrected $p < 0.002$ threshold), as was the association of divine struggles with lower subsequent social integration (though it did not pass the conventional $p < 0.05$ threshold). The effect size for the association of divine struggles with frequency of social contact was negligible (it did not pass the conventional $p < 0.05$ threshold).

For the prosociality outcomes, divine struggles were associated with a very small decrease in subsequent social contribution (though it did not pass the Bonferroni-corrected $p < 0.002$ threshold). The effect size for the association between divine struggles and lower subsequent contribution to others' welfare was slightly smaller (though it did not pass the conventional $p < 0.05$ threshold). Associations of divine struggles with both volunteering and financial support to civic/religious institutions were negligible in magnitude (neither passed the conventional $p < 0.05$ threshold).

Of the physical health outcomes that we examined, divine struggles were associated with a very small increase in functional limitations (which passed the Bonferroni-corrected

Table 1. Characteristics of participants assessed at M2[a] by divine struggles assessed at M2.

Characteristic	Divine struggles		
	No divine struggles ($n = 2825$)	Any divine struggles ($n = 1117$)	p-value
Sociodemographics			
Age (range: 30–84 years), *M* (*SD*)	56.25 (12.26)	55.54 (12.43)	0.099
Female, %	54.90	56.13	0.484
Nonwhite, %	5.88	8.80	0.001
Born in the US, %	95.64	96.19	0.447
Marital status, %			< 0.001
Married	73.32	66.34	
Divorced/separated	13.05	15.76	
Widowed	7.17	7.70	
Never married	6.46	10.21	
Child dependents, %	25.98	25.69	0.852
Educational attainment, %			< 0.001
Less than high school	6.06	9.95	
High school equivalency	22.40	33.06	
Some college	29.35	27.06	
College degree or higher	42.18	29.93	
Unemployed, %	1.53	2.52	0.036
Annual household income, %			< 0.001
1st quintile	17.87	24.39	
2nd quintile	19.90	21.97	
3rd quintile	19.28	20.11	
4th quintile	20.38	19.55	
5th quintile	22.56	13.97	
Household wealth, %			< 0.001
1st quintile	19.19	28.12	
2nd quintile	15.71	15.44	
3rd quintile	23.37	21.63	
4th quintile	17.74	18.49	
5th quintile	23.99	16.32	
Owns home, %	89.49	85.93	0.002
Has health insurance, %	95.04	93.42	0.046
Heterosexual, %	97.55	96.36	0.044
Neighborhood quality (range: 1–4), *M* (*SD*)	3.54 (0.47)	3.39 (0.55)	< 0.001
Religious/spiritual factors			
Religiously affiliated, %	85.30	90.64	< 0.001
Religious service attendance, %			0.001
Never	24.42	21.87	
Less than once a week	30.51	36.80	
At least once a week	45.07	41.31	
Spiritual identity (range: 1–4), *M* (*SD*)	3.22 (0.82)	3.20 (0.69)	0.458
Religious coping (range: 1–4), *M* (*SD*)	2.77 (1.10)	2.84 (0.97)	0.044
Big Five personality traits			
Extraversion (range: 1–4), *M* (*SD*)	3.14 (0.57)	3.00 (0.58)	< 0.001
Neuroticism (range: 1–4), *M* (*SD*)	1.98 (0.60)	2.30 (0.63)	< 0.001
Openness (range: 1–4), *M* (*SD*)	2.95 (0.53)	2.78 (0.53)	< 0.001
Conscientiousness (range: 1–4), *M* (*SD*)	3.50 (0.43)	3.36 (0.49)	< 0.001
Agreeableness (range: 1–4), *M* (*SD*)	3.46 (0.50)	3.41 (0.51)	0.011
Other			
Abuse by parents during childhood, %			< 0.001
Never experienced emotional or physical abuse	26.43	18.88	
Rarely experienced emotional and/or physical abuse	35.41	31.79	
Frequently experienced emotional or physical abuse	18.59	23.41	
Frequently experienced emotional and physical abuse	19.57	25.92	
Personal control (range: 1–7), *M* (*SD*)	5.72 (0.91)	5.04 (1.04)	< 0.001

(*Continued*)

Table 1. Continued.

