

The relationship between purpose in life and depression and anxiety: A meta-analysis

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Abstract

Purpose in life consists of having a sense of meaning and purpose regarding one's activities as well as an overall sense that life is meaningful. This study reports a comprehensive assessment of the relationship of purpose in life with depression and anxiety. A meta-analysis (total $n = 66,468$, total $k = 99$) investigated the association of purpose in life with depression and anxiety. Across samples, greater purpose in life was significantly associated with lower levels of depression and anxiety. The mean weighted effect size between purpose in life and depression was $r = -0.49$, [95% confidence intervals, CIs: $-0.52, -0.45$], $p < 0.001$. For the purpose in life and anxiety the mean weighted effect size was $r = -0.36$, [95% CIs: $-0.40, -0.32$], $p < 0.001$. The association of purpose in life with mental health was stronger for clinical populations, especially with regard to the relationship with anxiety. Both approach deficits and avoidance motivation are argued to play a role in the relationship between purpose and psychopathology, with greater purpose potentially limiting avoidance tendencies and reducing the effects of depression and anxiety. Understanding the role that purpose in life may play in depression and anxiety could help to inform current conceptualizations of these disorders and improve treatment outcomes.

KEYWORDS

anxiety, depression, meta-analysis, purpose in life

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1 | INTRODUCTION

Purpose in life can be defined as having a central, self-organizing life aim (McKnight & Kashdan, 2009), as well as an overall sense of direction and intentionality in one's life (Ryff, 1989). More recent definitions of purpose have also included the extent to which individuals consider their life activities to be valuable and important (Scheier et al., 2006). Research on purpose in life has suggested that there are moderate to strong links to improved physical health (Heidrich, 1993; Kim et al., 2022), greater physical activity (Hooker & Masters, 2016; Yemiscigil & Vlaev, 2021), improved mental health (Davison et al., 2012; Galek et al., 2015; Nierenberg et al., 2010; Rafanelli et al., 2000; Ruini et al., 2003; Scheier & Newcomb, 1993), greater coping with chronic illnesses/diseases and disability (Heidrich et al., 1994; Peter et al., 2015; Yeung & Breheny, 2021), less cognitive decline through aging (Wingo et al., 2020), improved physical recovery after injury (Smith & Zautra, 2004), and reduced all-cause mortality (Cohen et al., 2016).

With regard to mental health, there is now an urgent need to identify successful prevention strategies that can target the most common disorders (Cuijpers et al., 2012). Together, anxiety and depression disorders constitute a substantial global health burden with far-reaching economic and social consequences. Both were ranked in the top 25 leading causes of disease burden in 2019 (COVID-19 Mental Disorders Collaborators, 2021). Depression alone poses a significant personal and global burden, with the World Health Organization (2017) estimating over 300 million people with the illness globally and stating depression as the largest contributor to global disability.

One area of research showing promise in both the prevention and treatment of depression and anxiety is psychological well-being. Ryff's (1989) seminal paper defined psychological well-being as an array of positive functioning behaviors, cognitions, and attitudes. Included in this definition are six separate constructs: purpose in life, autonomy, environmental mastery, personal growth, self-acceptance, and positive relations with others. There exists a substantial base of evidence for the health-protective features of psychological well-being (Ryff, 2014), emphasizing the importance of such a positive psychology approach.

To date, most research examining the possible protective features of purpose in life has focused on development and aging (Clarke et al., 2000; Grossbaum & Bates, 2002; Ryff, 1989; Ryff & Keyes, 1995; Springer et al., 2011; Vleioras & Bosma, 2005), personality correlates (Anglim et al., 2020; Schmutte & Ryff, 1997), health and biological research (Boyle et al., 2009; Ryff et al., 2004), and mental health (Aftab et al., 2019; Rafanelli et al., 2000; Schaefer et al., 2013). To date, no meta-analysis has examined how purpose in life relates to the common mental health conditions of depression and anxiety. The present research presents a meta-analysis of data examining the relationships between purpose in life and depression and anxiety.

2 | PURPOSE IN LIFE

Purpose has been likened to a compass (McKnight & Kashdan, 2009), providing an overall aim in life that directs life goals, guides decisions, and allocates finite personal resources. Ryff's initial operationalization of purpose (Ryff, 1989) included a past-oriented perspective (seeing the purpose of past life), a present perspective (meaning to present life), and a future perspective (goals and underlying sense of direction). Meaning and purpose are frequently used interchangeably and measures of each show considerable overlap. Early measures such as the Purpose in Life Scale (Crumbaugh & Maholick, 1964) built on Viktor Frankl's concept of existential frustration and included both purpose and meaning in scale items. Extending this work, Reker and Peacock (1981) designed the Life Attitude Profile with similar reference to both purpose and meaning. The Eudamonic Well-Being (EWB) Scale (Ellison, 1983) also includes items referring to both concepts. Early efforts at measuring meaning in life (Battista & Almond, 1973) focused on the concept of fulfilling a positively valued life framework or goal. More recent measures of purpose in life (Ryff, 1989; Scheier et al., 2006) have tightened up the language used in scale items, opting for purpose over meaning. Philosophically meaning and purpose may be different, with McKnight and Kashdan (2009) reporting a

bidirectional relationship between the two, where meaning can drive the development of purpose, but purpose, once developed, can also drive meaning. However, this broader existential view of meaning is not reflected in operational measures and, as such this study uses relevant measures labeled as either purpose in life or meaning in life. Critics of these operational measures (Steger et al., 2006) point to the confounding nature of items and their problematic factor structures. Measures can include items that on face value pertain to mood, affect (both positive and negative), sense of coherence (of one's life), goal striving, sense of direction, future time perspective, life satisfaction, and the importance and value of daily activities. Perhaps Antonovsky (1987) in his work on sense of coherence captured the essence of purpose and meaning best by referring to the motivational element where life's challenges are welcomed and worthy of energy, commitment, and engagement. McKnight and Kashdan (2009) extend this motivational concept and label purpose as the umbrella concept capable of stimulating goals and their defined terminal outcomes.

A notable point in the literature is the difference between the search for meaning and the presence of meaning. Crumbaugh (1977) initially developed the Seeking of Noetic Goals Test (SONG) to measure the strength of motivation to find meaning in life, and found that this motivation to find meaning was negatively correlated to the presence of purpose or meaning in one's life. This negative correlation was stronger for normal versus clinical populations suggesting that clinical populations scoring low on purpose are impacted by pathological influences that weaken the strength of motivation to find purpose. Steger et al. (2006) revisited this work, creating separate presence of meaning and search for meaning subscales, finding moderate negative correlations between the presence of meaning and depression and moderate positive correlations between search for meaning and depression.

3 | ANXIETY, DEPRESSION, AND THEIR RELATIONSHIP TO PURPOSE IN LIFE

Anxiety and depression are considered distinct mood disorders, yet frequently coexist. Clark and Watson's (1991) tripartite model places general distress as common to both disorders with specific depression symptom clusters relating to low positive affect, characterized by a lack of energy and zeal for life. Specific anxiety symptoms focus on nervous and worried feelings and thoughts and physiological symptoms such as elevated heart rate, muscle tension, and shakiness. Depression and anxiety both involve "defensive strategies" (Stolorow, 1969), either resulting from general apathy and loss of interest or from worry and avoidance behavior. These strategies are opposed to the cognitive, behavioral, and interpersonal aspects involved in forming purposeful interactions with one's environment and therefore one would expect negative associations between purpose and symptoms of these disorders, with the greater purpose being associated with lower levels of the disorders. There may be a bidirectional relationship between purpose and depression and anxiety. The cognitive impacts of depression and anxiety may reduce the optimistic, global thinking required to construct purposeful goals and weave a common life narrative. Behaviorally, avoidance and apathy resulting from anxiety and depression may also play a role in reducing the engagement required to feel a high sense of purpose. Alternatively, as is commonly reported there may be a causal role played by a lack of purpose leading to a higher risk of developing anxiety or depression.

Recent models of depression and anxiety have shown a strong role for approach and avoidance motivation and behavior. Depression has been linked to deficits in approach motivation and reward sensitivity and to an increase in avoidance and escape behavior (Trew, 2011). The relationship between avoidance and depression has been shown to be stronger in clinical samples (Aldao et al., 2010). Avoidance tendencies have been associated with avoidance goals and avoidance plans that focus on steering away from aversive outcomes rather than moving toward positive goals and outcomes. Purpose has shown strong links to behavioral activation (Crego et al., 2021) with potential sequential relationships whereby purpose leads to greater behavioral activation which in turn impacts positively to reduce depression and anxiety symptoms.

Genetic models of depression have found substantial roles for environmental factors and gene–environment interactions (Roose et al., 2013), encouraging researchers to assess person–environment interactions in search of protective patterns and factors.

Early research by Ryff and colleagues (Ryff, 1989; Ryff & Keyes, 1995; Ryff et al., 1994) showed significant negative associations between purpose and depression. Similar negative associations were also found in studies linking purpose to anxiety (Ishida & Okada, 2006; Ruini et al., 2003). Ishida and Okada found those lower on purpose showed greater sensitivity of sympathetic nervous system activity to emotional stress, suggesting an emotional control element linked to higher purpose. In laboratory studies, researchers have also found that reflecting on one's purpose may provide a short-term buffer to markers of stress (Creswell et al., 2005). Baumeister (1992) suggested that having a purpose allows one to reframe potential setbacks and challenges in terms of the relevance to their purpose. The purpose may, therefore, provide a cognitive mechanism for reducing stress and related anxiety.

Associations between purpose and depression have been shown to hold across clinical groups for both major depressive disorder (Davison et al., 2012) and minor depressive disorder (Nierenberg et al., 2010), although the role of purpose in predicting these disorders has often been combined with other psychological well-being measures. In a longitudinal study, Wood and Joseph (2010) found that after accounting for personality, medical and demographic variables, low purpose significantly predicted clinical depression levels 10 years later for those in their 50s at baseline, with people in the lowest quartile for the purpose at T1 almost twice as likely to develop depression at T2.

In a meta-analytic study of the relationship between meaning in life and sense of coherence with distress in cancer patients, Winger et al. (2016) found mean effect sizes of $r = -0.41$ (meaning in life and distress) and $r = -0.59$ (sense of coherence and distress). Given that sense of coherence measures one's view of life as comprehensible, manageable, and meaningful, this additional perceived manageability of life's circumstances may account for the larger effect size.

Studies of groups showing improvements after treatment for anxiety and depression have shown increasing purpose scores (Fava et al., 2001; Rafanelli et al., 2000), with the relationship between purpose and depression/anxiety not always reaching significance after treatment. Although participants showed improved purpose scores after treatment in these studies, scores were still lower than those of control groups and psychopathology scores were still higher. Combined, the findings seem to support a relationship between less purpose and more depression and anxiety.

4 | THE PRESENT INVESTIGATION

There are now a sufficient number of primary studies of the relationship between purpose in life and depression and anxiety respectively to perform a meta-analysis consolidating research in the area. The aims underlying the investigation follow:

Aim 1: What are the meta-analytic associations between purpose in life and depression and between purpose and anxiety across studies? We hypothesized that both depression and anxiety will show moderate negative correlations with purpose in life. No prior hypothesis was made regarding which would show a stronger association.

Aim 2: How are the meta-analytic relationships between purpose and depression and between purpose and anxiety moderated by the age of samples? Purpose, depression, and anxiety have all shown varying patterns of change across the life course. The research literature provides evidence to support the notion that as people enter retirement age their purpose in life declines (Clarke et al., 2000; Ryff, 1989; Ryff & Keyes, 1995). This effect is somewhat mediated by socioeconomic circumstances but appears consistent. However, counterevidence does exist to suggest that not all aspects of purpose respond the same to aging. Perceptions of environmental mastery have been shown to hold into older age (Ryff, 1989; Ryff & Keyes, 1995) suggesting that older people possess the competency levels to still lead purposeful lives. Earlier multidimensional measures of purpose have also shown that some subscale scores actually increase with age (Reker et al., 1987). Depression and anxiety have shown diverging age trajectories, with depressive symptoms lower in midlife but increasing in later adulthood (Best et al., 2021) and anxiety higher in

adolescence, followed by peaks in middle age and then declines in older age (Bandelow & Michaelis, 2015). Given these trajectories, it was hypothesized that older adults low on purpose may score relatively higher on depression scales than younger adults. If higher purpose resulted in similar lower levels of depression for both younger and older adults then taken together the correlation between purpose and depression should be stronger (negatively) for older adults. No prior hypothesis was made for anxiety.

Aim 3: How is the relationship between purpose and depression and purpose and anxiety moderated by the type of sample used, the measure of purpose used, the geographical region of the participants, and the language spoken? We hypothesized that purpose measures that had a more pathological basis such as the Purpose in Life Scale (Crumbaugh & Maholick, 1964) would show stronger negative associations to both depression and anxiety. No predictions were made for the other moderators.

Moderators were selected based on available data and research interests and included sample type (clinical, not clinical, or mixed), purpose scale used, geographical region, language spoken in the country of study (English vs. other), age, and percentage female. The data did not support a more detailed breakdown of clinical condition and status (condition type, duration of condition, or time since diagnosis) or further sociodemographic variables (income, ethnicity, etc.).

5 | METHOD

5.1 | Preregistration

This meta-analysis was pre-registered at Prospero (ID: 323287).

5.2 | Literature search

The literature search sought to identify any study that reported a correlation between purpose and measures of depression or anxiety. The final literature search was completed in June 2022. Keyword searches were conducted in Scopus, EBSCO, PsycINFO, and PsycARTICLES. The following Boolean search phrase was used in each of the databases: ("purpose in life" AND "depression") and ("purpose in life" AND "anxiety"). Exact search terms per database are provided in Table 1. In general, searches placed no restrictions on article type, age of participants, or

TABLE 1 Boolean search criteria.

Database	Boolean Search Criteria
Scopus	ABS ({Purpose in Life} AND {depression})
Scopus	ABS ({Purpose in Life} AND {anxiety})
EBSCO	ABS ({Purpose in Life} AND {depression})
EBSCO	ABS ({Purpose in Life} AND {anxiety})
PsycINFO/PsycARTICLES	"Purpose in Life" in Abstract OR "Purpose in Life" in Title AND "depression" OR "Anxiety" in text
PsycINFO/PsycARTICLES	"Purpose in Life" in Title AND "Health" in Anywhere
PsycINFO/PsycARTICLES	"Purpose in Life" in Title AND "Aging" in Anywhere
PsycINFO/PsycARTICLES	"Purpose in Life" in Title AND "Substance Abuse" in Anywhere
PsycINFO/PsycARTICLES	"Purpose in Life" in Title AND "Suicid*" in Anywhere

type of purpose measure used. Only English-language articles were selected. In addition, a search was performed on a set of over 1300 article references provided by Carol Ryff, known to include the Ryff scales of psychological well-being (of which purpose is one of six subscales). As abstracts were not provided for these articles the titles were screened for references as per the above criteria. Finally, references from key review articles were also screened for relevant articles.

