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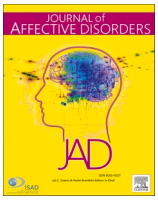

Research paper

Purpose in life and depressive symptoms: An individual-participant meta-analysis of >500,000 participants across six world regions

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ABSTRACT

Objective: Purpose in life is an aspect of eudaimonic well-being associated with better mental health. This research evaluated the generalizability and robustness of the association between purpose in life and concurrent depressive symptoms.

Methods: An individual-participant meta-analysis of 72 samples of 531,038 participants. Each sample used the same analytic approach: Linear regression tested whether purpose was associated with depressive symptoms controlling for sociodemographic factors (age, sex, race, ethnicity, education). Results across samples were summarized with a random-effects meta-analysis. Moderation by sociodemographic factors was tested in each sample and with meta-regression within the meta-analysis. Additional analyses tested whether purpose was associated with elevated depressive symptoms and with two specific symptoms (depressed affect, anhedonia).

Results: There was a significant negative association between purpose in life and depressive symptoms in 71 of the 72 samples (meta-analytic estimate = −0.32, 95 % CI = -0.35, −0.30, $p < .001$). Heterogeneity in the strength of the association was not explained by methodological, economic, or geographical factors. The association was slightly stronger among females and white participants, compared to males and black participants, respectively; the association was similar across age, ethnicity, and education. Every standard deviation in purpose was associated with about 90 % lower likelihood of severe distress (meta-analytic odds ratio = 0.53, 95 % CI = 0.50, 0.57, $p < .001$). The association was similar for depressed affect (meta-analytic estimate = −0.33, 95 % CI = -0.40, −0.26, $p < .001$) and anhedonia (meta-analytic estimate = −0.32, 95 % CI = -0.38,-0.26, $p < .001$).

Conclusion: The association between purpose in life and depressive symptoms is apparent across geographic regions and sociodemographic and economic factors, which suggests it may be robust and generalizable.

1. Introduction

Mental health and well-being are well-known to be multifaceted (Keyes, 2005). Numerous theoretical conceptions have differentiated aspects of well-being (e.g., positive affect) from aspects of psychological distress (e.g., depressive symptoms; Veit and Ware, 1983; Westerhof and Keyes, 2010). Distinctions have also been made between components within both well-being and distress (Kroenke et al., 2009; Ryff, 1995). Within well-being, for example, hedonic well-being has been distinguished from eudaimonic well-being, such that hedonic well-being reflects emotional and cognitive evaluations of one's current life, whereas eudaimonic well-being reflects the pursuit of human potential (Ryff, 1995). Within psychological distress, depression is differentiated from anxiety (Kroenke et al., 2009), and even within depression, aspects related to feeling negative emotions are differentiated from difficulty experiencing positive emotions (i.e., anhedonia; American Psychiatric Association, 2013; Serretti, 2023). Although correlated, well-being and psychological distress are theoretically and empirically distinct (Veit and Ware, 1983; Westerhof and Keyes, 2010).

There is a negative association between purpose in life and depressive symptoms (Fischer et al., 2023; Worrall et al., 2020). Purpose in life is one component of meaning in life that reflects the feeling that one's

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life is goal-oriented and has direction and is one core aspect of eudaimonic well-being (Ryff, 1995). Purpose in life is the future-oriented component of eudaimonic well-being that drives an individual forward (McKnight and Kashdan, 2009). Following this conceptual framework, purpose in life is theoretically and empirically distinct from depressive symptoms: It is possible to feel that one's life has purpose and meaning while experiencing depression (Straus et al., 2019), and likewise, it is possible to feel that one's life lacks purpose and meaning even in the absence of depressive symptoms (Wood and Joseph, 2010). Further, purpose and meaning have been found to predict better outcomes, even in the presence of severe distress (Sutin et al., 2022a).