Characteristic	Divine struggles: No divine struggles ($n = 2825$)	Divine struggles: Any divine struggles ($n = 1117$)	p-value
Psychological distress			
Depression symptoms (range: 0–7), *M* (*SD*)	0.40 (1.42)	0.80 (2.01)	< 0.001
Anxiety symptoms (range: 0–10), *M* (*SD*)	0.07 (0.62)	0.22 (1.14)	< 0.001
Panic attack symptoms (range: 0–6), *M* (*SD*)	0.24 (0.86)	0.45 (1.22)	< 0.001
Negative affect (range: 1–5), *M* (*SD*)	1.41 (0.48)	1.77 (0.71)	< 0.001
Psychological well-being			
Positive affect (range: 1–5), *M* (*SD*)	3.52 (0.65)	3.17 (0.77)	< 0.001
Personal growth (range: 3–21), *M* (*SD*)	17.65 (3.03)	16.03 (3.35)	< 0.001
Environmental mastery (range: 3–21), *M* (*SD*)	17.30 (3.04)	15.48 (3.39)	< 0.001
Purpose in life (range: 3–21), *M* (*SD*)	16.66 (3.26)	15.20 (3.49)	< 0.001
Life satisfaction (range: 1–10), *M* (*SD*)	7.96 (1.10)	7.28 (1.40)	< 0.001
Social well-being			
Social integration (range: 3–21), *M* (*SD*)	15.18 (3.87)	13.55 (4.02)	< 0.001
Relational support (range: 1–4), *M* (*SD*)	3.52 (0.42)	3.30 (0.52)	< 0.001
Positive relations with others (range: 3–21), *M* (*SD*)	17.35 (3.63)	15.50 (3.94)	< 0.001
Frequency of social contact (range: 1–6), *M* (*SD*)	4.86 (0.83)	4.72 (0.93)	< 0.001
Prosociality			
Volunteering (range: 0–4), *M* (*SD*)	0.74 (0.87)	0.58 (0.80)	< 0.001
Contribute to others' welfare (range: 0–10), *M* (*SD*)	6.63 (2.15)	6.24 (2.19)	< 0.001
Financial support to civic/religious institutions (range: 0–3), *M* (*SD*)	1.21 (0.96)	1.03 (0.94)	< 0.001
Social contribution (range: 3–21), *M* (*SD*)	16.13 (3.55)	14.54 (3.65)	< 0.001
Physical health			
Number of chronic conditions (range: 0–4), *M* (*SD*)	0.64 (0.82)	0.76 (0.88)	< 0.001
Functional limitations (range: 1–4), *M* (*SD*)	1.47 (0.65)	1.67 (0.76)	< 0.001
Self-rated health (range: 0–10), *M* (*SD*)	7.53 (1.51)	6.98 (1.71)	< 0.001
Overweight/obesity, %	66.33	71.98	0.001
Health behaviors			
Alcohol-related problems, %	4.00	5.28	0.079
Current/former smoking, %	47.19	52.55	0.002
Recreational drug use, %	10.90	15.62	< 0.001
Physical inactivity, %	25.68	26.81	0.471

Note: Table is based on non-imputed data ($N = 3942$). p-values come from χ^2 or independent samples t-tests. Cumulative percentages for categorical variables may not add up to 100% due to rounding.
Abbreviations: M: mean; SD: standard deviation.
In the total sample, participants classified as religious included those who identified as Christian (83.45%), Buddhist (0.33%), Jewish (2.46%), Muslim (0.05%), and Other (0.50%).
[a]Nativity status and abuse by parents during childhood assessed at M1.