After merging the above sources and removing duplicates the combined data set consisted of 982 articles. All articles were then screened to assess for inclusion of measures of purpose and either depression, anxiety, or both. This screening process led to the exclusion of 737 articles with a resulting 245 articles fully examined due to the inclusion of appropriate measures of either depression or anxiety and purpose in life. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009) were used to perform the present review (Figure 1). A list of studies included in the meta-analyses together with summary information is shown in Table 4.

Where relevant variables were measured but the correlations were not reported or not completely reported, the corresponding author(s) of each of these articles was sent an email inviting them to either provide the

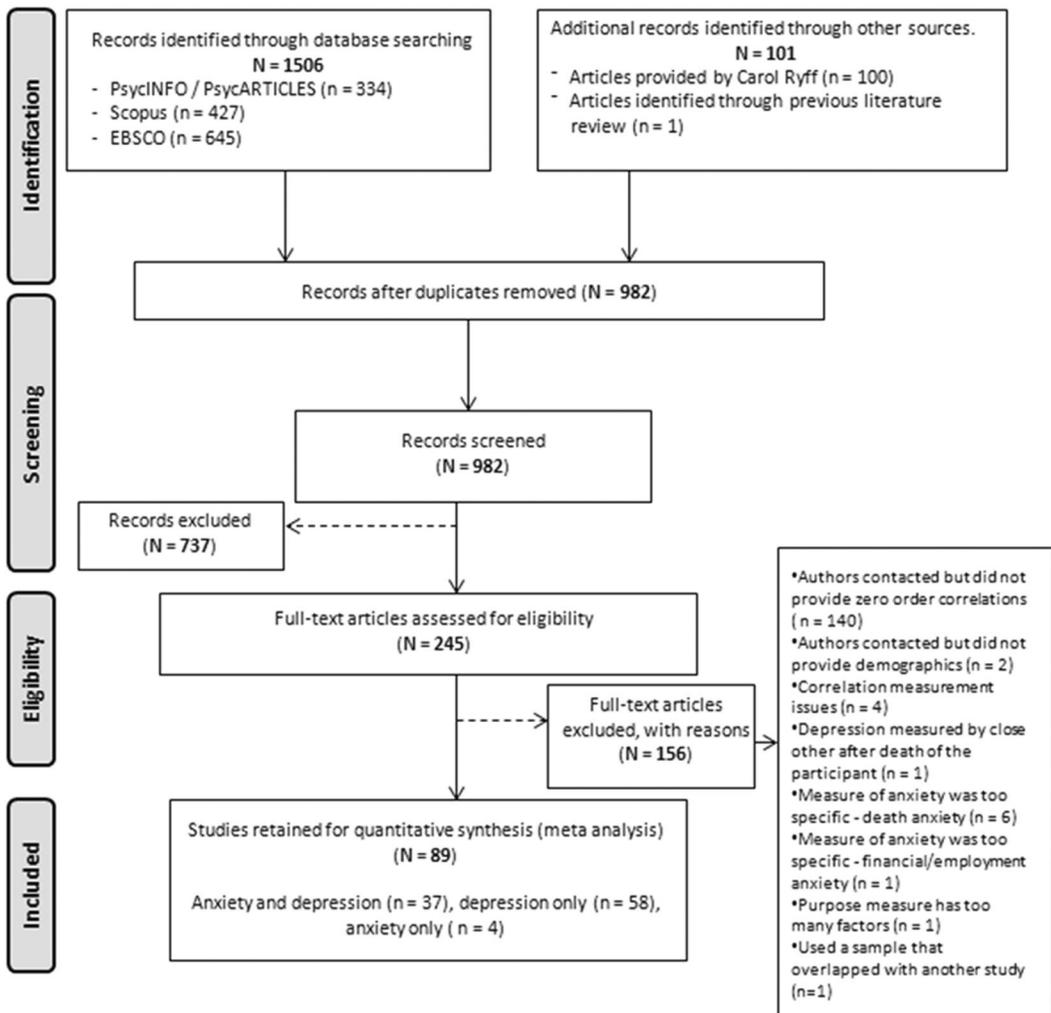


FIGURE 1 Flow diagram of literature search and selection process.

correlation matrix or the data from which the correlation could be calculated. This process of contacting authors resulted in five additional studies being included in the meta-analysis.

5.3 | Inclusion criteria

Scales used across purpose, anxiety, and depression are listed in Tables 2 and 3, together with the average published reliability for the studies that included this data (number of studies including reliability data shown in brackets after average α value). If internal consistency was not included for the study, previous studies were examined and internal consistency metrics included (together with the reference for the study). For all but three cases reliability averages were above 0.7. Over 90% of studies employed one of three common purpose measures; the Purpose in Life Scale (Crumbaugh, 1968; Crumbaugh & Maholick, 1964), the Life Engagement Test (Scheier et al., 2006), or the purpose subscale of the Psychological Well-being Scale (Ryff, 1989; Ryff & Keyes, 1995). Ryff (2014) provides a good overview of the psychometric scrutiny of the Ryff scale and admits psychometric problems with the three-item version of this scale. This is reflected in the two studies that used the three-item version (Iani et al., 2017; Ryff & Keyes, 1995) which both showed internal reliability less than 0.7. Initial testing of the Purpose in Life Scale (Crumbaugh, 1968) showed split-half reliability of 0.92 and a Cronbach's α of 0.84 within an adolescent population (Shek, 1988). Within the 34 studies using this scale, 12 of the 23 that used the full 20-item version provided Cronbach's α scores with all but one being above 0.8. Of the 11 studies employing shortened versions (3–19 items), eight of these provided Cronbach's α scores, all of which were above 0.7. This scale is not without criticism, with Garfield (1973) claiming it is culturally contaminated with a Western upperclass focus on future activity and achievement.

All 12 studies using the Life Engagement Test provided Cronbach's α values above 0.7. Of the remaining eight studies that used other purpose scales, five provided Cronbach's α s for the study of greater than 0.75. One study (Galek et al., 2015) employed two questions from the Baylor Religion Survey. Although Cronbach's α was only 0.6, the study was included due to the direct relevance of the two items used: (a) I do not believe there is any ultimate meaning in life and (b) it is useless to try to discover the purpose of my life. One study (McCoubrie & Davies, 2006) employed the EWB subscale of the Spirituality Well-being Scale (Ellison, 1983) and did not provide data for internal consistency. However, Ellison (1983) reported internal consistency of 0.78 with McCoubrie and Davies (2006) quoting a range of 0.78 to 0.94 across various populations. The study by Springer et al. (2003) asked only one question regarding purpose in life ("how often they felt a sense of meaning or purpose in life."). This study was chosen for the direct relevance of this question.

Of the 37 study samples that measured both anxiety and depression, 22 of them employed a scale that included subscale scores for both anxiety and depression. Of the 99 study samples used in this analysis, 61 of them reported a Cronbach's α value for either anxiety or depression (see Table 2). In all but two of these cases, the value reported was above 0.7. For scales that did not report these values, internal consistency data was contained from prior studies, with reference to these studies included in Table 2. Only one study failed to report the name of a depression scale employed (Ryff & Keyes, 1995). This study was included as the eight items of the scale were listed, and on inspection were deemed to represent common depression items.

Measures focusing on positive and negative affect were excluded as were measures that comingled depressive and anxiety symptoms. Although affect has shown strong correlations with anxiety and depression, these scales were omitted as there is considerable overlap between affective states and each measure of psychopathology (Watson & Tellegen, 1985). Measurement scales had to show symptom severity or number such that higher scores reflected higher levels of depression or anxiety. Personality measures that included subscales focusing on either construct were scrutinized for the above criteria. All Measures are listed in Table 2.

After applying the inclusion criteria, 14 studies were excluded for one of the following reasons. First, one study was excluded (Haase et al., 2021) for reporting a correlation that used a subsample that overlapped with another

TABLE 2 Anxiety and Depression Scales included in meta-analysis.

Description	Code	Type	DEP studies	ANX studies	# Items (range)	DEP α (n)	ANX α (n)	Source references
Center for Epidemiological Studies Depression Scale	CES-D	SR	34	8	8–20	0.82 (19)		Radloff (1977)
Hospital Anxiety and Depression Scale	HADS	SR	9	8	7	0.76 (7)	0.78 (6)	Zigmond and Snaith (1983)
Depression Anxiety Stress Scales	DASS-21	SR	6	5	7	0.89 (6)	0.84 (5)	Lovibond and Lovibond (1995)
Beck Depression Inventory	BDI	SR	10		7–21	0.82 (4)		Beck (1961)
Geriatric Depression Scale	GDS	SR	8		4–30	0.83 (5)		Yesavage and Sheikh (1986)
State-Trait Anxiety Inventory	STAI	SR		6	40		0.88 (3)	Spielberger et al. (1983)
Patient Health Questionnaire	PHQ	SR	5		8–9	0.89 (2)		Kroenke and Spitzer (2002)
Kellner's Symptom Questionnaire	SQ	SR	2	2		0.91*	0.83*	Zeffert et al. (1996)
The World Health Organization Composite International Diagnostic Interview Short-Form	WHO-CIDI-SF	I	2	1	7(D), 10(A)	**	**	Kessler et al. (1998)
Brief Symptom Inventory	BSI	SR	1	2	6	0.85*	0.9 (1)	Derogatis and Melisaratos (1983)
Self-Rating Depression Scale	SDS	SR	2		20	0.82 (1)		Zung (1965)
Costello–Comrey Depression and Anxiety Scale	CCDAS	SR	1	1	14 (D), 9(A)	0.82*	0.73*	Costello and Comrey (1967)
International Personality Item Pool–NEO	IPIP-NEO-N	SR	1	1	6	0.62	0.72	Johnson (2014)
The Mood and Anxiety Symptom Questionnaire—Short Form	MASQ-SF	SR	1	1	> 10	0.92	0.88	Corral-Frias et al. (2019)
Mental Health Inventory	MHI	SR	1	1	9	0.9	0.9	Veit and Ware (1983)
Generalized Anxiety Disorder Scale	GAD-7	SR		2	7		0.9 (1)	Spitzer et al. (2006)
Jackson Personality Research Inventory	JPI	SR		2	20		0.88	Paunonen and Jackson (1996)
The Beck Anxiety Inventory	BAI	SR		2	5–18		0.92 (1)	Beck et al. (1988)
The Brief Depression Scale	BDS	SR	1		11	0.76		Koenig et al. (1995)

(Continues)

TABLE 2 (Continued)

Description	Code	Type	DEP studies	ANX studies	# Items (range)	DEP α (n)	ANX α (n)	Source references
The Children's Depression Inventory	CDI	SR	1		27	0.82		Kovacs (1985)
Calgary Depression Scale for Schizophrenia	CDSS	SR	1		9	<0.7 (0.83*)		Addington et al. (1990)
Paykel's Clinical Interview for Depression	CID	I	1		20	***		Guidi et al. (2011)
Chicago Multiscale Depression Inventory	CMDI	SR	1		24	0.89*		Nyenhuis and Luchetta (1998)
The Edinburgh Depression Scale	EDS	SR	1		10	0.81		Cox et al. (1987)
Hamilton Rating Scale for Depression	HAM-D	SR	1		17	0.79*		Trajković et al. (2011)
Index of Potential Suicide	IPS	SR	1		8	0.89		Petrie and Chamberlain (1985)
Midlife in the United States (MIDUS) Depressed Affect Scale	MIDUS-DEP	PI	1		6	**		University of Wisconsin Institute on Aging (2004); Wang et al. (2000)
Unknown	Unknown	PI	1		8	**		Ryff and Keyes (1995)
Public Health Research Foundation Stress Check List Short Form	PHRF-SCL(SF)	SR	1		6	0.83	>0.75	Matsuda-Chapman and Mori (2017)
Depressive Symptoms as Measured by Structured Clinical Interview for DSM-IV	SCID	I	1			**		First et al. (1997)
The Experiences in Close Relationships Scale	ECR	SR		1	18		0.9	Rowe and Carmelley (2003)
Generalized Anxiety Disorder Questionnaire-IV	GADQ-IV	SR		1	5		0.8	Newman et al. (2002)
Hopkins Symptom Checklist (shortened and modified)	HSCL-SM	SR		1	3		0.75	Mellinder et al. (1983)
Self-Rating Anxiety Scale	SAS	SR		1	20		0.81	Zung (1971)

TABLE 2 (Continued)

Description	Code	Type	DEP studies	ANX studies	# Items (range)	DEP α (n)	ANX α (n)	Source references
Social Phobia Inventory	SoPhi	SR	1	1	3	0.82	0.82	Moore and Gee (2003)
Zuckerman-Kuhlman Personality Questionnaire (Neuroticism-Anxiety Subscale)	ZKPQ	SR	1	1	19	0.84*	0.84*	Joireman and Kuhlman (2004)

Note: Type: I, interview (face to face); PI, phone interview; SR, self-report.

*Internal consistency rating from Source ref study rather than study used in this meta-analysis. For Kellner's Symptom Questionnaire and Costello-Comrey Depression and Anxiety Scale these values are split-half reliabilities. Otherwise all values listed as Cronbach's α .

**Reliability information not available.

***Although reliability information was not available, Guidi et al. (2011) reported that overall the item-to-total correlations were comparable to those reported for the Hamilton scale.

TABLE 3 Purpose in Life Scales included in meta-analysis.

Description	Code	Type	Studies	# Items (range)	Average α (n)	Source references
Purpose in Life Scale	PIL	SR	34	3–20	0.84 (20)	Crumbaugh (1968); Crumbaugh and Maholick (1964)
Psychological Well-being Purpose Subscale	PWB-PS	SR	45	3–20	0.76 (34)	Ryff (1989); Ryff and Keyes (1995)
Life Engagement Test	LET	SR	12	6	0.75 (12)	Scheier et al. (2006)
Eudaimonic Well-being Scale	EWB	SR	1	10	*0.78	Ellison (1983)
Time Structured Questionnaire Purpose Subscale	TSQ-PS	SR	2	5	0.9 (2)	Bond and Feather (1988)
Baylor Religion Survey	BRS	SR	1	2	0.6	Galek et al. (2015)
Meaning in Life Questionnaire—Presence of Meaning subscale	MLQ-P	SR	1	5	0.93	Steger et al. (2006)
Spirituality Assessment Scale—Meaning subscale	SAS	SR	2	4	0.83 (2)	Howden (1992)
Single Item	Single	SR	1	1	***	Springer et al. (2003)

Note: Type: SR, self-report.