There is a consistent negative association between purpose and meaning in life and depression: Individuals who feel that their life is more purposeful or meaningful tend to have fewer depressive symptoms (Baquero-Tomás et al., 2023; Fischer et al., 2023; Worrall et al., 2020). And, in fact, a meta-analysis of the published literature found a consistent negative association between purpose in life and depressive symptoms (Boreham and Schutte, 2023). There are several reasons why purpose in life may be associated with fewer depressive symptoms. Individuals higher in purpose, for example, tend to have a future-oriented perspective (Miao et al., 2021), and such a perspective is associated with better mental health (Kooij et al., 2018). Individuals with more purpose also tend to be more resilient, which may help sustain better mental health (Diaconu-Gherasim et al., 2023). In addition, purpose in life is associated consistently with more social integration, including less loneliness (Sutin et al., 2022a), more social support (Weston et al., 2020), and larger social networks (Lee and Martin, 2023) that help buffer against depressive symptoms (De Risio et al., 2024).

The present research builds on this foundation to better characterize the relation between purpose and depressive symptoms. Specifically, we use a coordinated analysis approach with individual-participant data that uses the same analytic approach in 72 samples and synthesize the results with meta-analysis. Given the previously reported meta-analytic association between purpose in life and depressive symptoms (Boreham and Schutte, 2023), we expect that greater feelings of purpose will be associated with fewer depressive symptoms and lower likelihood of surpassing the threshold for severe distress.

Our systematic approach with individual-participant data further allowed us build on the previous meta-analysis in several ways. First, the previous meta-analysis reported the correlation between purpose and depressive symptoms and included clinical samples. The present research reports the association adjusted for sociodemographic factors associated with both purpose in life (AshaRani et al., 2022) and depressive symptoms (Sutin et al., 2013). All studies included in the present research are non-clinical and many are based on representative samples of the population for which they are drawn. As such, an association that is adjusted for common sociodemographic factors and based on the general population will provide a useful point of comparison to the previous meta-analysis. Second, we evaluate generalizability with moderation by sociodemographic (e.g., age, sex), contextual (e.g., continent), and methodological (e.g., length of scale) factors tested with interactions and meta-regression. This analysis provides a stringent test of whether there are differences in the strength of the association across sociodemographic groups, geographical locations, and methodological factors. Such information is critical to evaluate generalizability, as well as constraints on the association due to methodological differences across samples. Third, we examine the association between purpose and meaning and likelihood of surpassing the threshold for severe distress. Fourth, two major components of depression are feelings of depressed mood and anhedonia (American Psychiatric Association, 2013; Serretti, 2023). We examine the association between purpose and depressed mood and anhedonia separately in samples with appropriate data to evaluate whether purpose is more associated with one aspect of depressive symptoms or the other. These questions were not addressed in the previous meta-analysis, and thus the current work builds substantially on this previous foundation.

Based on the previous meta-analysis, we expect that there will be a negative association between purpose in life and depressive symptoms and that higher purpose will be associated with lower likelihood of severe distress. The moderation analyses are exploratory to evaluate generalizability of the association between purpose and depressive symptoms and potential differences due to methodological factors. We expect purpose to be associated negatively with both depressed affect and anhedonia but do not make a prediction as to whether there will be a difference in strength of the association across these two components of depression.

2. Method

2.1. Participants and procedure

Samples were identified through searches of the Gateway to Global Aging, ICPSR, and the UK Data Service. The terms "purpose in life" and "meaning in life" were searched for in each database. Datasets were screened for inclusion if the dataset included at least one item on purpose or meaning in life and at least one item on depressive symptoms. The dataset also had to be publicly available for inclusion. Otherwise, there were no exclusion criteria. In addition to samples identified through these searches, public datasets previously reported in the literature and datasets from the authors were included in the analysis. See Supplemental File 1 for an overview of all included samples and the specific items used to measure purpose in life and depression in each sample. A total of 72 samples from 41 studies were identified and included in the analysis. Supplemental Fig. S1 reports the PRISMA flow chart for inclusion in an individual-participant data meta-analysis. All participants with necessary data from each sample were included in the analysis. This research was not preregistered.

