

The Relationships of the Five Existential Concerns with Depression and Existential Thinking¹

Madeline Kretschmer, B.A., B.Sc.² and Lance Storm, Ph.D.^{2*}

Abstract

Five major Existential Concerns (ECs) have been posited: Death, Isolation, Identity, Freedom, and Meaning (see Koole, Greenberg, & Psyzezynski, 2006). The present study is an analysis of the inter-relations between all five ECs, as well as their relationships with depression and existential thinking. A sample of 221 participants (mean age 31 years) provided demographic details and completed a battery of questionnaires. Findings revealed the ECs to be positively and significantly inter-related, except for the presence of meaning, which correlated negatively with all other concerns. All ECs, except for the presence of meaning, correlated positively with depression and existential thinking. Multiple regression analyses revealed existential loneliness to be the strongest predictor of depression, and the search for meaning to be the strongest predictor of existential thinking. We argue that a more informed psychological understanding of the ECs can be reached through studying their inter-relationships, rather than focusing on any given individual concern in isolation from the other four.

Keywords: existential concerns, death, isolation, identity, freedom, meaning, depression, existential thinking

Introduction

Existential psychology values human existence in *phenomenological* terms—i.e., as subjectively experienced by each individual (Spinelli, 1989). The existential approach aims to delve below theory to discover the individual being, and more specifically to understand how core human concerns manifest psychologically (May, 1983). Thus, in recent decades, an existential approach has been taken towards a number of psychological issues, including depression and existential thinking (i.e., thinking about one's existence).

In existential literature, depression is frequently cited as a consequence of awareness of existential (i.e., fundamental) concerns. These concerns are nominally labelled: death, isolation, identity, freedom, and meaning (Koole, Greenberg, & Psyzezynski, 2006; these 'Big Five' concerns will be discussed in detail below). Past research suggests that these five concerns influence the experience of depression. In some cases, depression has been suggested to arise through a change in the person's basic structure of existence—an erosion of their current life situation, through which existential feelings can appear (Fernandez, 2014). Studies suggest that depression is related to existential anxiety (Berman, Weems, & Stickle, 2006; Hullett, 1994; Weems, Costa, Dehon, & Berman, 2004), and can influence existential wellbeing through its independent relationships with concerns such as meaning (Steger, Frazier, Oishi, & Kaler, 2006).

¹ This article was accepted in February 2018 and back published to December 2017.

² School of Psychology, University of Adelaide, Australia

* Corresponding Author, Lance Storm can be contacted at lance.storm@adelaide.edu.au

The tendency to contemplate issues regarding one's existence has been termed 'existential thinking' by Allan and Shearer (2012), who formulated the Scale for Existential Thinking (SET) to measure the extent to which individuals engage in this mode of thinking. The scale correlated highly with both the presence and search for meaning in life. It also correlated with a measure of existential wellbeing and spiritual intelligence, though it did not correlate with death anxiety or depression. Although 'death' and 'meaning' were addressed in the initial investigations of the SET, the other three concerns and their relation to existential thinking have not yet been evaluated. In fact, generally, research has primarily focused on individual concerns (Grouden & Jose, 2015; Kroger & Marcia, 2011; Templer, 1970), with few studies addressing more than one concern (Reker, Peacock, & Wong, 1987; Weems et al., 2004). The present study seeks to validate previous findings, investigate the relationships between the existential concerns, and comparatively explore the simultaneous influence of all five existential concerns on depression and existential thinking. This research will be based on data collected through the administration of a battery of questionnaires.

The 'Big Five' Existential Concerns

Two authors and their models have had major influences on existential psychology (Van Bruggen et al., 2014). Tillich (1959) catalogued existential concerns in terms of the anxiety they induced, naming three sources of existential anxiety: (i) fear and death, (ii) emptiness and meaninglessness, and (iii) guilt and condemnation. These three were extended to four by Yalom (1980), who categorized the major concerns as: death, freedom, isolation, and meaninglessness. Building on the work of past psychologists and their own research, Koole et al. (2006) proposed 'The Big Five' existential concerns: death, isolation, identity, freedom, and meaning. The properties and potential mental challenges inherent in each of the 'Big Five' concerns are briefly summarised in the following paragraphs:

Death. The implications of death awareness are the most widely researched in existential psychology. The majority of research focuses on the innate anxiety of this knowledge and human reaction to reminders of mortality. Tillich (1959) states that "the anxiety of fate and death is most basic, most universal, and inescapable" (p. 42). Death anxiety is proposed to develop in childhood and continue throughout life as an influential determinant of behaviour, being significantly related to neuroticism and depression (Yalom, 1980). Templer (1970) constructed a Death Anxiety Scale (DAS) to measure this concept, which has been found to correlate with depression (Conte, Plutchik, & Weiner, 1982).