*Internal consistency rating from Source ref study rather than study used in this meta-analysis.

***Reliability information not available.

study (Haase et al., 2012). Four studies were excluded for correlation measurement issues with one using standardized beta weights and one using Spearman partial correlations. Two others reported changes in correlations over time. Nine studies were excluded for measurement issues with depression or anxiety. Death anxiety was measured in six of these studies and was deemed too specific for this analysis, as was employment anxiety. In one study, depression was measured by a close other after the death of the participant (regarding their last year of life) and was, therefore, excluded. One study was excluded for using the Chinese Personal Meaning Profile for Children (Du et al., 2017), which on further inspection showed seven factors, only one of which related to purpose in life.

The final study list consisted of 89 articles reporting results for 99 study samples, with 66,468 participants. Both anxiety and depression correlations with purpose were reported for 37 studies. For 58 studies results for only depression and purpose were reported and for four studies only results for anxiety and purpose were reported. Across the 99 studies included in the meta-analysis 60% of participants were female, with an average age across all participants of 48 years. America hosted 59 of the studies with the remainder split across Asia and the Middle East (13), Australia and New Zealand (9), and Europe, United Kingdom, and Ireland (18). English was the spoken language in 69 studies.

5.4 | Coding

For each sample, the following study features were extracted: source details, sample country, sample size, effect size (recorded as r for either purpose and depression and/or purpose and anxiety), sample type, mean age, percentage female, scales used (for purpose, depression, and anxiety), number of items per scale, internal

consistency of scale for the study, whether the scale was a translated version, the source of the correlations, and the correlation details. Regarding sample type, each study sample was rated as either healthy (H), clinical (C), or mixed (M). To be rated as clinical the study sample had to be diagnosed with either a physical or mental health condition (applicable to all study participants). A mixed rating was given when a portion of the individuals in the sample were diagnosed.

Extraction and coding of data were done by one researcher. To check possible data extraction and entry errors, 50% of articles were also assessed by independent raters. Interrater agreement in coding was 100%, indicating high reliability in the extraction and coding of data. Table 4 shows the features of each study. The data is available at [10.25952/52hr-8z44](https://doi.org/10.25952/52hr-8z44).

5.5 | Analytic approach

Separate meta-analyses were performed for purpose and depression and for purpose and anxiety. Pooled mean effect sizes were calculated using the random effects model of the computer program Comprehensive Meta-Analysis (CMA; Borenstein et al., 2014). The random effects model is deemed the best choice if heterogeneity is expected and found (Hedges & Vevea, 1998). In the random effects model weightings applied to studies vary less, reflecting the role that each study has to play due to it potentially estimating a different population effect size. The Q statistic was calculated to test for homogeneity and the I^2 index was calculated to measure the extent of true heterogeneity. The I^2 index can be interpreted as the percentage of the total variability in a set of effect sizes due to true heterogeneity (Huedo-Medina et al., 2006). Moderator analyses were performed for several study characteristics. Categorical moderator analysis divides the studies into two or more subgroups and then tests whether the effect sizes for each subgroup differ significantly from one another and therefore whether the moderator accounts for some heterogeneity. Variables used in moderator analyses included sample type (clinical vs. healthy samples), measure of purpose used, language of country (English vs. non-English), and geographical region (Americas, Europe including Ireland and the United Kingdom, Asia, and the Middle East, and Australia and New Zealand). Regression-based moderator analysis uses continuous data as a moderator variable. Variables used in this moderator approach included mean age of samples and the percent of females in samples.

Outlier analysis was performed on the set of zero-order correlations with all correlations falling within three standard deviations of the mean for both depression and anxiety.

Publication bias has the potential to distort the results of meta-analysis by only including statistically significant findings. Publication bias was tested by inspecting the funnel plots of the two meta-analyses and by Duval and Tweedie's trim and fill procedure which yields an effect size after accounting for publication bias (Duval & Tweedie, 2000), as well as a fail-safe analysis.

6 | RESULTS

6.1 | Meta-analytic associations

Meta-analytic associations were calculated using CMA Version 3.3 (Borenstein et al., 2014). Separate analysis were performed to assess the overall weighted effect size for the relationship between purpose and depression and between purpose and anxiety. All effect sizes are expressed as r . Given the nature of the studies and the different populations used in each, the random effects model was used; this model assumes that the true effect size differs across studies. Use of this model was supported by significant heterogeneity of effect sizes across samples, $Q = 2437$, $p < 0.001$, and an I^2 of 96.14 for depression and $Q = 765$, $p < 0.001$, and an I^2 of 94.77 for anxiety.

TABLE 4 Studies included with summary information.

Study	N	Type	Purpose scale	# Items	DEP scale	ANX scale	% Female	Age	Country
Arends et al. (2013)	298	C	PWB-PS	6	HADS	HADS	62	62	NL
Aviad and Cohen-Louck (2021)	195	H	PIL	18	IPS		63	77	IL
Bassi et al. (2017)	81	H	PWB-PS	7	EDS		100	34	IT
Bhullar et al. (2014)	207	H	PWB-PS	14	DASS-21		75	30	AU
Bigler et al. (2001)	133	H	PIL	20	CCDAS	CCDAS	68	22	US
Bitsika et al. (2011)	398	H	PIL	20	SDS	SAS	48	23	AU
Bond and Feather (1988) Sample 1	336	H	TSQ-PS	5	BDI	STAI-T	68	23	AU
Bond and Feather (1988) Sample 2	193	H	TSQ-PS	5	BDI	STAI-T	72	23	AU
Boyle et al. (2009)	1238	H	PWB-PS	10	CES-D		74	78	US
Briggs and Shoffner (2006) MA	242	H	SAS	4	CES-D		60	44	US
Briggs and Shoffner (2006) OA	188	H	SAS	4	CES-D		63	19	US
Buzzetta et al. (2020)	132	H	MLQ-P	5	CES-D		33	35	US
Chow and Ho (2012)	132	M	PIL	20	GDS		61	76	HK
Corral-Frías et al. (2019)	238	H	PWB-PS	6	MASQ-SF	MASQ-SF	81	23	MX
Crego et al. (2021)	1267	H	PWB-PS	5	HADS	HADS	100	34	SA ^a
Davis et al. (2010)	99	C	PWB-PS		CES-D	STAI-S	100	32	US
Davison et al. (2012)	100	M	PWB-PS	7	GDS		80	84	AU
Dixon (2007)	167	H	PIL	20	GDS		77	84	US
DuRant et al. (1994)	225	H	PIL	14	CDI		56	14	US
Eakman et al. (2010)	154	H	PIL	20	CES-D		77	81	US
Fava et al. (2001)	30	C	PWB-PS	14	CID		83	32	IT
Ferrand et al. (2014)	100	H	PWB-PS	14	GDS		80	87	FR
Galek et al. (2015)	1453	H	BRS	2		SoPhi	53	56	US
Giannone et al. (2019)	353	H	PIL	20	CES-D	GAD-7	75	19	US
Golja et al. (2020)	217	M	PIL	3	BDI		76	68	SI
Haase et al. (2012)	498	H	PWB	9	CES-D		70	27	DE
Hallaert (2019)	474	H	PIL	20	PHQ		52	22	US
Hanna and Strober (2020)	183	C	PWB		CMDI	STAI-T	90	44	US
Haugan (2014)	202	H	PIL	20	HADS	HADS	72	86	NO

TABLE 4 (Continued)

Study	N	Type	Purpose scale	# Items	DEP scale	ANX scale	% Female	Age	Country
Heidrich (1993)	240	M	PWB	20	CES-D	JPI-A	100	73	US
Heidrich et al. (1994)	108	C	PWB	15	CES-D		63	62	US
Heisel and Flett (2004)	49	C	PWB	9	BDI		69	38	US
Heisel and Flett (2014)	173	H	PWB	9	GDS		71	74	US
Homan (2018)	126	H	PWB	6–8		ECR-AA	71	70	US
Hooker and Masters (2016)	104	H	LET	6	PHQ		71	36	US
Hurd et al. (2014)	3334	H	PWB ^b	8	CES-D	BSI	49	21	US
Iani et al. (2017)	211	H	PWB	3	IPIP-NEO-N	IPIP-NEO-N	72	56	IT
Irani et al. (2022)–Husbands	1186	H	PWB	7	CES-D		0	68	US
Irani et al. (2022)–Wives	1186	H	PWB	7	CES-D		100	65	US
Jackson and MacLeod (2017)	60	C	PWB	9	HADS	HADS	80	41	UK
Kim et al. (2014)	157	H	PIL	20	CES-D		45	68	KR
Kitamura et al. (2004)	574	H	PWB	14	HADS	HADS	75	20	JP
Koenig et al. (2014)	129	C	PIL	20	BDI		70	52	US
Konkolj Thege et al. (2009)	341	H	PIL	20	BDI		52	33	HU
Kozar-Westman et al. (2013)	200	C	PIL	20	CES-D		50	80	US
Krause and Edles (2014)	202	C	PIL	7	PHQ		15	36	US
Krentzman et al. (2015)	364	C	PIL	20	SCID		34	44	US
Lebădă and David (2018)	28	H	PIL	20	GDS		75	86	RO
Lester and Badro (1992)	120	H	PIL	20	BDI		63	24	US
Liu et al. (2009)	545	H	PWB	14	HADS	HADS	76	20	JP
Matsuda-Chapman and Mori (2017)	756	H	PWB	8	PHRF-SCL(SF)	PHRF-SCL(SF)	100	49	JP
Mayers et al. (2002)	45	C	PIL	20	BDI		100	32	US
McCoubrie and Davies (2006)	85	C	Other	10	HADS	HADS	64	68	UK
Mei et al. (2021)	1839	H	PWB	10	CES-D		75	79	US
Neter et al. (2009)	101	C	PWB	19	HADS	HADS	69	41	IL

(Continues)

TABLE 4 (Continued)

Study	N	Type	Purpose scale	# Items	DEP scale	ANX scale	% Female	Age	Country
Nierenberg et al. (2010)	93	C	PWB	14	HAM-D		46	47	US
Odachowska et al. (2019)	68	H	PIL	20		STAI-T	85	37	PL
Peter et al. (2015)	516	C	PIL	4	HADS		28	53	CH
Pieper et al. (2009)	70	C	PIL	20	CES-D		39	54	US
Plach et al. (2003)	156	C	PWB	14	CES-D	JPI-A	100	59	US
Rafanelli et al. (2000)	20	C	PWB	14	SQ	SQ	55	28	IT
Rahiminezhad et al. (2011)	585	H	PIL	19	DASS-21	DASS-21	56	19	IR
Ratner et al. (2022)	1420	H	LET	6	DASS-21	DASS 21	46	38	US
Ruini et al. (2003)	450	H	PWB	14	SQ	SQ	57	50	IT
Ryff (1989)	321	H	PWB	20	SDS		60	44	US
Ryff and Keyes (1995)	1108	H	PWB	3	Unknown		59	46	US
Ryff et al. (1994)	215	H	PWB	14	CES-D		53	54	US
Salt et al. (2017)	199	H	PWB	14	GDS		100	62	US
Scheier and Newcomb (1993)	614	H	PIL	20	CES-D	HSCL-SM	71	26	US
Scheier et al. (2006) Sample 1	193	H	LET	6	CES-D		51	37	US
Scheier et al. (2006) Sample 2	183	C	LET	6	CES-D		100	68	US
Scheier et al. (2006) Sample 3	168	H	LET	6	CES-D		0	70	US
Scheier et al. (2006) Sample 4	378	H	LET	6	CES-D		100	65	US
Scheier et al. (2006) Sample 5	198	C	LET	6	CES-D		100	51	US
Scheier et al. (2006) Sample 6	86	C	LET	6	CES-D		100	50	US
Scheier et al. (2006) Sample 8	511	H	LET	6	BSI	BSI	39	22	US
Schulenberg et al. (2016)	91	H	PIL	4	DASS-21	DASS-21	58	15	US
Schwartz et al. (2009)	905	H	PIL	12	CES-D	BAI	79	20	US
Sharpley et al. (2021)	79	H	PWB	7	PHQ		65	67	AU
Shek (1992)	2150	H	PIL	16	BDI	STAI-T	50	16	HK

TABLE 4 (Continued)

Study	N	Type	Purpose scale	# Items	DEP scale	ANX scale	% Female	Age	Country
Smith and Zautra (2004)	64	C	PWB	14	MHI	MHI	52	67	US
Springer et al. (2003)	118	H	Other	1	BDS		84	82	US
Tali et al. (2009)	60	C	PIL	20	BDI		18	41	IL
Takebayashi et al. (2018)	297	H	PWB	6	CES-D	GADQ-IV	62	19	JP
Thoma et al. (2017)	22	H	PWB	10	CES-D		50	23	US
Thompson et al. (2003)	1391	C	PIL	20		ZKPQ-N-Anx	20	40	US
Troutman et al. (2011)	93	H	PIL	20	CES-D		85	74	US
Turner et al. (2007)	54	C	PIL	20	CDSS		37	29	IE
Wang et al. (2007)	416	H	PWB		CES-D		73	20	US
Weston et al. (2021)	4963	H	PWB	3	MIDUS-DEP		53	46	US
Wettstein et al. (2015)	124	H	PWB	9	GDS		79	91	DE
Wingo et al. (2020)	5441	H	PWB	10	PHQ	GAD-7	71	64	US
Wu et al. (2018)	1000	H	PIL	6	DASS-21	DASS-21	56	40	CN
Yemiscigil and Vlaev (2021) HRS	14159	H	PWB	7	WHO-CIDI-SF	BAI-SF	59	68	US
Yemiscigil and Vlaev (2021) MIDUS	4041	H	PWB	7	WHO-CIDI-SF	WHO-CIDI-SF	55	56	US
Yeung and Breheny (2021)	452	C	LET	6	CES-D		45	67	NZ
Yeung et al. (2019)	352	H	LET	6	CES-D		15	68	NZ
Yeung et al. (2022)	380	C	LET	6	CES-D		50	66	NZ
Zhang et al. (2018)	468	H	PIL	6	DASS-21	DASS-21	58	19	CN

^aEighteen Latin American Spanish-speaking countries and Spain were represented.