2.2. Measures

2.2.1. Purpose in life

Purpose in life was measured with either a purpose in life scale, such as the Ryff Measures of Psychological Well-being (Ryff, 1989), or with at least one item with content consistent with items from the short form of the NIH PROMIS (Salsman et al., 2020) measure of meaning and purpose (i.e., feeling that one's life has purpose, meaning, fulfillment, or is worthwhile). Ten samples used a version of the Ryff measure, 35 samples used a single item from the CASP scale of well-being (Hyde et al., 2003), three samples used a single item from the Flourishing Scale (Diener et al., 2009), two samples used the Life Engagement Test (Scheier et al., 2006), two samples used the PROMIS measure of meaning and purpose (Salsman et al., 2020), one sample used the Meaning in Life scale (Krause, 2004), one sample used the Meaningfulness scale (van Druten et al., 2024) and the remaining 18 samples used at least one item with content relevant to purpose. See Supplemental File 1 for the items used to measure purpose in each sample.

2.2.2. Depressive symptoms

Depressive symptoms were measured with an established scale, such as the Center for Epidemiological Studies Depression scale (CESD; Radloff, 1977) or the Patient Health Questionnaire (PHQ; Kroenke et al., 2001), or with at least one item that measured depressed mood or recent feelings of depression. Twelve samples used a version of the CESD, 10 samples used a version of the PHQ, 28 samples used the EURO-D (Prince et al., 1999), two samples used the K6 (Kessler et al., 2003), one sample used the CIDI-SF (Kessler et al., 1998), one sample used the SF-36 Mental Health Component (Ware et al., 1994), one sample used the Malaise Inventory (Rodgers et al., 1999), one sample used the General Health Questionnaire-12 (Goldberg and Williams, 1988), and the remaining 12 samples used at least one item to measure depressive symptoms. See Supplemental File 1 for the items used to measure depressive symptoms in each sample. In addition to analysis as a continuous measure,

depressive symptoms were dichotomized into severe distress versus not severe distress based on established thresholds or elevated scores for each scale. See Supplemental File 1 for how severe distress was classified in each cohort.

2.2.3. Sociodemographic covariates

Sociodemographic covariates were age in years, sex, race, ethnicity and education. Sex was coded as male = 0, female = 1. Education was either reported in years or on a continuum from lower to higher education completed. Race and ethnicity were included as covariates where relevant to the sample. Race was dummy coded into Black = 1 and Otherwise identified = 1 both compared to White = 0. Ethnicity was coded into Hispanic or Latino = 1 compared to not Hispanic or Latino = 0.

2.3. Analytic approach

Data were first analyzed in each individual sample. To facilitate interpretation and comparison across samples, all continuous measures were standardized (mean = 0, SD = 1) within sample and all dichotomous variables were coded the same way in every sample (see covariates section above). Linear regression was used to test the association between purpose in life and depressive symptoms as a continuous measure, controlling for the sociodemographic covariates. An interaction term between purpose and each sociodemographic factor was tested in separate regressions to evaluate whether the association between purpose and depressive symptoms varied by age, sex, race, ethnicity, or education. Logistic regression was used to test the association between purpose and severe distress, controlling for the sociodemographic covariates. For samples that measured depressive symptoms with any version of the PHQ, we ran a regression for the association between purpose and depressed affect ("feeling down, depressed or hopeless") and purpose and anhedonia ("little interest or pleasure in doing things") separately to evaluate whether purpose was more strongly associated with one type of symptom.

The results from each analysis were summarized with a random-effects meta-analysis. The meta-analysis weighs the coefficient by the standard error (i.e., studies with smaller standard errors, generally those with larger samples, are weighted more in the meta-analysis than those with larger standard errors). Q, I^2, and τ^2 were used to evaluate heterogeneity. A leave-one-out analysis was used to evaluate whether the association was dependent on a particular sample. Meta-regression was used to identify potential sources of heterogeneity for the association between purpose in life and depressive symptoms across studies. Specifically, we tested whether measures of meaning in life or fulfillment had statistically different associations compared to measures of purpose in life, whether purpose was measured with a single item or multiple items, the number of items on the purpose measure, whether measuring depressive symptoms with the CESD or the PHQ had statistically different associations compared to other measures of depressive symptoms, whether depressive symptoms was measured with a single item or multiple items, the number of items on the measure of depressive symptoms, year of data collection, per capita gross domestic product (GDP) of the country, whether the association varied by whether the sample was from the United States versus not the United States, Europe versus not from Europe, or Asia versus not from Asia, and, finally, whether the association in samples from Europe, Asia, South America, Australia, or the Middle East were each statistically different from samples from the United States. A random-effects meta-analysis was likewise run on each of the interaction terms, the odds ratios on the likelihood of severe distress, and the association with depressed affect and anhedonia. The significance level was set to a $p < .01$ because of the number of statistical tests.