$p < 0.002$ threshold). The association between divine struggles and higher subsequent chronic health conditions was slightly smaller in magnitude (though it did not pass the Bonferroni-corrected $p < 0.002$ threshold), as was the association of divine struggles with lower subsequent self-rated health (though it did not pass the conventional $p < 0.05$ threshold). The effect size for the association of divine struggles with overweight/obesity was negligible (it did not pass the conventional $p < 0.05$ threshold).

Associations of divine struggles with each of the subsequent health behaviors were negligible in magnitude (none passed the conventional $p < 0.05$ threshold).

Additional analyses

E-values suggested that a number of the associations observed in the primary analysis appear to be somewhat robust to unmeasured confounding (see Table 2). For example, the *E*-value for the estimated effect of divine struggles on subsequent life satisfaction

was 1.31. This means that an unmeasured confounder would need to be jointly associated with both divine struggles and life satisfaction by risk ratios of at least 1.31 each (above and beyond the adjusted covariates) to fully explain away their association, but weaker joint confounder associations could not. For the limit of the confidence interval, confounder risk ratio associations of 1.20 for divine struggles and life satisfaction could suffice to shift the confidence interval to include the null, but weaker joint confounder associations could not.

When repeating the primary analysis after omitting the M2 covariates of religious coping and neuroticism, only marginally stronger associations were observed for some outcomes when compared to the results of the primary analysis (see Supplemental Table 1). For example, the positive association between divine struggles and subsequent negative affect strengthened slightly after excluding both covariates ($\beta = 0.07$ vs. 0.09). After omitting participants who indicated they were not religiously affiliated, we found some marginal differences in effect sizes for certain outcomes when contrasted with the results of the primary analysis (see Supplemental Table 2). For example, the negative association of divine struggles with life satisfaction strengthened slightly after excluding nonreligiously affiliated participants ($\beta = -0.06$ vs. -0.08), and its positive association with anxiety symptoms attenuated slightly ($\beta = 0.07$ vs. 0.06). Comparable results also emerged when models from the primary analysis were repeated using complete cases (see Supplemental Table 3), although some differences were observed. For example, the effect size for the negative association of divine struggles with personal growth strengthened marginally when complete cases were analyzed ($\beta = -0.04$ vs. -0.05), whereas its negative association with social contribution attenuated slightly ($\beta = -0.06$ vs. -0.04).

Using a more conservative approach to confounding control by adjusting for prior values of the outcomes from M2 instead of M1, we observed a general attenuation of the associations between divine struggles and the subsequent outcomes (see Supplemental Table 4). For example, in the primary analysis divine struggles evidenced one of its strongest associations with lower subsequent relational support. After adjusting for prior outcomes assessed at M2 rather than M1, this association attenuated from $\beta = -0.08$ to -0.05. Although it is not possible to discern whether such attenuation is because adjustment for M2 values of the outcomes controls for confounding that was not adequately addressed by controlling for M1 values of the outcomes or because one or more of the prior values of the outcomes at M2 are on the pathway from divine struggles at M2 to the subsequent outcomes at M3 (VanderWeele, 2019), some combination of these possibilities seems plausible.

Repeating the primary analysis with divine struggles modeled as a categorical variable in which no divine struggles served as the reference category (see Supplemental Table 5), there was some evidence that feeling abandoned by God was associated with lower subsequent life satisfaction and positive relations with others, feeling punished by God was associated with lower subsequent relational support, and feeling both abandoned & punished by God was associated with higher subsequent functional limitations as well as lower subsequent personal growth, life satisfaction, and relational support (though none passed the Bonferroni-corrected $p < 0.002$ threshold).

Table 2. Associations of divine struggles assessed at M2 with subsequent outcomes assessed at M3.