^bPurpose scale also included one item from the Youth Purpose Survey.

The mean weighted effect size between purpose and depression was $r = -0.49$, [95% confidence interval, CIs: $-0.52, -0.45$], $p < 0.001$, indicating that across samples higher purpose was significantly associated with lower levels of depression. For purpose and anxiety the mean weighted effect size was $r = -0.36$, [95% CIs: $-0.40, -0.32$], $p < 0.001$, indicating that higher purpose was moderately associated with lower levels of anxiety. Forest plots showing effect sizes for depression studies and anxiety studies are shown in Figures 2 and 3, respectively.

Publication bias may have increased the chances of excluding smaller sampled studies with lower effect sizes due to a lack of publication. The funnel plot assesses the symmetry between effect size and standard error of the effect size (low standard error equating to larger sample studies shown higher in the plot). In the absence of bias roughly half of the studies would fall either side of the mean and if smaller studies (with reduced effects) were

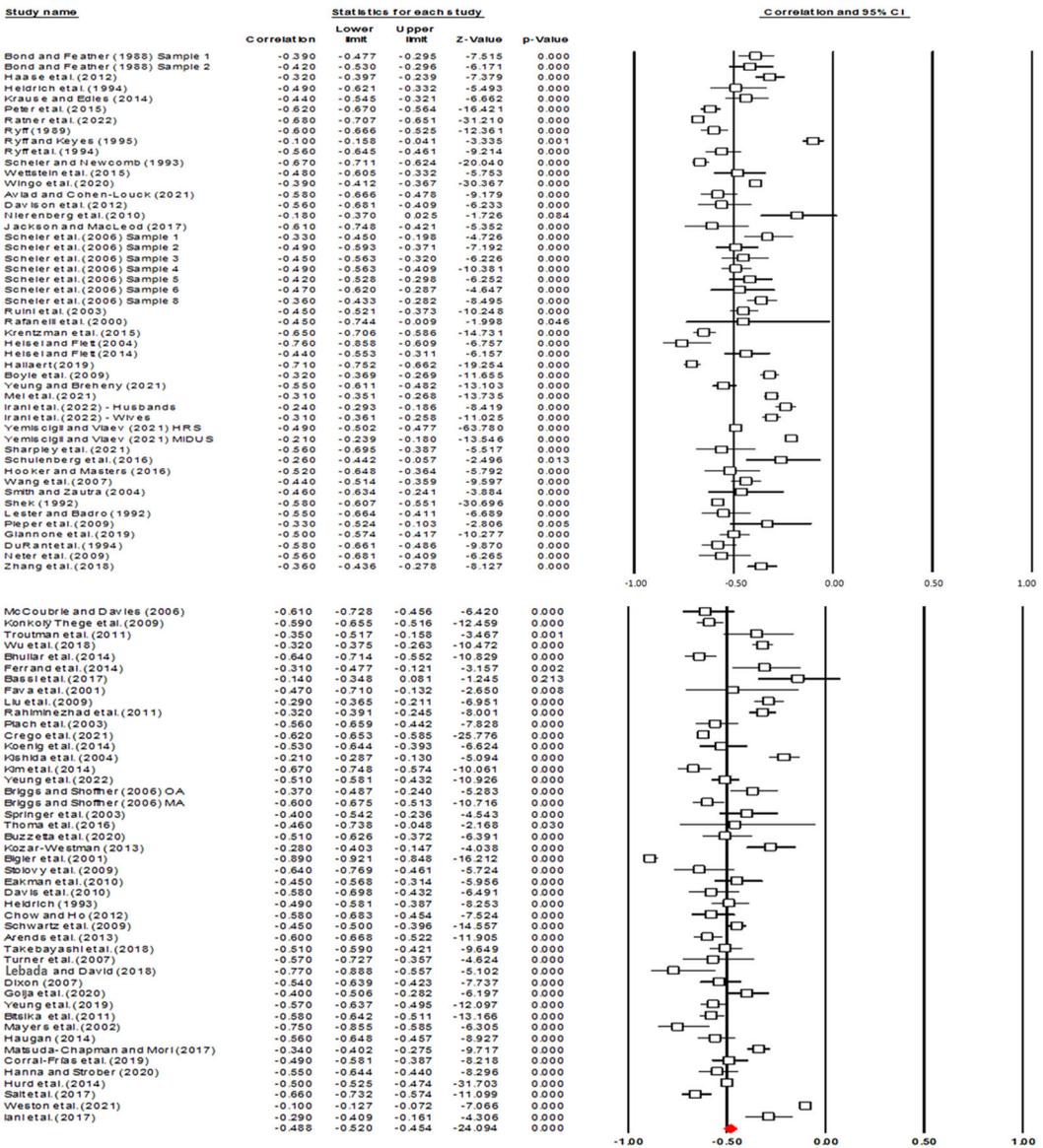


FIGURE 2 Forest plot for relationship between purpose in life and depression.

missing then toward the lower part of the plot there would be more studies toward the left than the right. The depression studies plot (Figure 4) shows slight asymmetry with some evidence of bias towards the lower end of the plot. Duval and Tweedie's trim and fill analysis found no evidence of publication bias and estimated zero missing studies. Rosenthal's fail-safe analysis indicated that 2488 missing depression studies would be required to reduce p to a nonsignificant level. For anxiety, the funnel plot showed good symmetry (Figure 5). Duval and Tweedie's trim and fill analysis found no evidence of publication bias and estimated zero missing studies. Rosenthal's fail-safe analysis indicated that 7352 missing anxiety studies would be required to reduce p to a nonsignificant level.

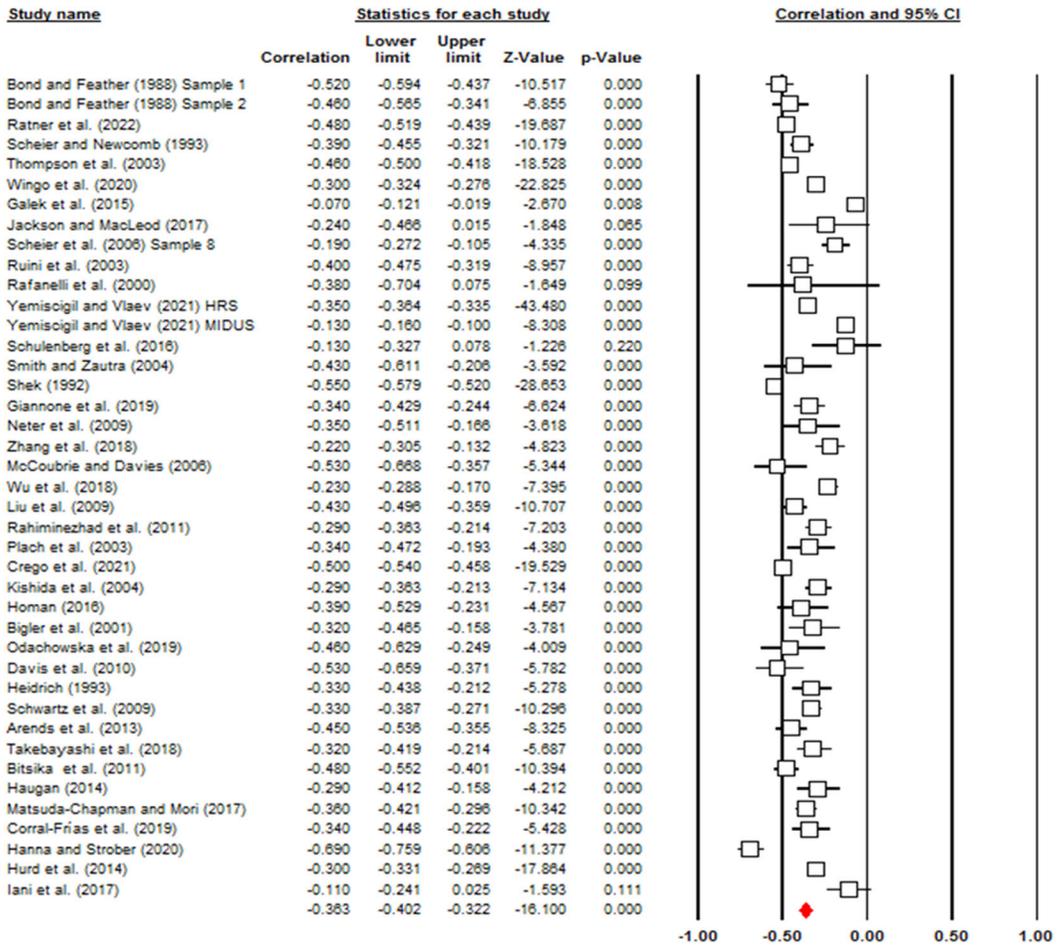


FIGURE 3 Forest plot for relationship between purpose in life and anxiety.

6.2 | Moderator analyses

Moderator analyses for categorical variables assessing whether mean effect sizes for certain subgroups were significantly different from one another are shown in Table 5 (depression) and Table 6 (anxiety). Moderation was assessed for sample type (clinical, not clinical, or mixed), purpose scale used, geographical region, and language spoken in the country of study (English vs. other). All analyses used the random effects model without pooling study variance components across subgroups. The relationship between greater purpose and depression was slightly larger for participants diagnosed with a physical or mental health condition (clinical), although the overall moderator analysis comparing clinical, healthy, and mixed samples was not significant. However, for purpose and anxiety the difference between clinical, $r = -0.49$, [95% CIs: $-0.52, -0.37$], and healthy samples, $r = -0.34$, [95% CIs: $-0.38, -0.29$], was significant, $Q(1) = 5.92$, $p = 0.015$. The one sample (Heidrich, 1993) categorized as mixed (mixed was not included in the moderator analysis as categories must have at least two samples) was changed to clinical. Results were significant when the sample was categorized as clinical ($p = 0.025$) or categorized as not clinical ($p = 0.008$).

A significant difference was found between the purpose scales used to assess purpose in studies of purpose and depression, $Q(3) = 9.15$, $p = 0.027$, with depression associated with purpose at $r = -0.55$ in studies using the Purpose in Life Scale and $r = -0.44$ in studies using the Psychological Well-being purpose subscale. The Life

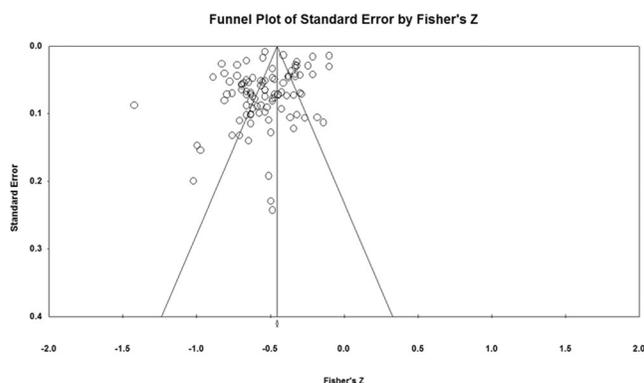


FIGURE 4 Funnel plot for studies measuring purpose in life and depression.

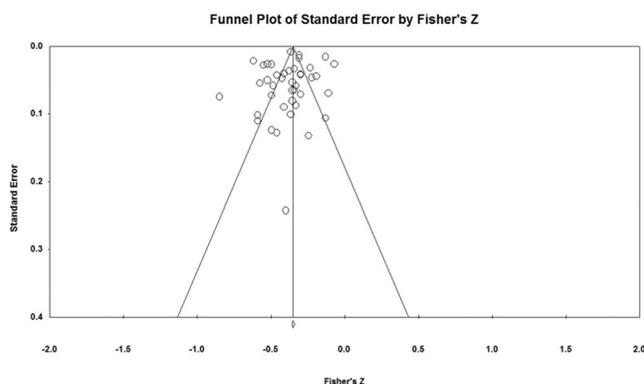


FIGURE 5 Funnel plot for studies measuring purpose in life and anxiety.

Engagement scale and scales marked as other showed weighted average correlations between these values. For purpose and anxiety, no significant differences were found between the four purpose scale types.

In assessing geographical region, effect sizes were largest across sample groups within Australia and New Zealand. For depression and purpose, effect sizes across all regions were not significantly different, however, for anxiety and purpose the markedly higher effect size ($k = 3$) for Australia and New Zealand contributed to an overall significant difference between regions, $Q(3) = 16.76$, $p = 0.001$. No significant differences were found for the language spoken.

Meta-regression analyses indicated that age of samples was not a significant moderator, with a coefficient of 0.001, 95% CI: [-0.001, 0.003], for depression and purpose and 0.001, 95% CI: [-0.002, 0.003] for anxiety and purpose. The percentage of females in samples was also not a significant moderator, with a coefficient of <0.001, 95% CI: [-0.002, 0.002], for depression and purpose and 0.001, 95% CI: [-0.004, 0.001] for anxiety and purpose.

7 | DISCUSSION

In the present meta-analysis, the purpose demonstrated significant negative associations with depression and anxiety across healthy and clinical populations. These results are consistent with the meta-analysis performed by Winger et al. (2016) which found similar negative correlations between meaning in life and distress ($r = -0.41$) and

TABLE 5 Categorical moderator results for purpose in life and depression.

Study characteristic	<i>r</i>	95% CIs	<i>p</i>
Type of sample, $Q(2) = 4.17, p = 0.124$			
clinical ($k = 27$)	-0.53	-0.57, -0.49	<0.001
healthy ($k = 64$)	-0.47	-0.51, -0.43	<0.001
mixed ($k = 4$)	-0.50	-0.58, -0.42	<0.001
Purpose Scale, $Q(3) = 9.15, p = 0.027$			
LET ($k = 12$)	-0.50	-0.57, -0.41	<0.001
Other ($k = 7$)	-0.47	-0.55, -0.39	<0.001
PIL ($k = 32$)	-0.55	-0.60, -0.50	<0.001
PWB ($k = 44$)	-0.44	-0.49, -0.39	<0.001
Region, $Q(3) = 2.81, p = 0.421$			
Americas ($k = 56$)	-0.49	-0.53, -0.44	<0.001
Asia and Middle East ($k = 13$)	-0.46	-0.54, -0.37	<0.001
Australia and New Zealand ($k = 9$)	-0.53	-0.58, -0.48	<0.001
Europe, United Kingdom, and Ireland ($k = 17$)	-0.49	-0.56, -0.42	<0.001
Language spoken, $Q(1) = 0.35, p = 0.555$			
English ($k = 66$)	-0.49	-0.53, -0.45	<0.001
Other ($k = 29$)	-0.47	-0.53, -0.42	<0.001

Note: Hurd et al. (2014) classified as psychological well-being purpose scale even though one item (of 8) was not part of the PWB scale.