3. Results

Descriptive statistics for each sample are in Supplemental Table S1. Across the 72 samples from 41 studies, there were 531,038 participants with relevant data on purpose in life and depressive symptoms. The samples came from 39 countries that spanned six world regions: North America, South America, Europe, Asia, Australia, and the Middle East. Across the 72 samples, age ranged from 15 to 110.

The results of the meta-analysis for the continuous measure of depressive symptoms are in Fig. 1 There was a significant negative association in 71 of the 72 samples: Participants who felt more purposeful had fewer depressive symptoms (meta-analytic estimate = −0.32, 95 % CI = -0.35, −0.30, $p < .001$; Supplemental Table S2). The one exception was the sample from urban India, which had an association in the same direction, just not statistically significant. There was heterogeneity as measured by Q (Q = 9765.61, p < .001) and I^2 ($I^2 = 99.23$) but not by τ^2 ($\tau^2 = 0.016$), which indicated variability in the strength of the association across samples. Notably, however, the leave-one-out analysis indicated that the association was not dependent on any one sample, and there were no influential outliers; the association was virtually identical when each sample was left out of the meta-analysis (Supplemental Table S3).

The results of the meta-regressions are in Supplemental Table S4. Overall, the meta-regressions found essentially no support for the potential sources of heterogeneity that we tested. There was, for example, no difference in the association depending on the content of the purpose measure (i.e., purpose, meaning, fulfillment), whether the purpose measure was a single item or multiple items, or the number of items on the measure of purpose. There was likewise no difference in the association depending on the measure of depressive symptoms, whether the depressive symptoms measure was a single item or multiple items, or the number of items on the measure of depressive symptoms. GDP was unrelated to the strength of the association. The association was similar across world regions, with slightly larger effects in samples from Europe (k = 38, meta-analytic estimate = −0.35, 95 % CI = -0.37, −0.32), the US (k = 21, meta-analytic estimate = −0.34, 95 % CI = -0.40, −0.28), and Israel (meta-analytic estimate = −0.40, 95 % CI = -0.44, −0.36) compared to samples from Asia (k = 10, meta-analytic estimate = −0.25, 95 % CI = -0.37, −0.13), South America (k = 1, b = −0.17, 95 % CI = -0.19, −0.14), and Australia (k = 1, b = −0.12, 95 % CI = -0.17, −0.07). Meta-regressions found that the association was weaker in Asian countries than non-Asian countries ($p = .046$) and in Australia than in the United States ($p = .024$). Finally, there was an effect of year of data collection such that the association was somewhat stronger in more recent data collection than earlier years of data collection ($p = .015$). These differences, however, should be interpreted with caution because of the number of tests and the *p*-value for each of these comparisons did not reach our threshold for significance ($p < .01$).

The results of the moderation analysis for each sociodemographic factor are in Supplemental Table S5. The meta-analysis of interaction terms indicated that the association was not moderated by age (meta-analytic estimate = 0.00, 95 % CI = -0.01, 0.01, $p = .273$), ethnicity (meta-analytic estimate = 0.01, 95 % CI = -0.01, 0.03, $p = .520$), or education (meta-analytic estimate = 0.01, 95 % CI = 0.00, 0.02, $p = .026$), which meant that the relation between purpose and depressive symptoms was similar across age, Hispanic/Latino and non-Hispanic/Latino participants, and across educational achievement (at a significance level of $p < .05$, the association was slightly stronger among participants with relatively lower education). The association was moderated by sex (meta-analytic estimate = −0.04, 95 % CI = -0.05, −0.04, $p < .001$) and race (meta-analytic estimate = 0.02, 95 % CI = 0.01, 0.04, $p = .004$). We further ran the analysis stratified in each sample to better identify the association for each sex and by race. The association between purpose and depressive symptoms was significant for both sexes, but it was statistically stronger among females (meta-analytic estimate = −0.34, 95 % CI = -0.37, −0.31, $p < .001$) than