	Effect estimate				*E*-values[a]
Outcome	Reference	β [95% CI]	RR [95% CI]	*p*-value	[EE[b], LCI[c]]
Psychological distress					
Depression symptoms	0.00	0.05 [0.01, 0.08]	–	0.007**	[1.26, 1.12]
Anxiety symptoms	0.00	0.07 [0.02, 0.11]	–	0.011*	[1.32, 1.16]
Panic attack symptoms	0.00	0.02 [-0.02, 0.07]	–	0.303	[1.18, 1.00]
Negative affect	0.00	0.07 [0.02, 0.12]	–	0.011*	[1.33, 1.18]
Psychological well-being					
Positive affect	0.00	−0.02 [−0.06, 0.02]	–	0.277	[1.16, 1.00]
Personal growth	0.00	−0.04 [−0.08, −0.00]	–	0.032*	[1.23, 1.08]
Environmental mastery	0.00	−0.00 [−0.05, 0.04]	–	0.831	[1.07, 1.00]
Purpose in life	0.00	−0.04 [−0.07, −0.01]	–	0.008**	[1.24, 1.11]
Life satisfaction	0.00	−0.06 [−0.10, −0.03]	–	< 0.001***	[1.31, 1.20]
Social well-being					
Social integration	0.00	−0.05 [−0.11, 0.01]	–	0.075	[1.27, 1.04]
Relational support	0.00	−0.08 [−0.13, −0.04]	–	0.001***	[1.36, 1.24]
Positive relations with others	0.00	−0.03 [−0.07, −0.00]	–	0.046*	[1.21, 1.04]
Frequency of social contact	0.00	−0.02 [−0.07, 0.03]	–	0.335	[1.17, 1.00]
Prosociality					
Volunteering	0.00	0.01 [−0.03, 0.04]	–	0.708	[1.08, 1.00]
Contribute to others' welfare	0.00	−0.04 [−0.09, 0.00]	–	0.059	[1.24, 1.03]
Financial support to civic/ religious institutions	0.00	−0.00 [−0.04, 0.04]	–	0.993	[1.01, 1.00]
Social contribution	0.00	−0.06 [−0.10, −0.01]	–	0.016*	[1.29, 1.14]
Physical health					
Number of chronic conditions	0.00	0.04 [0.00, 0.07]	–	0.035*	[1.22, 1.06]
Functional limitations	0.00	0.06 [0.03, 0.09]	–	< 0.001***	[1.30, 1.20]
Self-rated health	0.00	−0.04 [−0.09, 0.00]	–	0.061	[1.24, 1.04]
Overweight/obesity	1.00	–	1.00 [0.96, 1.05]	0.827	[1.07, 1.00]
Health behaviors					
Alcohol-related problems	1.00	–	1.12 [0.98, 1.27]	0.089	[1.47, 1.00]
Current/former smoking	1.00	–	0.99 [0.94, 1.04]	0.735	[1.10, 1.00]
Recreational drug use	1.00	–	1.01 [0.92, 1.11]	0.866	[1.10, 1.00]
Physical inactivity	1.00	–	0.99 [0.93, 1.06]	0.806	[1.10, 1.00]

Note: $N = 4041$ for all analyses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.002$ (the *p*-value cutoff for Bonferroni correction was $0.05/25 = 0.002$).

Abbreviations: RR: risk ratio; β: standardized beta; CI: confidence interval; EE: *E*-value for the effect estimate; LCI: *E*-value for the limit of the confidence interval.

An outcome-wide analytic approach was used, and a separate model was run for each outcome. A different type of model was run depending on the nature of the outcome: (1) for each binary outcome, a generalized linear model (with a log link and Poisson distribution) was used to estimate a RR, and (2) for each continuous outcome, a linear regression model was used to estimate a β. All continuous outcomes were standardized (mean = 0, standard deviation = 1). If the reference value is 1, the effect estimate is RR; if the reference value is 0, the effect estimate is β.