Abbreviation: CI, confidence interval.

between sense of coherence and distress ($r = -0.59$). Investigating the relationships between psychological well-being and personality, Anglim et al. (2020) also found a meta-analytic correlation of -0.45 between purpose and neuroticism, possibly reflecting a strong base relationship between general negative states and purpose. With the consistent results found across purpose scales (in this study) and in the previous meta-analysis, psychological health can be linked to various components of meaning and purpose including goal-directed behavior, sense of coherence, values alignment to present activities, and a life view that encourages meaning.

Broader meaning-making models (Park, 2010) may provide one explanation for these results. Higher levels of purpose and lower levels of anxiety and depression may reflect proactive meaning-making efforts by individuals. In this model, faced with life events, people seek to maintain a sense of global meaning which encompasses a sense of meaning and purpose, purposeful goals, and a broader set of global beliefs. When life events create a discrepancy with global meaning, meaning-making efforts and strategies are evoked to reduce the discrepancy. Failed efforts to reduce this discrepancy may lead to persistent and potentially elevated distress. This model shares common ground with the search for meaning literature (Crumbaugh, 1977; Steger et al., 2006) which shows that merely searching for purpose and meaning is not enough to promote well-being, and may actually reflect an absence of well-being. In both models, it is meanings made (Park, 2010) or the presence of meaning (Steger et al., 2006) which leads to less distress and improved psychological well-being. This may also provide an explanation for the results shown in this study for clinical populations. For both anxiety and depression, the relationship to purpose was stronger (negatively) for clinical populations, with the difference reaching significance for anxiety. In these cases, individuals may have undergone stressful life events (leading to their clinical status), creating larger discrepancies with current global

TABLE 6 Categorical moderator results for purpose in life and anxiety.

Study characteristic	<i>r</i>	95% CIs	<i>p</i>
Type of Sample, $Q(1) = 5.92, p = 0.015$			
clinical ($k = 11$)	-0.49	-0.52, -0.37	<0.001
healthy ($k = 30$)	-0.34	-0.38, -0.29	<0.001
Purpose Scale, $Q(3) = 0.15, p = 0.986$			
LET ($k = 2$)	-0.35	-0.59, -0.04	=0.030
Other ($k = 4$)	-0.40	-0.63, -0.11	=0.009
PIL ($k = 13$)	-0.35	-0.43, -0.28	<0.001
PWB ($k = 22$)	-0.36	-0.41, -0.32	<0.001
Region, $Q(3) = 16.76, p = 0.001$			
Americas ($k = 21$)	-0.35	-0.41, -0.30	<0.001
Asia and Middle East ($k = 9$)	-0.34	-0.44, -0.29	<0.001
Australia and New Zealand ($k = 3$)	-0.49	-0.54, -0.44	<0.001
Europe, United Kingdom, and Ireland ($k = 8$)	-0.36	-0.45, -0.26	<0.001
Language spoken, $Q(1) = 0.08, p = 0.779$			
English ($k = 24$)	-0.37	-0.42, -0.32	<0.001
Other ($k = 17$)	-0.36	-0.40, -0.32	<0.001

Note: Hurd et al. (2014) classified as PWB purpose scale even though one item (of 8) was not part of the PWB scale. Heidrich (1993) sample type was mixed, but was changed to clinical.

Abbreviation: CI, confidence interval.

meaning. This shattering of global meaning, combined with unsuccessful meaning-making attempts may reflect greater levels of distress.

The definition of global goals in Park's (2010) meaning-making model closely resembles McKnight and Kashdan's (2009) concept of purpose as an umbrella concept driving specific domain-related hierarchical goals. Goal flexibility and adaptation span both models and may play a key role in achieving higher purpose and reducing psychopathology, especially in clinical populations. Arends et al. (2013) found a moderate correlation of 0.47 between purpose and goal adjustment, suggesting that those who are able to modify goals as new information and challenges arise are better placed to achieve end outcomes and a sense of purpose. Goal flexibility behavior may help explain the significant difference seen for clinical populations when assessing the relationship between purpose and anxiety. It may be that clinical populations experience more worry related to their condition which in turn leads to less flexible behavior and thinking. Arends et al. (2013) showed that anxiety and avoidance are strongly related, finding a negative correlation of -0.52 between measures of work and life participation and anxiety. Corral-Frías et al. (2019) supported this finding by showing that unique parts of anxiety not seen in depression (anxious arousal) are strongly inversely related to extraversion ($r = -0.50$). However, Arends et al. (2013) also found a negligible relationship ($r = -0.09$) between tenacious goal pursuit and anxiety, suggesting that anxiety may hamper participation but not necessarily the striving for goals. A related finding by Bitsika et al. (2011) showed that those undergraduates with clinical levels of anxiety had significantly lower purpose scores but significantly higher scores on the Seeking of Neotic Goals Scale (Crumbaugh, 1977). This supports the notion that anxiety does not stop attempts to set goals and strive for meaning, but seems to impact upon the successful achievement of purpose and related goals. Worrying may be at the heart of this "stuck in search" state. In their contrast avoidance model of worry, Newman and Llera (2011) found that those with Generalized Anxiety Disorder

used worry to avoid a negative emotional contrast (a shift from a positive state to a negative emotion). This heightened sensitivity to negative emotional contrasts may be preventing anxious individuals from adopting more effective nonworrisome strategies that enable the achievement of goals and purpose. A cognitive view of anxiety (Wells, 1999) holds that anxiety leads to biased detection of threat-related information and worrying drains attention, detracting from task performance. In examining anxiety and decision making Hartley and Phelps (2012) emphasized the difficulty anxious individuals have in disengaging attention from negative stimuli, including judging negative future outcomes to be more likely than positive ones.

7.1 | Differences between depression and anxiety

Clark and Watson's (1991) tripartite model of anxiety and depression provides possible insight into the stronger effect size found between purpose and depression compared to anxiety. In this model, depression but not anxiety is associated with low positive affect reflecting fatigue and languor states. This lack of energy and zest for life that characterizes this factor of depression would imply that purpose measures that included more items relating to this factor should show larger negative correlations with depression. This is supported in this meta-analysis with a significantly larger effect size (-0.55) for the Purpose in Life Scale. Item inspection shows that this scale includes more items directly relating to interest, excitement, and zest for life than other scales. In addition, depression scales more focused on positive affect should also show above (weighted) average effect sizes. Clark and Watson (1991) pointed to the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) as one such scale. Of the nine studies that used this scale the average correlation (-0.52) was larger than the overall pooled average (-0.49) with seven of the nine studies showing effect sizes of -0.56 or larger.

Tang et al. (2013) reported that global positive affect is strongly associated with self-reports of meaning in life even after controlling for related variables. Hicks and King (2007) provided a possible explanation for this phenomenon, suggesting that people use positive affect as a source of information when responding to questions regarding abstract qualities of life such as meaning and purpose. An alternative explanation builds on Fredrickson's (1998) Broaden and Build theory, with positive affect fostering a broader cognitive focus which may help people connect their life and activities to a larger system of meaning and purpose. In a study of positive affect, global focus, and meaning in life with undergraduate students the relation between positive affect and meaning ($r = 0.31$) was not explained by cognitive broadening (Hicks & King, 2007). Those who had a high global focus were less influenced by positive affect with regard to their sense of purpose. Those with low global focus showed greater increases in meaning as positive affect increased. This same interaction pattern was found in another study by Hicks and King (2008). In this study, those high in religious commitment were less likely to show the robust relationship between positive affect and meaning in life. Thus, positive affect is potentially used as a cue for purpose, but less so if other more salient cues are available.

Depression and low positive affect are also strongly related to approach deficits (Trew, 2011), including decreased reward sensitivity and continued pursuit of less valued goals. However, recent work (Trew, 2011) is recognizing the large role that avoidance plays in both anxiety and depression, with the relationship between avoidance and depression present after controlling for comorbid anxiety. At this point in time, the literature highlights that the relationship between purpose and psychopathology is likely influenced by both approach and avoidance tendencies including reward sensitivity, behavioral activation, negative information processing, and the ability to flexibly adapt and discontinue goals when strategies are not working effectively.

7.2 | Moderator effects

Aside from the previously discussed significant elevated association between purpose-anxiety for clinical populations, and a difference based on purpose scale for purpose-depression which supported Hypothesis 3, the

only other significant result involved a regional difference for purpose-anxiety, largely due to a higher association found in three samples for Australia and New Zealand. Given the limited size of this sample, this result should be interpreted with caution.

Age, gender, and language spoken had no significant impact on the relationship between purpose and depression/anxiety. Hypothesis 2 was not supported with effect sizes for purpose and depression showing consistency across all age groups. Given bidirectional possibilities, this may show the effectiveness of purpose to protect against depression at all ages, or it may show the consistent difficulties that depression poses across the lifespan.

7.3 | Limitations and future research

The meta-analysis focused on associations, thus no causal conclusions can be drawn. It may be that greater purpose is protective and results in lower levels of depression and anxiety. It may also be that incapacitating cognitive and behavioral aspects of depression and anxiety result in lower purpose. The connections between purpose and depression and anxiety may be bidirectional or cyclical. For example, individuals with a greater sense of purpose may be less likely to develop mental health problems. A foundation of good mental health may then strengthen individuals' ability to engage with life, develop a sense of purpose and act on that sense of purpose, further bolstering mental health.

As the current meta-analysis is based on self-report measures of purpose, anxiety and depression, some care is required when generalizing the findings to the latent constructs. In general, participants vary in the extent to which social desirability influences their responses and items and scales differ in their susceptibility to these influences. As discussed above, there is experimental evidence that people use various cues when evaluating their purpose, raising questions as to the true extent of experienced purpose in life assessed by these scales. It cannot be claimed with certainty that those reporting higher purpose do indeed lead lives that would objectively be defined as purposeful based on the multidimensional aspect of the construct.

Although this meta-analysis included a large number of studies, there were over 100 potential studies excluded as contacted authors did not provide zero-order correlations. This is a significant number that may have had a material impact on the results. Another concern may be the inadequate power of moderator analysis with Hempel et al. (2013) suggesting upward of 200 samples to achieve 80% power when heterogeneity is high (>92%). This could mean that there were genuine age, gender, scale, language, and regional differences that went undetected. Additional moderator analysis should be performed that addresses study quality and also separates out clinical conditions into various subgroups. The keyword search criteria focused on "purpose in life," and although several articles were returned with "meaning in life" in the title or abstract, explicit use of this term, together with keywords targeting particular purpose scales could have led to more studies.

Some caution is in order regarding the generalizability of the findings as the majority of participants across studies were female and studies did not represent all world populations or individual situations or challenges that might influence the connections between purpose in life and depression and anxiety.

Important research questions remain regarding the causal processes that relate purpose to anxiety and depression. More experimental research is needed to explore these questions. One focus of such future research might be further investigation of a possible primary role for depression along with general distress in the development of anxiety.

Experimental treatment intervention research using various approaches to helping individuals craft purpose in life might identify the most effective cognitive and behavioral strategies that facilitate the development of purpose and either prevent or decrease symptoms of depression and anxiety. Such research might also focus on differential effects on depression and anxiety to build treatment protocols tailored to assisting individuals high in either depression or anxiety.

8 | CONCLUSION

The current research supports the role that purpose may play in protecting people against common mental health disorders. This is consistent with the idea that positive life functioning is more than just the absence of ill health and extends to proactive aspects of well-being that include interacting with one's environment in ways that align to interests, values, strengths, and feelings of meaningfulness. Yet purpose is no guarantee of good health. Several studies showed that people reporting high purpose can still experience clinical levels of anxiety or depression (Bitsika et al., 2011). Perhaps the best way to view purpose is to conclude that purpose will facilitate approach-oriented behavior, foster adaptability to navigate challenges, and help individuals feel a sense that their lives have meaning, coherence, and a consistent thread of direction. Although causality cannot be determined, these features are associated with improved mental health and well-being.

In summary, this meta-analysis has provided a comprehensive analysis of the relations between purpose in life and common mental health disorders. The analysis spans over 50 years of measuring purpose and meaning in life across clinical and healthy populations of a range of ages. The findings reported here expand understanding of the role that purpose in life plays in pathways to positive functioning.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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REFERENCES

- Addington, D., Addington, J., & Schissel, B. (1990). A depression rating scale for schizophrenics. *Schizophrenia Research*, 3(4), 247–251. [https://doi.org/10.1016/0920-9964\(90\)90005-r](https://doi.org/10.1016/0920-9964(90)90005-r)
- Aftab, A., Lee, E. E., Klaus, F., Daly, R., Wu, T. C., Tu, X., Huege, S., & Jeste, D. V. (2019). Meaning in life and its relationship with physical, mental, and cognitive functioning: A study of 1,042 community-dwelling adults across the lifespan. *The Journal of Clinical Psychiatry*, 81(1), 19m13064. <https://doi.org/10.4088/JCP.19m13064>
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, 30(2), 217–237. <https://doi.org/10.1016/j.cpr.2009.11.004>
- Anglim, J., Horwood, S., Smillie, L. D., Marrero, R. J., & Wood, J. K. (2020). Predicting psychological and subjective well-being from personality: A meta-analysis. *Psychological Bulletin*, 146(4), 279–323. <https://doi.org/10.1037/bul0000226>
- Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*. Jossey-Bass.
- *Arends, R. Y., Bode, C., Taal, E., & Van de Laar, M. A. F. J. (2013). The role of goal management for successful adaptation to arthritis. *Patient Education and Counseling*, 93(1), 130–138. <https://doi.org/10.1016/j.pec.2013.04.022>
- *Aviad, Y., & Cohen-Louck, K. (2021). Locus of control and purpose in life as protective factors against the risk for suicide in older adults. *Smith College Studies in Social Work*, 91(4), 295–308. <https://doi.org/10.1080/00377317.2021.1968323>
- Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. *Dialogues in clinical neuroscience*, 17(3), 327–335. <https://doi.org/10.31887/DCNS.2015.17.3/bbandelow>
- *Bassi, M., Delle Fave, A., Cetin, I., Melchiorri, E., Pozzo, M., Vescovelli, F., & Ruini, C. (2017). Psychological well-being and depression from pregnancy to postpartum among primiparous and multiparous women. *Journal of Reproductive and Infant Psychology*, 35(2), 183–195. <https://doi.org/10.1080/02646838.2017.1290222>
- Battista, J., & Almond, R. (1973). The development of meaning in life. *Psychiatry*, 36(4), 409–427. <https://doi.org/10.1080/00332747.1973.11023774>
- Baumeister, R. F. (1992). *Meanings of life*. Guilford Press.