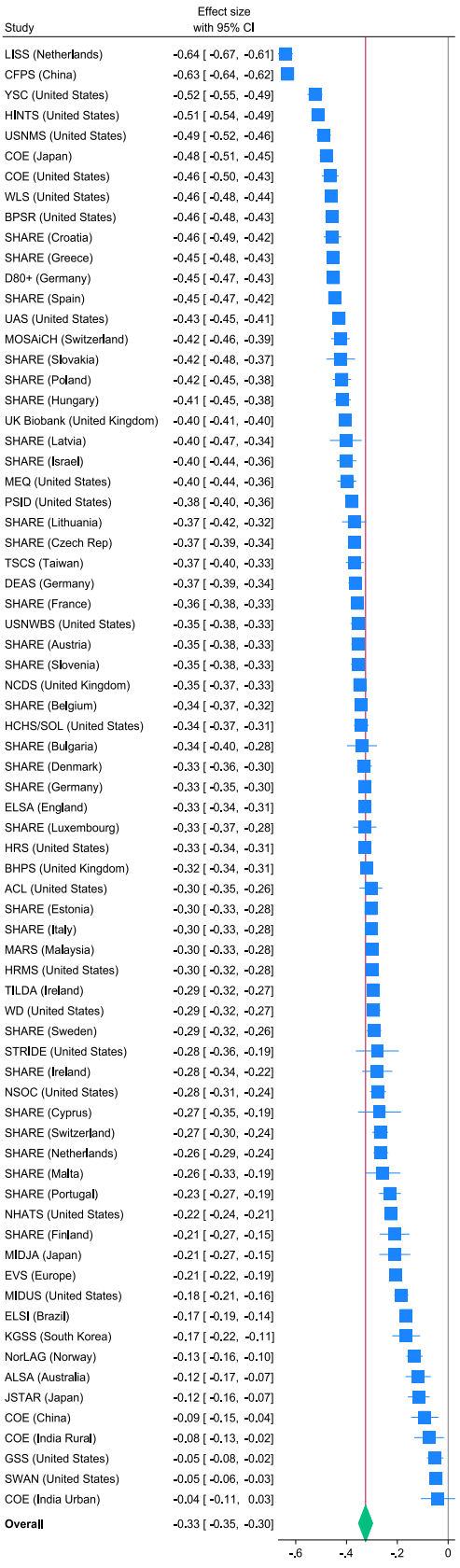

Fig. 1. Forest plot of the association between purpose in life and depressive symptoms.

among males (meta-analytic estimate = −0.32, 95 % CI = -0.35, −0.29, $p < .001$). For race, the association was significant for white and black participants, but it was statistically stronger for white participants (meta-analytic estimate = −0.33, 95 % CI = -0.39, −0.28, p < .001) than for black/African American participants (meta-analytic estimate = −0.26, 95 % CI = -0.32, −0.20, p < .001); the association for participants with an otherwise identified race did not differ from white participants (meta-analytic estimate = 0.02, 95 % CI = -0.00, 0.03, $p = .053$).

Purpose in life was likewise associated with lower likelihood of concurrently elevated depressive symptoms: For every SD higher in purpose, there was a nearly 90 % lower likelihood of concurrently experiencing depressive symptoms past the threshold for severe distress (meta-analytic odds ratio = 0.53, 95 % CI = 0.50, 0.57, p < .001; Q = 4595.19, p < .001, $I^2 = 98.54$, $\tau^2 = 0.078$). The forest plot of this association across the 72 samples is in Fig. 2 (Supplemental Table S6). Finally, the results of the supplemental analysis that differentiated between depressed affect and anhedonia are in Supplemental Table S7. The pooled associations were similar across the two aspects of depressive symptoms: Purpose in life had a similar association with depressed affect (meta-analytic estimate = −0.33, 95 % CI = -0.40, −0.26, p < .001) and anhedonia (meta-analytic estimate = −0.32, 95 % CI = -0.38, −0.26, p < .001).