All models controlled for sociodemographic characteristics (age, sex, racial status, marital status, child dependents, educational attainment, employment status, annual household income, household wealth, homeownership, health insurance status, sexual orientation, neighborhood quality), religious/spiritual factors (religious service attendance, spiritual identity, religious coping), the Big Five personality traits (extraversion, neuroticism, openness to experience, conscientiousness, agreeableness), and sense of control assessed at M2, nativity status and abuse by parents during childhood assessed at M1, as well as prior values of all outcome variables assessed at M1.

[a]The formula for calculating *E*-values can be found in VanderWeele and Ding (2017).

[b]The *E*-value for the effect estimate is the minimum strength of association (on the risk ratio scale) that an unmeasured confounder would need to have with both the exposure and the outcome to entirely explain away the observed association between the exposure and outcome, conditional on the measured covariates.

[c]The *E*-value for the limit of the 95% confidence interval closest to the null denote the minimum strength of association (on the risk ratio scale) that an unmeasured confounder would need to have with both the exposure and the outcome to shift the confidence interval to include the null value, conditional on the measured covariates.

Discussion

The present study is one of the first to estimate the potential long-term effects of divine struggles on a wide range of outcomes that collectively provide an indication of whole person functioning. Working with a national sample of middle-aged U.S. adults, our primary analysis documented modest evidence suggesting that divine struggles were associated with worse longer-term functioning on one or more outcomes for each domain except health behaviors (effect sizes were generally very small).

The results of our primary analysis provided evidence linking divine struggles with subsequently worse long-term functioning on 11/25 outcomes (all passed the conventional $p < 0.05$ threshold), with more robust evidence found for the outcomes of life satisfaction, functional limitations, and relational support (each passed the Bonferroni-corrected $p < 0.002$ threshold). Whereas previous research on the linkages between divine struggles and individual functioning has tended to emphasize psychological outcomes (particularly psychological distress), our findings provide some evidence suggesting that the long-term negative impacts of divine struggles may extend to multiple domains of life. Indeed, some of the largest (though still very small) effect sizes that emerged in the primary analysis were with outcomes that have seldom (or not yet) received attention in this area of the empirical literature (e.g. relational support and functional limitations). These findings are consistent with the notion that divine struggles are fundamentally disorienting and may indeed 'shake people to their core' (Pargament & Exline, 2022). The results of this study also point to the potential importance of widening the scope of empirical research on divine struggles to consider its implications for whole person functioning.

The results of our primary analysis indicated that there was some variation in the magnitude of effect estimates across the whole person functioning domains, with slightly stronger (though still very small) associations and more consistent evidence of associations generally found for outcomes on the psychological well-being, social well-being, and psychological distress domains relative to outcomes on the prosociality, physical health, and health behavior domains. This pattern of findings could be explained by the predominantly psychological and emotional character of divine struggles, which might be more proximally related to psychosocial functioning than other areas of functioning.

Given the potential implications of divine struggles for individual functioning over the longer-term, practitioners should attend to these phenomena in their clinical work. Divine struggles can be assessed using psychometrically-validated measures (e.g. Divine Struggles subscale of the Religious and Spiritual Struggles Scale; Exline et al., 2014) or through open-ended questions (e.g. how have your problems affected your relationship with God?). Furthermore, resources are available to help practitioners address divine struggles (and other types of R/S struggles as well) in practice (Pargament & Exline, 2022). Interventions designed to support people who are dealing with R/S struggles have also shown promising preliminary results (Reist Gibbel et al., 2019).

Limitations and future research directions

There are several methodological limitations that warrant consideration. First, the MIDUS sample consists of middle-aged U.S. adults whose participation at M2 (the wave in which the exposure of divine struggles was assessed in this study) occurred approximately two decades ago, raising the possibility that our findings may not be entirely generalizable to the broader population of U.S. adults in the present day. Although religious affiliation and participation in the U.S. has declined in recent decades (Cowden et al., 2022), experiences of divine struggles in contemporary U.S. society are likely to be somewhat comparable because the percentage of U.S. adults who affiliate with a religion (77%), are fairly or absolutely certain there is a God (83%), and see religion as somewhat or very important to them (77%) remains substantial (Pew Research Center, 2015). Further study will be needed to determine whether our findings are transportable to other populations, particularly people living in non-Western cultures that differ from the U.S. in historical religious influences and religious composition (Cowden et al., 2023).