- Beck, A. T. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 561–571. <https://doi.org/10.1001/archpsyc.1961.01710120031004>
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893–897. <https://doi.org/10.1037/0022-006X.56.6.893>
- Best, J. R., Gan, D. R. Y., Wister, A. V., & Cosco, T. D. (2021). Age and sex trends in depressive symptoms across middle and older adulthood: Comparison of the Canadian longitudinal study on aging to American and European cohorts. *Journal of Affective Disorders*, 295, 1169–1176. <https://doi.org/10.1016/j.jad.2021.08.109>
- *Bhullar, N., Hine, D. W., & Phillips, W. J. (2014). Profiles of psychological well-being in a sample of Australian university students. *International Journal of Psychology*, 49(4), 288–294. <https://doi.org/10.1002/ijop.12022>
- *Bigler, M., Neimeyer, G. J., & Brown, E. (2001). The divided self revisited: Effects of self-concept clarity and self-concept differentiation on psychological adjustment. *Journal of Social and Clinical Psychology*, 20(3), 396–415. <https://doi.org/10.1521/jscp.20.3.396.22302>
- *Bitsika, V., Sharpley, C. F., Aroutzidis, A. S., & Smith, D. (2011). The impact of students' 'internally' versus 'externally' oriented coping strategies upon anxiety and depression: Implications for counselling processes. *Asia Pacific Journal of Counselling and Psychotherapy*, 2(1), 71–81. <https://doi.org/10.1080/21507686.2010.539240>
- *Bond, M. J., & Feather, N. T. (1988). Some correlates of structure and purpose in the use of time. *Journal of Personality and Social Psychology*, 55(2), 321–329. <https://doi.org/10.1037/0022-3514.55.2.321>
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2014). Comprehensive meta-analysis (Version 3.3.070) [computer software]. Biostat. <https://www.meta-analysis.com/>
- *Boyle, P. A., Barnes, L. L., Buchman, A. S., & Bennett, D. A. (2009). Purpose in life is associated with mortality among community-dwelling older persons. *Psychosomatic Medicine*, 71(5), 574–579. <https://doi.org/10.1097/PSY.0b013e3181a5a7c0>
- *Briggs, M. K., & Shoffner, M. F. (2006). Spiritual wellness and depression: Testing a theoretical model with older adolescents and midlife adults. *Counseling and Values*, 51(1), 5–20. <https://doi.org/10.1002/j.2161-007X.2006.tb00062.x>
- *Buzzetta, M. E., Lenz, J. G., Hayden, S. C. W., & Osborn, D. S. (2020). Student veterans: Meaning in life, negative career thoughts, and depression. *The Career Development Quarterly*, 68(4), 361–373. <https://doi.org/10.1002/cdq.12242>
- *Chow, E. O. W., & Ho, H. C. Y. (2012). The relationship between psychological resources, social resources, and depression: Results from older spousal caregivers in Hong Kong. *Aging & Mental Health*, 16(8), 1016–1027. <https://doi.org/10.1080/13607863.2012.692769>
- Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, 100(3), 316–336. <https://doi.org/10.1037/0021-843X.100.3.316>
- Clarke, P. J., Marshall, V. W., Ryff, C. D., & Rosenthal, C. J. (2000). Well being in Canadian seniors: Findings from the Canadian study of health and aging. *Canadian Journal on Aging/La Revue canadienne du vieillissement*, 19(2), 139–159. <https://doi.org/10.1017/S0714980800013982>
- 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>
- *Corral-Frías, N. S., Velardez Soto, S. N., Frías-Armenta, M., Corona-Espinosa, A., & Watson, D. (2019). Concurrent validity and reliability of two short forms of the mood and anxiety symptom questionnaire in a student sample from northwest Mexico. *Journal of Psychopathology and Behavioral Assessment*, 41(2), 304–316. <https://doi.org/10.1007/s10862-019-09738-x>
- Costello, C. G., & Comrey, A. L. (1967). Scales for measuring depression and anxiety. *The Journal of Psychology*, 66(2), 303–313. <https://doi.org/10.1080/00223980.1967.10544910>
- COVID-19 Mental Disorders Collaborators. (2021). Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *The Lancet*, 398(10312), 1700–1712.
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. development of the 10-item Edinburgh postnatal depression scale. *British Journal of Psychiatry*, 150, 782–786. <https://doi.org/10.1192/bjp.150.6.782>
- *Crego, A., Yela, J. R., Gómez-Martínez, M. Á., Riesco-Matias, P., & Petisco-Rodríguez, C. (2021). Relationships between mindfulness, purpose in life, happiness, anxiety, and depression: Testing a mediation model in a sample of women. *International Journal of Environmental Research and Public Health*, 18(3), 925. <https://doi.org/10.3390/ijerph18030925>
- Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological Science*, 16(11), 846–851. <https://doi.org/10.1111/j.1467-9280.2005.01624.x>
- Crumbaugh, J. C. (1968). Cross-validation of Purpose-In-Life test based on Frankl's concepts. *Journal of Individual Psychology*, 24(1), 74–81.

- Crumbaugh, J. C. (1977). The seeking of noetic goals test (SONG): A complementary scale to the purpose in life test (PIL). *Journal of Clinical Psychology*, 33(3), 900–907. [https://doi.org/10.1002/1097-4679\(197707\)33:3<900::AID-JCLP2270330362>3.0.CO;2-8](https://doi.org/10.1002/1097-4679(197707)33:3<900::AID-JCLP2270330362>3.0.CO;2-8)
- Crumbaugh, J. C., & Maholick, L. T. (1964). An experimental study in existentialism: The psychometric approach to frankl's concept of noogenic neurosis. *Journal of Clinical Psychology*, 20(2), 200–207. [https://doi.org/10.1002/1097-4679\(196404\)20:2<200::AID-JCLP2270200203>3.0.CO;2-U](https://doi.org/10.1002/1097-4679(196404)20:2<200::AID-JCLP2270200203>3.0.CO;2-U)
- Cuijpers, P., Beekman, A. T. F., & Reynolds, 3rd, C. F. (2012). Preventing depression: A global priority. *Journal of the American Medical Association*, 307(10), 1033–1034. <https://doi.org/10.1001/jama.2012.271>
- *Davis, M., Ventura, J. L., Wieners, M., Covington, S. N., Vanderhoof, V. H., Ryan, M. E., Koziol, D. E., Papat, V. B., & Nelson, L. M. (2010). The psychosocial transition associated with spontaneous 46,XX primary ovarian insufficiency: Illness uncertainty, stigma, goal flexibility, and purpose in life as factors in emotional health. *Fertility and Sterility*, 93(7), 2321–2329. <https://doi.org/10.1016/j.fertnstert.2008.12.122>
- *Davison, T. E., McCabe, M. P., Knight, T., & Mellor, D. (2012). Biopsychosocial factors related to depression in aged care residents. *Journal of Affective Disorders*, 142(1–3), 290–296. <https://doi.org/10.1016/j.jad.2012.05.019>
- Derogatis, L. R., & Melisaratos, N. (1983). The brief symptom inventory: An introductory report. *Psychological Medicine*, 13(3), 595–605. <https://doi.org/10.1017/S0033291700048017>
- *Dixon, A. L. (2007). Mattering in the later years: Older adults' experiences of mattering to others, purpose in life, depression, and wellness. *Adultspan Journal*, 6(2), 83–95. <https://doi.org/10.1002/j.2161-0029.2007.tb00034.x>
- Du, H., Li, X., Chi, P., Zhao, J., & Zhao, G. (2017). Meaning in life, resilience, and psychological well-being among children affected by parental HIV. *AIDS Care*, 29(11), 1410–1416. <https://doi.org/10.1080/09540121.2017.1307923>
- *DuRant, R. H., Cadenhead, C., Pendergrast, R. A., Slavens, G., & Linder, C. W. (1994). Factors associated with the use of violence among urban black adolescents. *American Journal of Public Health*, 84(4), 612–617. <https://doi.org/10.2105/AJPH.84.4.612>
- Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics*, 56, 455–463.
- *Eakman, A. M., Carlson, M. E., & Clark, F. A. (2010). The meaningful activity participation assessment: A measure of engagement in personally valued activities. *International Journal of Aging & Human Development*, 70(4), 299–317. <https://doi.org/10.2190/AG.70.4.b>
- Ellison, C. W. (1983). Spiritual well-being: Conceptualization and measurement. *Journal of Psychology and Theology*, 11(4), 330–338. <https://doi.org/10.1177/009164718301100406>
- *Fava, G. A., Rafanelli, C., Ottolini, F., Ruini, C., Cazzaro, M., & Grandi, S. (2001). Psychological well-being and residual symptoms in remitted patients with panic disorder and agoraphobia. *Journal of Affective Disorders*, 65(2), 185–190. [https://doi.org/10.1016/s0165-0327\(00\)00267-6](https://doi.org/10.1016/s0165-0327(00)00267-6)
- *Ferrand, C., Martinent, G., & Durmaz, N. (2014). Psychological need satisfaction and well-being in adults aged 80 years and older living in residential homes: Using a self-determination theory perspective. *Journal of Aging Studies*, 30, 104–111. <https://doi.org/10.1016/j.jaging.2014.04.004>
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (1997). *Structured clinical interview for DSM-IV Axis I disorders (SCID-1), clinical version: User's guide*. American Psychiatric Press.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2(3), 300–319. <https://doi.org/10.1037/1089-2680.2.3.300>
- *Galek, K., Flannelly, K. J., Ellison, C. G., Siltan, N. R., & Jankowski, K. R. B. (2015). Religion, meaning and purpose, and mental health. *Psychology of Religion and Spirituality*, 7(1), 1–12. <https://doi.org/10.1037/a0037887>
- Garfield, C. A. (1973). A psychometric and clinical investigation of frankl's concept of existential vacuum and of anomia. *Psychiatry*, 36(4), 396–408. <https://doi.org/10.1080/00332747.1973.11023773>
- *Giannone, D. A., Kaplin, D., & Francis, L. J. (2019). Exploring two approaches to an existential function of religiosity in mental health. *Mental Health, Religion & Culture*, 22(1), 56–72. <https://doi.org/10.1080/13674676.2019.1592136>
- *Golja, K., Daugherty, A. M., & Kavcic, V. (2020). Cognitive reserve and depression predict subjective reports of successful aging. *Archives of Gerontology and Geriatrics*, 90, Article 104137. <https://doi.org/10.1016/j.archger.2020.104137>
- Grossbaum, M. F., & Bates, G. W. (2002). Correlates of psychological well-being at midlife: The role of generativity, agency and communion, and narrative themes. *International Journal of Behavioral Development*, 26(2), 120–127. <https://doi.org/10.1080/01650250042000654>
- Guidi, J., Fava, G. A., Bech, P., & Paykel, E. (2011). The clinical interview for depression: A comprehensive review of studies and clinimetric properties. *Psychotherapy and Psychosomatics*, 80(1), 10–27. <https://doi.org/10.1159/000317532>
- *Haase, C. M., Heckhausen, J., & Silbereisen, R. K. (2012). The interplay of occupational motivation and well-being during the transition from university to work. *Developmental Psychology*, 48(6), 1739–1751. <https://doi.org/10.1037/a0026641>