4. Discussion

The present research meta-analyzed the association between purpose in life and depressive symptoms using data from >500,000 participants from 72 samples that spanned five continents. Individuals who reported more purpose in life had fewer symptoms of depression and were less likely to have symptoms that surpassed the threshold into probable depression.

This negative association was apparent in 71 out of the 72 samples, with similarities found across geographical regions and sociodemographic and methodological factors. As such, the present individual-participant meta-analysis supports previous research on purpose and depressive symptoms and extends this literature to demonstrate the generalizability and robustness of the association.

The present research is consistent with the previous meta-analysis (n = 66,468) on purpose in life and depressive symptoms (Boreham and Schutte, 2023). Perhaps most of note in comparison to the results of the previous meta-analysis is the magnitude of the association in the present study is smaller (b = −0.32) than the association found in the previous meta-analysis (r = −0.49). There are at least two reasons for the difference in magnitude. First, the present study controlled for sociodemographic factors, whereas the previous meta-analysis reported the bivariate correlation. Given that there are sociodemographic differences in both purpose in life (AshaRani et al., 2022) and depressive symptoms (Sutin et al., 2013), these factors may account for some of the association between purpose and depressive symptoms. As such, the current analysis is a useful addition to add a sociodemographic-adjusted association in addition to an unadjusted association. Second, the previous meta-analysis included clinical samples that tended to show a stronger association between purpose and distress than in community-based samples (Boreham and Schutte, 2023). All the samples in the current analysis were non-clinical, and many were drawn from representative samples. As such, the association may be smaller, in part, because it did not include clinical samples.

There are several theoretical reasons why individuals with more purpose in life may experience fewer depressive symptoms. Models of psychological well-being, for example, emphasize the importance of positive states such as purpose in life, which may promote greater resilience and reduce risk of depression (Kim et al., 2021). Theoretical models of purpose in life in particular suggest that purpose promotes resilience to obstacles or other aversive environmental conditions, it leads to greater psychological flexibility to manage situations, and it

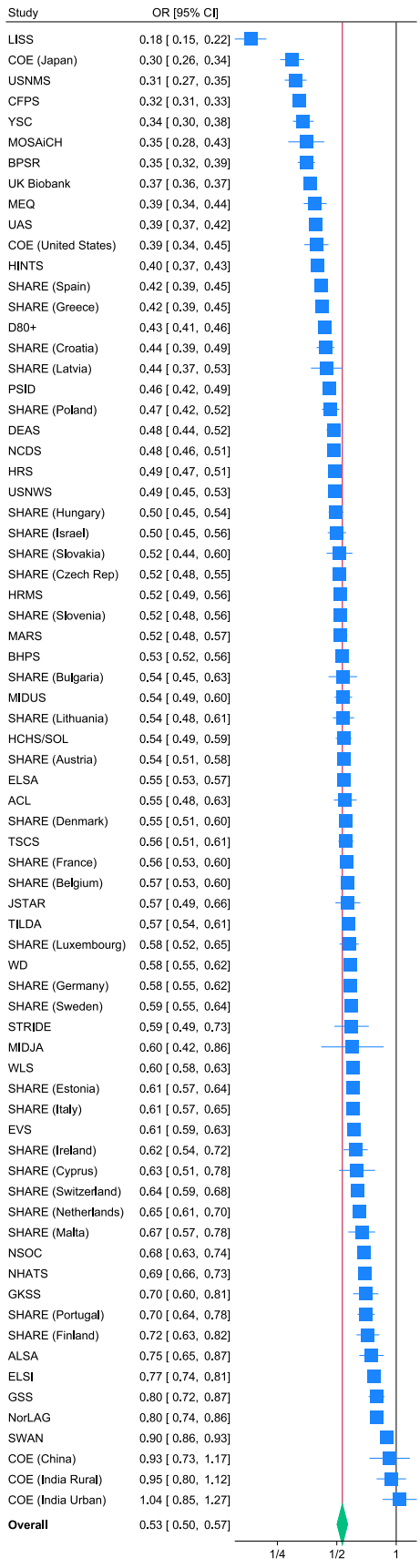

Fig. 2. Forest plot of the association between purpose in life and likelihood of severe distress.

promotes more efficient resource allocation that supports healthier outcomes (McKnight and Kashdan, 2009).