Second, our findings are based on two types of divine struggles that were assessed in MIDUS (i.e. feeling abandoned and feeling punished by God). However, divine struggles may entail other salient experiences (e.g. anger at God) that are not reflected in our findings (Exline et al., 2014). Other types of divine struggles that were not assessed in MIDUS could have unique and important implications for individual functioning. Future studies could assess divine struggles using well-validated measures that assess other expressions of divine struggles as well (e.g. feeling let down by God and questioning God's love for oneself). More generally, further research is needed that examines the long-term implications of other types of R/S struggles (i.e. moral, ultimate meaning, interpersonal, doubt-related, and demonic) for whole person functioning.

Third, our study focused on testing the primary conceptual model of R/S struggles, which posits that R/S struggles degrade individual functioning (Pargament & Lomax, 2013). While the scope of this study was limited by the data that were available on divine struggles in MIDUS, previous research has found support for the secondary (i.e. disruptions to certain aspects of a person's functioning can precipitate R/S struggles) and complex (i.e. R/S struggles and indicators of whole person functioning may reciprocally exacerbate each other) models of R/S struggles (Cowden et al., 2022; Wilt et al., 2017). Thus, additional longitudinal research is needed to explore the extent to which the secondary and complex conceptual models might be operative when considering whole person functioning.

Fourth, the length of time between follow-up assessments is both an advantage and drawback of the MIDUS data structure. On the one hand, it enabled us to estimate associations of divine struggles with subsequent outcomes assessed almost a decade later. On the other hand, even though it is preferable to adjust for prior values of the outcomes assessed at M1 (the wave immediately prior to the wave in which divine struggles was assessed), the almost 10-year lag between M1 and M2 means that adjusting for prior outcomes assessed at M1 might not be sufficient to control for reverse causation and residual confounding (VanderWeele et al., 2020; Wilkinson et al., 2023). Although *E*-values indicated that many of the observed

associations in the primary analysis were at least somewhat robust to potential confounding, it is possible that those results could be biased away from the null. We performed a sensitivity analysis that adjusted for prior values of the outcomes assessed at M2 instead of M1, but there is a risk of overadjustment because one or more of those prior outcome values assessed at M2 might be on the pathway to one or more of the outcomes assessed at M3. Hence, the results of this sensitivity analysis in which we applied a more conservative approach to confounding control might be biased toward the null. We tentatively submit that the actual estimates are probably somewhere between these two sets of results, in which case divine struggles are likely meaningfully associated with several of the outcomes for which there was evidence of an association in the primary analysis. However, replication studies are needed using longitudinal data with a structure more capable of rigorously addressing confounding control to strengthen confidence in causal conclusions.

Conclusion

In this prospective study of middle-aged U.S. adults, we found some support for the notion that divine struggles have the potential to degrade whole person functioning over the long-term. Practitioners are encouraged to not only attend to divine struggles with their clients, but work with their clients to identify and pursue a suitable treatment approach for mitigating the potential effects of divine struggles on different areas of clients' functioning that could be affected by the R/S struggles they are experiencing (Pargament & Exline, 2022).

Author contributions

Richard G. Cowden served as lead for conceptualization, methodology, writing–original draft, and writing–review & editing, and served in a supporting role for data curation and formal analysis. Kenneth I. Pargament contributed equally to writing–original draft and served in a supporting role for conceptualization and writing–review & editing. Renae Wilkinson served as lead for data curation, software, and formal analysis, and served in a supporting role for methodology and writing–review & editing.

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