- Haase, C. M., Singer, T., Silbereisen, R. K., Heckhausen, J., & Wrosch, C. (2021). Well-being as a resource for goal reengagement: Evidence from two longitudinal studies. *Motivation Science*, 7(1), 21–31. <https://doi.org/10.1037/mot0000199>
- *Hallaert, J. M. (2019). Flow, creativity, and suicide risk in college art majors. *Creativity Research Journal*, 31(3), 335–341. <https://doi.org/10.1080/10400419.2019.1641784>
- *Hanna, M., & Strober, L. B. (2020). Anxiety and depression in multiple sclerosis (MS): Antecedents, consequences, and differential impact on well-being and quality of life. *Multiple Sclerosis and Related Disorders*, 44, Article 102261. <https://doi.org/10.1016/j.msard.2020.102261>
- Hartley, C. A., & Phelps, E. A. (2012). Anxiety and decision-making. *Biological Psychiatry*, 72(2), 113–118. <https://doi.org/10.1016/j.biopsych.2011.12.027>
- *Haugan, G. (2014). Meaning-in-life in nursing-home patients: A correlate with physical and emotional symptoms. *Journal of Clinical Nursing*, 23(7–8), 1030–1043. <https://doi.org/10.1111/jocn.12282>
- Hedges, L. V., & Vevea, J. L. (1998). Fixed- and random-effects models in meta-analysis. *Psychological Methods*, 3, 486–504.
- *Heidrich, S. M. (1993). The relationship between physical health and psychological well-being in elderly women: A developmental perspective. *Research in Nursing & Health*, 16(2), 123–130. <https://doi.org/10.1002/nur.4770160207>
- *Heidrich, S. M., Forsthoef, C. A., & Ward, S. E. (1994). Psychological adjustment in adults with cancer: The self as mediator. *Health Psychology*, 13(4), 346–353. <https://doi.org/10.1037//0278-6133.13.4.346>
- *Heisel, M. J., & Flett, G. L. (2004). Purpose in life, satisfaction with life, and suicide ideation in a clinical sample. *Journal of psychopathology and behavioral assessment*, 26(2), 127–135. <https://doi.org/10.1023/B:JOBA.0000013660.22413.e0>
- *Heisel, M. J., & Flett, G. L. (2014). Do meaning in life and purpose in life protect against suicide ideation among community-residing older adults? In A. Batthyany & P. Russo-Netzer (Eds.), *Meaning in positive and existential psychology* (pp. 303–324). Springer Science + Business Media. https://doi.org/10.1007/978-1-4939-0308-5_18
- Hempel, S., Miles, J. N., Booth, M. J., Wang, Z., Morton, S. C., & Shekelle, P. G. (2013). Risk of bias: A simulation study of power to detect study-level moderator effects in meta-analysis. *Systematic Reviews*, 2, 107. <https://doi.org/10.1186/2046-4053-2-107>
- Hicks, J. A., & King, L. A. (2007). Meaning in life and seeing the big picture: Positive affect and global focus. *Cognition & emotion*, 21(7), 1577–1584. <https://doi.org/10.1080/02699930701347304>
- Hicks, J. A., & King, L. A. (2008). Religious commitment and positive mood as information about meaning in life. *Journal of Research in Personality*, 42(1), 43–57. <https://doi.org/10.1016/j.jrp.2007.04.003>
- *Homan, K. J. (2018). Secure attachment and eudaimonic well-being in late adulthood: The mediating role of self-compassion. *Aging & Mental Health*, 22(3), 363–370. <https://doi.org/10.1080/13607863.2016.1254597>
- *Hooker, S. A., & Masters, K. S. (2016). Purpose in life is associated with physical activity measured by accelerometer. *Journal of Health Psychology*, 21(6), 962–971. <https://doi.org/10.1177/1359105314542822>
- Howden, J. W. (1992). *Development and psychometric characteristics of the spirituality assessment scale* [Doctoral dissertation, Texas Woman's University]. Abstracts International, 54(1–B), 166.
- Huedo-Medina, T. B., Sánchez-Meca, J., Marín-Martínez, F., & Botella, J. (2006). Assessing heterogeneity in meta-analysis: Q statistic or I^2 index? *Psychological Methods*, 11(2), 193–206. <https://doi.org/10.1037/1082-989X.11.2.193>
- *Hurd, N. M., Stoddard, S. A., Bauermeister, J. A., & Zimmerman, M. A. (2014). Natural mentors, mental health, and substance use: Exploring pathways via coping and purpose. *American Journal of Orthopsychiatry*, 84(2), 190–200. <https://doi.org/10.1037/h0099361>
- *Iani, L., Lauriola, M., Cafaro, V., & Didonna, F. (2017). Dimensions of mindfulness and their relations with psychological well-being and neuroticism. *Mindfulness*, 8(3), 664–676. <https://doi.org/10.1007/s12671-016-0645-2>
- *Irani, E., Park, S., & Hickman, R. L. (2022). Negative marital interaction, purpose in life, and depressive symptoms among middle-aged and older couples: Evidence from the health and retirement study. *Aging & Mental Health*, 26(4), 860–869. <https://doi.org/10.1080/13607863.2021.1904831>
- Ishida, R., & Okada, M. (2006). Effects of a firm purpose in life on anxiety and sympathetic nervous activity caused by emotional stress: Assessment by psycho-physiological method. *Stress and Health*, 22(4), 275–281. <https://doi.org/10.1002/smi.1095>
- *Jackson, H., & MacLeod, A. K. (2017). Well-being in chronic fatigue syndrome: Relationship to symptoms and psychological distress. *Clinical psychology & psychotherapy*, 24(4), 859–869. <https://doi.org/10.1002/cpp.2051>
- Johnson, J. A. (2014). Measuring thirty facets of the five factor model with a 120-item public domain inventory: Development of the IPIP-NEO-120. *Journal of Research in Personality*, 51, 78–89. <https://doi.org/10.1016/j.jrp.2014.05.003>
- Joireman, J., & Kuhlman, D. M. (2004). The Zuckerman-Kuhlman Personality Questionnaire: Origin, development, and validity of a measure to assess an alternative five-factor model of personality. In R. M. Stelmack (Ed.), *On the psychobiology of personality: Essays in honor of Marvin Zuckerman* (pp. 49–64). Elsevier Science. <https://doi.org/10.1016/B978-008044209-9/50005-1>

- Kessler, R. C., Andrews, G., Mroczek, D., Ustun, B., & Wittchen, H.-U. (1998). The world health organization composite international diagnostic interview short-form (CIDI-SF). *International Journal of Methods in Psychiatric Research*, 7(4), 171–185. <https://doi.org/10.1002/mpr.47>
- 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/10.1177/089011712111038545>
- *Kim, S. S., Hayward, R. D., & Reed, P. G. (2014). Self-transcendence, spiritual perspective, and sense of purpose in family caregiving relationships: A mediated model of depression symptoms in Korean older adults. *Aging & Mental Health*, 18(7), 905–913. <https://doi.org/10.1080/13607863.2014.899968>
- *Kitamura, T., Kishida, Y., Gatayama, R., Matsuoka, T., Miura, S., & Yamabe, K. (2004). Ryff's psychological well-being inventory: Factorial structure and life history correlates among Japanese university students. *Psychological Reports*, 94(1), 83–103. <https://doi.org/10.2466/pr0.94.1.83-103>
- *Koenig, H. G., Berk, L. S., Daher, N. S., Pearce, M. J., Bellinger, D. L., Robins, C. J., Nelson, B., Shaw, S. F., Cohen, H. J., & King, M. B. (2014). Religious involvement is associated with greater purpose, optimism, generosity and gratitude in persons with major depression and chronic medical illness. *Journal of Psychosomatic Research*, 77(2), 135–143. <https://doi.org/10.1016/j.jpsychores.2014.05.002>
- Koenig, H. G., Blumenthal, J., & Moore, K. (1995). New version of brief depression scale. *Journal of the American Geriatrics Society*, 43(12), 1447. <https://doi.org/10.1111/j.1532-5415.1995.tb06636.x>
- *Konkoly Thege, B., Bachner, Y. G., Martos, T., & Kushnir, T. (2009). Meaning in life: Does it play a role in smoking? *Substance Use & Misuse*, 44(11), 1566–1577. <https://doi.org/10.1080/10826080802495096>
- Kovacs, M. (1985). The children's depression, inventory (CDI). *Psychopharmacology Bulletin*, 21(4), 995–998.
- *Kozar-Westman, M., Troutman-Jordan, M., & Nies, M. A. (2013). Successful aging among assisted living community older adults. *Journal of Nursing Scholarship*, 45(3), 238–246. <https://doi.org/10.1111/jnu.12027>
- *Krause, J. S., & Edles, P. A. (2014). Injury perceptions, hope for recovery, and psychological status after spinal cord injury. *Rehabilitation Psychology*, 59(2), 176–182. <https://doi.org/10.1037/a0035778>
- *Krentzman, A. R., Cranford, J. A., & Robinson, E. A. R. (2015). Long-term increases in purpose in life are associated with remission from alcohol dependence. *Alcoholism Treatment Quarterly*, 33(3), 252–269. <https://doi.org/10.1080/07347324.2015.1050924>
- Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals*, 32(9), 509–515. <https://doi.org/10.3928/0048-5713-20020901-06>
- *Lebădă, D., & David, L. T. (2018). A correlation between quality of life and depression in elderly persons. *Bulletin of the Transilvania University of Braşov, Series VII: Social Sciences and Law*, 11(1), 33–38.
- *Lester, D., & Badro, S. (1992). Depression, suicidal preoccupation and purpose in life in a subclinical population. *Personality and Individual Differences*, 13(1), 75–76. [https://doi.org/10.1016/0191-8869\(92\)90221-A](https://doi.org/10.1016/0191-8869(92)90221-A)
- *Liu, Q., Shono, M., & Kitamura, T. (2009). Psychological well-being, depression, and anxiety in Japanese university students. *Depression and Anxiety*, 26(8), E99–E105. <https://doi.org/10.1002/da.20455>
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy*, 33(3), 335–343. [https://doi.org/10.1016/0005-7967\(94\)00075-u](https://doi.org/10.1016/0005-7967(94)00075-u)
- *Matsuda-Chapman, Y., & Mori, K. (2017). Well-being of Japanese women in midlife: An investigation of work engagement, purpose in life, and psychosomatic health. *Journal of Health Psychology Research*, 30, 143–152. <https://doi.org/10.11560/jhpr.160905053>
- *Mayers, A. M., Khoo, S. T., & Svartberg, M. (2002). The existential loneliness questionnaire: Background, development, and preliminary findings. *Journal of Clinical Psychology*, 58(9), 1183–1193. <https://doi.org/10.1002/jclp.10038>
- *McCoubrie, R. C., & Davies, A. N. (2006). Is there a correlation between spirituality and anxiety and depression in patients with advanced cancer? *Supportive Care in Cancer*, 14(4), 379–385. <https://doi.org/10.1007/s00520-005-0892-6>
- McKnight, P. E., & Kashdan, T. B. (2009). Purpose in life as a system that creates and sustains health and well-being: An integrative, testable theory. *Review of General Psychology*, 13(3), 242–251. <https://doi.org/10.1037/a0017152>
- *Mei, Z., Lori, A., Vattathil, S. M., Boyle, P. A., Bradley, B., Jin, P., Bennett, D. A., Wingo, T. S., & Wingo, A. P. (2021). Important correlates of purpose in life identified through a machine learning approach. *The American Journal of Geriatric Psychiatry*, 29(5), 488–498. <https://doi.org/10.1016/j.jagp.2020.09.018>
- Mellinder, G. D., Balter, M. B., Uhlenhuth, E. H., Cisin, I. H., Manheimer, D. I., & Rickels, K. (1983). Evaluating a household survey measure of psychic distress. *Psychological Medicine*, 13(3), 607–622. <https://doi.org/10.1017/S0033291700048029>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G., PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>

- Moore, K. A., & Gee, D. L. (2003). The reliability, validity, discriminant and predictive properties of the social phobia inventory (SoPhi). *Anxiety, Stress & Coping*, 16, 109–117. <https://doi.org/10.1080/1061580021000057068>
- *Neter, E., Litvak, A., & Miller, A. (2009). Goal disengagement and goal re-engagement among multiple sclerosis patients: Relationship to well-being and illness representation. *Psychology & Health*, 24(2), 175–186. <https://doi.org/10.1080/08870440701668665>
- Newman, M. G., & Llera, S. J. (2011). A novel theory of experiential avoidance in generalized anxiety disorder: A review and synthesis of research supporting a contrast avoidance model of worry. *Clinical Psychology Review*, 31(3), 371–382. <https://doi.org/10.1016/j.cpr.2011.01.008>
- Newman, M. G., Zuellig, A. R., Kachin, K. E., Constantino, M. J., Przeworski, A., Erickson, T., & Cashman-McGrath, L. (2002). Preliminary reliability and validity of the generalized anxiety disorder Questionnaire-IV: A revised self-report diagnostic measure of generalized anxiety disorder. *Behavior Therapy*, 33(2), 215–233. [https://doi.org/10.1016/S0005-7894\(02\)80026-0](https://doi.org/10.1016/S0005-7894(02)80026-0)
- *Nierenberg, A. A., Rapaport, M. H., Schettler, P. J., Howland, R. H., Smith, J. A., Edwards, D., Schneider, T., & Mischoulon, D. (2010). Deficits in psychological well-being and quality-of-life in minor depression: Implications for DSM-V. *CNS Neuroscience & Therapeutics*, 16(4), 208–216. <https://doi.org/10.1111/j.1755-5949.2009.00108.x>
- Nyenhuis, D. L., & Luchetta, T. (1998). The development, standardization, and initial validation of the Chicago multiscale depression inventory. *Journal of Personality Assessment*, 70(2), 386–401. https://doi.org/10.1207/s15327752jpa7002_14
- *Odachowska, E., Trzebiński, J., & Prusik, M. (2019). The impact of self-narrative framing of a close person's sudden death on coping with the meaning in life. *Journal of Loss and Trauma*, 24(4), 293–321. <https://doi.org/10.1080/15325024.2019.1565145>
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136(2), 257–301. <https://doi.org/10.1037/a0018301>
- Paunonen, S. V., & Jackson, D. N. (1996). The Jackson personality inventory and the five-factor model of personality. *Journal of Research in Personality*, 30(1), 42–59. <https://doi.org/10.1006/jrpe.1996.0003>
- *Peter, C., Müller, R., Post, M. W. M., van Leeuwen, C. M. C., Werner, C. S., Geyh, S., & Swiss Spinal Cord Injury Cohort Study Group. (2015). Depression in spinal cord injury: Assessing the role of psychological resources. *Rehabilitation Psychology*, 60(1), 67–80. <https://doi.org/10.1037/rep0000021>
- Petrie, K., & Chamberlain, K. (1985). The predictive validity of the zung index of potential suicide. *Journal of Personality Assessment*, 49(1), 100–102. https://doi.org/10.1207/s15327752jpa4901_19
- *Pieper, B., Vallerand, A. H., Nordstrom, C. K., & DiNardo, E. (2009). Comparison of bodily pain: Persons with and without venous ulcers in an indigent care clinic. *Journal of Wound, Ostomy & Continence Nursing*, 36(5), 493–502. <https://doi.org/10.1097/WON.0b013e3181b35ed1>
- *Plach, S. K., Heidrich, S. M., & Waite, R. M. (2003). Relationship of social role quality to psychological well-being in women with rheumatoid arthritis. *Research in Nursing & Health*, 26(3), 190–202. <https://doi.org/10.1002/nur.10087>
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385–401. <https://doi.org/10.1177/0146621677001003006>
- *Rafanelli, C., Park, S. K., Ruini, C., Ottolini, F., Cazzaro, M., & Fava, G. A. (2000). Rating well-being and distress. *Stress Medicine*, 16(1), 55–61. [https://doi.org/10.1002/\(SICI\)1099-1700\(200001\)16:1<55::AID-SMI832>3.0.CO;2-](https://doi.org/10.1002/(SICI)1099-1700(200001)16:1<55::AID-SMI832>3.0.CO;2-)
- *Rahiminezhad, A., Kazemi, Z., Farahani, H. A., & Aghamohamadi, S. (2011). Purpose in life and identity dimensions as predictors of maladaptive psychological aspects: A path analysis study. *Procedia—Social and Behavioral Sciences*, 30, 1009–1013. <https://doi.org/10.1016/j.sbspro.2011.10.196>
- *Ratner, K., Burrow, A. L., Thoemmes, F., & Mendle, J. (2022). Invariance of the derailment Scale-6: Testing the measurement and correlates of derailment across adulthood. *Psychological Assessment*, 34(4), 320–331. <https://doi.org/10.1037/pas0001093>
- Reker, G. T., & Peacock, E. J. (1981). The life attitude profile (LAP): A multidimensional instrument for assessing attitudes toward life. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement*, 13(3), 264–273. <https://doi.org/10.1037/h0081178>
- Reker, G. T., Peacock, E. J., & Wong, P. T. P. (1987). Meaning and purpose in life and well-being: A life-span perspective. *Journal of Gerontology*, 42(1), 44–49. <https://doi.org/10.1093/geronj/42.1.44>
- Roose, S., McGrath, P., & Mann, J. (2013). Models of depression. In P. McGrath, S. Roose (Authors), & J. Mann (Eds.), *Clinical handbook for the management of mood disorders* (pp. 1–6). Cambridge University Press. <https://doi.org/10.1017/CBO9781139175869.001>
- Rowe, A., & Carnelley, K. B. (2003). Attachment style differences in the processing of attachment-relevant information: Primed style effects on recall, interpersonal expectations, and affect. *Personal Relationships*, 10, 59–75. <https://doi.org/10.1111/1475-6811.00036>