Prior empirical associations also suggest several pathways. Individuals higher in purpose tend to have a more future-oriented perspective and tend to vigorously pursue their goals (Haase et al., 2021). Such a disposition and goal orientation may be associated with better mental health (Gamble et al., 2021). Higher purpose in life is also associated with experiencing less subjective stress in general (Sutin et al., 2024b) and in daily life (Sutin et al., 2024c). It is further associated with better coping and emotion regulation (Kashdan and Goodman, 2023) that may help to downregulate negative emotionality when it does inevitably occur. Such processes may be essential for mental health (Riepenhausen et al., 2022). Individuals higher in purpose in life also tend to be healthier (Musich et al., 2018) and engage in behaviors (e.g., physical activity; Sutin et al., 2025) that likely contributes to better mental health (Pearce et al., 2022). Better mental health may likewise contribute to greater engagement in health-promoting behaviors (Kim et al., 2017), contributing to a virtuous cycle.

There was heterogeneity in the association across the 72 samples, as assessed by Q and I^2 but not by τ^2. Q and I^2 should be interpreted with caution because there are known problems with inflated estimates in large meta-analyses (Borenstein et al., 2017; Rücker et al., 2008). Surprisingly, the meta-regressions did not reveal any systematic sources of heterogeneity. It may have been expected, for example, that samples with longer measures would have stronger associations because the constructs are measured more reliability. Or it was possible that purpose was more strongly related to symptoms as measured by the CESD versus the PHQ (or vice versa). Such differences, however, were not the case. This pattern suggests that the association between purpose and depressive symptoms is robust and can be captured reliably even with the simplest and shortest measures.

The meta-regressions pointed to similarities in the strength of the association that are noteworthy. It is of note, for example, that there was no difference in the association across measures of purpose in life versus meaning in life. Purpose and meaning are theoretically distinct constructs (Martela and Steger, 2016), with purpose generally recognized as one component of meaning in life (King and Hicks, 2021). It is thus possible that purpose and meaning could have had differences in the strength of association with depressive symptoms if meaning was a broader measure than purpose. Either this difference was not relevant, or participants did not make a distinction when reporting on their purpose or meaning. That is, the meta-regression indicated no difference in the strength of the association depending upon whether the scale measured purpose or meaning (or fulfillment).

Also of note, there were no large differences by geographic location of the samples. The only differences that did emerge did not meet our threshold for statistical significance. This pattern indicates a similar association across five continents and the Middle East. This similarity, despite wide differences in culture, language, history, geography, etc., may be due in part to the nature of the measurement of purpose. That is, purpose (and meaning) scales measure a sense of purpose (meaning) rather than what individuals derive purpose from (Kashdan et al., 2024). As such, there could be significant cultural differences in what individuals find purposeful, but the benefits of feeling purposeful may be more universal. This characteristic makes purpose a particularly interesting construct for cross-cultural studies. It may be the case, for example, that purpose supports mental (and physical) health broadly, whereas the specific reasons why individuals feel purposeful may vary by culture.

There was also no difference by the economic environment of the countries sampled. Specifically, the association between purpose in life and depressive symptoms was similar in countries with relatively lower GDP as countries with relatively higher GDP. Resource substitution theory suggests that psychological factors may be more important in environments with relatively fewer economic resources (Damian et al., 2015). Previous research has found modest evidence that purpose may

be such a psychological resource: The association between purpose and episodic memory is slightly stronger in countries with relatively lower GDP (Sutin et al., 2022b). This resource substitution, however, has not been observed for other outcomes (Sutin et al., 2024a).

There may be other sources of heterogeneity that explain some of the differences in the strength of the association that were not tested in the current study. There may be cultural variations in purpose in life, for example, that contribute to differences in the strength of the association with depressive symptoms. Likewise, there could be cultural norms around reporting on symptoms of depression that may lead to differences in the association with purpose in life. There could also be measurement artifacts that could explain some of the heterogeneity.

The moderator analysis, which directly tested for differences in the strength of the association by sociodemographic factors within each sample, supported the generalizability of the association. Specifically, there was not a statistical difference in the association across age, ethnicity, or education. The only significant difference in the association that emerged from the moderator analysis was by sex and race: The association between purpose and depressive symptoms was statistically stronger among females compared to males and for white participants compared to black participants. Females are more prone to depression (Brody et al., 2018), and purpose may be associated with slightly fewer symptoms for this at-risk group compared to males. This difference, however, although statistically significant, was also small in magnitude ($b = -0.34$ versus $b = -0.32$, respectively), and unlikely to be clinically significant. A somewhat larger difference emerged between white and black participants, with the former having a statistically stronger association than the latter ($b = -0.33$ versus $b = -0.26$ respectively). The prevalence of depression tends to be slightly lower in black populations compared to white populations (Goodwin et al., 2022). As such, similar to sex, the association might be stronger among white participants compared to black participants because of this greater variation. This difference, however, should be interpreted with caution because there was more similarity than difference by race, as well as across the other sociodemographic factors. That is, this small difference should not overshadow the consistent negative association found among black participants (i.e., the association was negative in all samples and significant in 19 of the 20 samples).

The present research also expands beyond the previous meta-analysis by testing the association between purpose and severity and type of depressive symptoms. Consistent with the continuous analysis, purpose was associated with a more than 90 % lower likelihood of having symptoms that surpassed the threshold of severe distress. These findings indicate that purpose is not just associated with fewer symptoms but also with severity of the distress. This association is also consistent with the few longitudinal studies that show that purpose and meaning in life are associated with lower risk of developing depression over time (Straus et al., 2019; Wood and Joseph, 2010).

Depressed affect and anhedonia are two common symptoms of depression that are theoretically and empirically distinct (American Psychiatric Association, 2013; Serretti, 2023). This distinction may offer insight into the nature of the individual's depression; that is, whether symptoms largely reflect feelings of negative emotions or the inability to feel pleasure. Screening for depression typically includes both items because there is a recognition that both symptoms can signify depression but that one can occur without the other (Kroenke et al., 2003). It is notable that the association between purpose and both depressed affect and anhedonia was virtually the same. As such, individuals with more purpose in life tend to feel fewer negative emotions and feel more pleasure in their daily activities.

The present research had several strengths, including 72 samples with individual-participant data from populations that spanned five continents. This research also had limitations that offer suggestions for future research. First, although data were available from 39 countries, most of these countries were high-income countries or upper-middle-income countries. These countries were represented, in part, because these countries had public data available to be able to be included in the analysis. More data are needed from lower- and middle-income countries to be able to fully evaluate generalizability. Second, the data were cross-sectional and observational, so no judgements about temporality or causality can be made. Future research could use both longitudinal samples and experimental designs to address temporality and causality, respectively. Third, all data were from self-report measures, due primarily to the nature of the constructs. It would be useful in future research to obtain observer ratings as well as clinical diagnoses of depression to further evaluate the association between purpose and depressive symptoms. Finally, we did not test mechanisms of the association. As described above, there are theoretical reasons why purpose in life should be associated with fewer depressive symptoms. Future research could empirically test these pathways.

Despite these limitations, the present research offers a large-scale comprehensive evaluation of the association between purpose in life and depressive symptoms. The results suggest the association is robust and generalizable. If supported with experimental evidence, interventions to increase purpose in life (Manco and Hamby, 2021; Park et al., 2019) may be a helpful tool for reducing depressive symptoms.

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CRediT authorship contribution statement

Angelina R. Sutin: Writing – original draft, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Martina Luchetti:** Writing – review & editing, Conceptualization. **Yannick Stephan:** Writing – review & editing, Conceptualization. **Selin Karakose:** Writing – review & editing, Conceptualization. **Norma Mansor:** Writing – review & editing, Conceptualization. **Antonio Terracciano:** Writing – review & editing, Formal analysis, Conceptualization.

Ethics approval statement

IRB approval was not necessary because this research used de-identified data from public datasets.

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Declaration of competing interest

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