- *Ruini, C., Ottolini, F., Rafanelli, C., Tossani, E., Ryff, C. D., & Fava, G. A. (2003). The relationship of psychological well-being to distress and personality. *Psychotherapy and Psychosomatics*, 72(5), 268–275. <https://doi.org/10.1159/000071898>
- *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, 10–28. <https://doi.org/10.1159/000353263>
- *Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719–727. <https://doi.org/10.1037/0022-3514.69.4.719>
- *Ryff, C. D., Lee, Y. H., Essex, M. J., & Schmutte, P. S. (1994). My children and me: Midlife evaluations of grown children and of self. *Psychology and Aging*, 9(2), 195–205. <https://doi.org/10.1037//0882-7974.9.2.195>
- Ryff, C. D., Singer, B. H., & Dienberg Love, G. (2004). Positive health: Connecting well-being with biology. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 359(1449), 1383–1394. <https://doi.org/10.1098/rstb.2004.1521>
- *Salt, E., Crofford, L. J., & Segerstrom, S. (2017). The mediating and moderating effect of volunteering on pain and depression, life purpose, well-being, and physical activity. *Pain Management Nursing*, 18(4), 243–249. <https://doi.org/10.1016/j.pmn.2017.04.004>
- Schaefer, S. M., Morozink Boylan, J., van Reekum, C. M., Lapate, R. C., Norris, C. J., Ryff, C. D., & Davidson, R. J. (2013). Purpose in life predicts better emotional recovery from negative stimuli. *PLoS One*, 8(11), e80329. <https://doi.org/10.1371/journal.pone.0080329>
- *Scheier, L. M., & Newcomb, M. D. (1993). Multiple dimensions of affective and cognitive disturbance: Latent-variable models in a community sample. *Psychological Assessment*, 5(2), 230–234. <https://doi.org/10.1037/1040-3590.5.2.230>
- *Scheier, M. F., Wrosch, C., Baum, A., Cohen, S., Martire, L. M., Matthews, K. A., Schulz, R., & Zdzienicka, B. (2006). The life engagement test: Assessing purpose in life. *Journal of Behavioral Medicine*, 29(3), 291–298. <https://doi.org/10.1007/s10865-005-9044-1>
- Schmutte, P. S., & Ryff, C. D. (1997). Personality and well-being: Reexamining methods and meanings. *Journal of Personality and Social Psychology*, 73(3), 549–559. <https://doi.org/10.1037/0022-3514.73.3.549>
- *Schulenberg, S. E., Smith, C. V., Drescher, C. F., & Buchanan, E. M. (2016). Assessment of meaning in adolescents receiving clinical services in Mississippi following the deepwater horizon oil spill: An application of the Purpose in Life Test-Short form (PIL-SF): Meaning, adolescents, and the gulf oil spill. *Journal of Clinical Psychology*, 72(12), 1279–1286. <https://doi.org/10.1002/jclp.22240>
- *Schwartz, S. J., Zamboanga, B. L., Weisskirch, R. S., & Rodriguez, L. (2009). The relationships of personal and ethnic identity exploration to indices of adaptive and maladaptive psychosocial functioning. *International Journal of Behavioral Development*, 33, 131–144. <https://doi.org/10.1177/0165025408098018>
- *Sharpley, C. F., Murcell, N., Anderson, M., Bitsika, V., Fourie, P. J., & Agnew, L. L. (2021). An exploration of recent life stress, psychological resilience, purpose in life, and optimism as correlates of depression in social housing residents in rural Australia. *International Journal of Mental Health*, 50(3), 234–249. <https://doi.org/10.1080/00207411.2021.1896079>
- Shek, D. T. L. (1988). Reliability and factorial structure of the Chinese version of the purpose in life questionnaire. *Journal of Clinical Psychology*, 44(3), 384–392. [https://doi.org/10.1002/1097-4679\(198805\)44:3<384::aid-jclp2270440312>3.0.co;2-1](https://doi.org/10.1002/1097-4679(198805)44:3<384::aid-jclp2270440312>3.0.co;2-1)
- *Shek, D. T. L. (1992). Meaning in life and psychological well-being: An empirical study using the Chinese version of the purpose in life questionnaire. *The Journal of Genetic Psychology*, 153(2), 185–200. <https://doi.org/10.1080/00221325.1992.10753712>
- *Smith, B. W., & Zautra, A. J. (2004). The role of purpose in life in recovery from knee surgery. *International Journal of Behavioral Medicine*, 11(4), 197–202. https://doi.org/10.1207/s15327558ijbm1104_2
- Spielberger, C., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. (1983). *Manual for the State-Trait Anxiety Inventory (Form Y1-Y2)*. Consulting Psychologists Press. https://www.researchgate.net/publication/235361542_Manual_for_the_State-Trait-Anxiety-Inventory_Form_Y1_-_Y2
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Springer, K. W., Pudrovska, T., & Hauser, R. M. (2011). Does psychological well-being change with age? longitudinal tests of age variations and further exploration of the multidimensionality of Ryff's model of psychological well-being. *Social Science Research*, 40(1), 392–398. <https://doi.org/10.1016/j.ssresearch.2010.05.008>
- *Springer, R. M. B., Weaver, A. J., Linderblatt, R. C., Naditch, R. B., Newman, R. A., Siritsky, R. N., Flannelly, K. J., & VandeCreek, L. (2003). Spirituality, depression, and loneliness among Jewish seniors residing in New York City. *Journal of Pastoral Care & Counseling*, 57(3), 305–318. <https://doi.org/10.1177/154230500305700306>

- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80–93. <https://doi.org/10.1037/0022-0167.53.1.80>
- Stolorow, R. D. (1969). Anxiety and defense from three perspectives. *The Psychiatric Quarterly*, 43(4), 685–710.
- *Takebayashi, Y., Tanaka, K., Sugiura, Y., & Sugiura, T. (2018). Well-being and generalized anxiety in Japanese undergraduates: A prospective cohort study. *Journal of happiness studies*, 19, 917–937. <https://doi.org/10.1007/s10902-017-9852-3>
- *Tali, S., Rachel, L. W., Adiel, D., & Marc, G. (2009). The meaning in life for hospitalized patients with schizophrenia. *Journal of Nervous & Mental Disease*, 197(2), 133–135. <https://doi.org/10.1097/NMD.0b013e3181963ede>
- Tang, D., Kelley, N. J., Hicks, J. A., & Harmon-Jones, E. (2013). Emotions and meaning in life: A motivational perspective. In J. A. Hicks & C. Routledge (Eds.), *The experience of meaning in life: Classical perspectives, emerging themes, and controversies* (pp. 117–128). Springer Science + Business Media. <https://doi.org/10.1007/978-94-007-6527-6>
- *Thoma, M. V., Gianferante, D., Hanlin, L., Fiksdal, A., Chen, X., & Rohleder, N. (2017). Stronger hypothalamus-pituitary-adrenal axis habituation predicts lesser sensitization of inflammatory response to repeated acute stress exposures in healthy young adults. *Brain, Behavior, and Immunity*, 61, 228–235. <https://doi.org/10.1016/j.bbi.2016.11.030>
- *Thompson, N. J., Coker, J., Krause, J. S., & Henry, E. (2003). Purpose in life as a mediator of adjustment after spinal cord injury. *Rehabilitation Psychology*, 48(2), 100–108. <https://doi.org/10.1037/0090-5550.48.2.100>
- Trajković, G., Starčević, V., Latas, M., Leštarević, M., Ille, T., Bukumirić, Z., & Marinković, J. (2011). Reliability of the hamilton rating scale for depression: A meta-analysis over a period of 49 years. *Psychiatry Research*, 189(1), 1–9. <https://doi.org/10.1016/j.psychres.2010.12.007>
- Trew, J. L. (2011). Exploring the roles of approach and avoidance in depression: An integrative model. *Clinical Psychology Review*, 31(7), 1156–1168. <https://doi.org/10.1016/j.cpr.2011.07.007>
- *Troutman, M., Nies, M. A., & Bentley, M. (2011). Measuring successful aging in Southern black older adults. *Educational Gerontology*, 37(1), 38–50. <https://doi.org/10.1080/03601277.2010.500587>
- *Turner, N., Jackson, D., Renwick, L., Sutton, M., Foley, S., McWilliams, S., Kinsella, A., & O'Callaghan, E. (2007). What influences purpose in life in first-episode psychosis. *British Journal of Occupational Therapy*, 70(9), 401–406. <https://doi.org/10.1177/030802260707000906>
- University of Wisconsin Institute on Aging. (2004). *Documentation of scales in MIDUS I*. https://midus.wisc.edu/Projects/M2P1/M2P1_Survey/Documentation/M2_P1_DocumentationOfPsychosocialConstructsAndCompositeVariables_20201103.pdf
- Veit, C. T., & Ware, J. E. (1983). The structure of psychological distress and well-being in general populations. *Journal of Consulting and Clinical Psychology*, 51(5), 730–742. <https://doi.org/10.1037/0022-006X.51.5.730>
- Vleioras, G., & Bosma, H. A. (2005). Are identity styles important for psychological well-being? *Journal of Adolescence*, 28(3), 397–409. <https://doi.org/10.1016/j.adolescence.2004.09.001>
- *Wang, M.-C., Richard Lightsey, O., Pietruszka, T., Uruk, A. C., & Wells, A. G. (2007). Purpose in life and reasons for living as mediators of the relationship between stress, coping, and suicidal behavior. *The Journal of Positive Psychology*, 2(3), 195–204. <https://doi.org/10.1080/17439760701228920>
- Wang, P. S., Berglund, P., & Kessler, R. C. (2000). Recent care of common mental disorders in the United States: Prevalence and conformance with evidence-based recommendations. *Journal of General Internal Medicine*, 15, 284–292.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, 98(2), 219–235. <https://doi.org/10.1037//0033-2909.98.2.219>
- Wells, A. (1999). A cognitive model of generalized anxiety disorder. *Behavior Modification*, 23(4), 526–555. <https://doi.org/10.1177/0145445599234002>
- *Weston, S. J., Hill, P. L., & Cardador, M. T. (2021). Working toward a purpose: Examining the cross-sectional and longitudinal effects of work characteristics on sense of purpose. *Journal of Personality*, 89(2), 244–257. <https://doi.org/10.1111/jopy.12579>
- *Wettstein, M., Schilling, O. K., Reidick, O., & Wahl, H. W. (2015). Four-year stability, change, and multidirectionality of well-being in very-old age. *Psychology and Aging*, 30(3), 500–516. <https://doi.org/10.1037/pag0000037>
- Winger, J. G., Adams, R. N., & Mosher, C. E. (2016). Relations of meaning in life and sense of coherence to distress in cancer patients: A meta-analysis. *Psycho-Oncology*, 25(1), 2–10. <https://doi.org/10.1002/pon.3798>
- *Wingo, A. P., Wingo, T. S., Fan, W., Bergquist, S., Alonso, A., Marcus, M., Levey, A. I., & Lah, J. J. (2020). Purpose in life is a robust protective factor of reported cognitive decline among late middle-aged adults: The emory healthy aging study. *Journal of Affective Disorders*, 263, 310–317. <https://doi.org/10.1016/j.jad.2019.11.124>
- Wood, A. M., & Joseph, S. (2010). The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *Journal of Affective Disorders*, 122(3), 213–217. <https://doi.org/10.1016/j.jad.2009.06.032>

- World Health Organization. (2017). *Depression and other common mental disorders: Global health estimates*. <https://www.who.int/publications/i/item/depression-global-health-estimates>
- *Wu, A. M. S., Chen, J. H., Tong, K. K., Yu, S., & Lau, J. T. F. (2018). Prevalence and associated factors of Internet gaming disorder among community dwelling adults in macao, China. *Journal of Behavioral Addictions*, 7(1), 62–69. <https://doi.org/10.1556/2006.7.2018.12>
- *Yemiscigil, A., & Vlaev, I. (2021). The bidirectional relationship between sense of purpose in life and physical activity: A longitudinal study. *Journal of Behavioral Medicine*, 44, 715–725. <https://doi.org/10.1007/s10865-021-00220-2>
- Yesavage, J. A., & Sheikh, J. I. (1986). 9/Geriatric depression scale (GDS): Recent evidence and development of a shorter version. *Clinical Gerontologist*, 5(1–2), 165–173. https://doi.org/10.1300/J018v05n01_09
- *Yeung, P., Allen, J., Godfrey, H. K., Alpass, F., & Stephens, C. (2019). Risk and protective factors for wellbeing in older veterans in New Zealand. *Aging & Mental Health*, 23(8), 992–999. <https://doi.org/10.1080/13607863.2018.1471584>
- *Yeung, P., & Breheny, M. (2021). Quality of life among older people with a disability: The role of purpose in life and capabilities. *Disability and Rehabilitation*, 43(2), 181–191. <https://doi.org/10.1080/09638288.2019.1620875>
- *Yeung, P., Severinsen, C., Good, G., & O'Donoghue, K. (2022). Social environment and quality of life among older people with diabetes and multiple chronic illnesses in New Zealand: Intermediary effects of psychosocial support and constraints. *Disability and Rehabilitation*, 44(5), 768–780. <https://doi.org/10.1080/09638288.2020.1783375>
- Zeffert, S., Clark, A., Dobson, C. J., Jones, A., & Peck, D. (1996). The symptom questionnaire: British standardization data. *British Journal of Clinical Psychology*, 35(1), 85–90. <https://doi.org/10.1111/j.2044-8260.1996.tb01164.x>
- *Zhang, M., Mou, N., Tong, K., & Wu, A. (2018). Investigation of the effects of purpose in life, grit, gratitude, and school belonging on mental distress among Chinese emerging adults. *International Journal of Environmental Research and Public Health*, 15(10), 2147. <https://doi.org/10.3390/ijerph15102147>
- Zigmond, A. S., & Snaitch, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, 67(6), 361–370. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>
- Zung, W. W. K. (1965). A self-rating depression scale. *Archives of General Psychiatry*, 12(1), 63–70. <https://doi.org/10.1001/archpsyc.1965.01720310065008>
- Zung, W. W. K. (1971). A rating instrument for anxiety disorders. *Psychosomatics*, 12(6), 371–379. [https://doi.org/10.1016/S0033-3182\(71\)71479-0](https://doi.org/10.1016/S0033-3182(71)71479-0)

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