Isolation. Yalom (1980) classifies isolation into three types: (i) interpersonal, being the loneliness of social isolation; (ii) intrapersonal, being the dissociation between parts of oneself; and (iii) existential, "an unbridgeable gulf between oneself and any other being" (p. 355). The first, interpersonal isolation, is the most researched and perhaps most commonly conceived type of isolation. Significant relationships between social isolation and depression have been found in multiple studies (for a comprehensive review of studies detailing the relationship, see Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014). The inability to share phenomenological experience is encapsulated in the third type, existential isolation. Existential loneliness has been found to correlate significantly with depression, purpose in life, and non-specific loneliness in HIV-infected women (Mayers, Khoo, & Svartberg, 2002). In their nine-year longitudinal study of

older adults, Vink et al. (2009) found non-specific loneliness correlated positively with depression.

Identity. Identity is the most recent addition to models of existential concerns. Although not recognised as a specific concern by Tillich (1959), he explains that identity arises through participation, with individuals either identifying through participating in a group, “the courage to be a part”, or through affirming and participating in the unique self, “the courage to be” (pp. 87-89). Identity exploration is commonly accompanied by identity distress, with research suggesting that identity distress is significantly related to depression in college students (Samuolis, Barcellos, LaFlam, Belson, & Berard, 2015).

Freedom. Existentially, we have the freedom to live and construct reality in whatever way we choose. Inherently tied to this freedom is responsibility, and with this responsibility comes ontological guilt—which is the basis for Tillich’s (1959) third domain of anxiety. This deep guilt arises when an individual denies and fails to embrace the potentialities afforded by freedom (May, 2004). It has been suggested to affect all aspects of one’s world and, alongside loss of hope, forms the basis of phenomenological accounts of depression (Fernandez, 2014). Experimental existential psychology has primarily addressed this concern through studies based on reactance theory. Reactance theory postulates that individuals experience reactance when their free behaviours are threatened or constrained (Brehm, 1966). Reactance has also been found to correlate positively with depression (Hong & Giannakopoulos, 1994).

Meaning. Camus (1942) stressed the importance for humans to have meaning in life, positing that a lack of meaning leads to suicide. Frankl (1959) similarly emphasised meaning as the primary motivation of life, which if absent leads to an existential vacuum that gives way to suicide and depression. Koole et al. (2006) suggest that a lack of meaning may arise from the other four concerns. Existential depression has been defined as a reaction to a “disruption in the person’s ability to discover, create, and/or experience meaning” (Lantz & Harper, 1989, p. 216). Many studies show that a lack of meaning in life significantly relates to depression (García-Alandete, Gallego-Pérez, & Pérez-Delgado, 2009; Mascaro & Rosen, 2005; Schnell, 2010). Recent research has drawn distinctions between the effects of the *presence* of meaning and the *search* for meaning. This differentiation has been made possible by the Meaning in Life Questionnaire (MLQ; Steger et al., 2006), which incorporates subscales for the presence of, and the search for, meaning. Van der Heyden, Dezutter, and Beyers (2015) found the presence of—but not the search for—meaning to minimize depression scores. Meaning has also been found to correlate positively with mental wellbeing (Reker et al., 1987; Shiah, Chang, Chiang, Lin, & Tam, 2015), but the specific *search* for meaning has in fact been found to correlate negatively with positive wellbeing (Grouden & Jose, 2015). In researching the concept of existential thinking, Allan and Shearer (2012) found both the presence and search for meaning to correlate positively with this thinking style.

Simultaneous Analysis of the ‘Big Five’ Concerns

The brief summaries of each of the ‘Big Five’ concerns demonstrate their independent influences on depression. Their importance is emphasised by Koole et al. (2006), who call for their effects to be further assessed in clinical settings. Two studies were found to assess the inter-relations

between the concerns and the effects of multiple concerns on mental health simultaneously, which are reviewed below.

Reker et al. (1987) were interested in the influences of several of the 'Big Five' concerns on mental wellbeing. Their study was an assessment of individuals' 'life attitude profiles', which included seven dimensions that can be viewed to encompass the paradigms of meaning, freedom, and death. These measures were analysed in relation to the Perceived Wellbeing Scale, a measure of psychological and physical wellbeing. Future meaning, life purpose, and life control were all found to correlate positively with both psychological and physical wellbeing. Life purpose and death acceptance correlated negatively with mental discomfort (i.e., low meaning and low death acceptance tend to indicate high mental discomfort). These outcomes support the findings of previously mentioned studies, and also suggest that the concerns of meaning, freedom, and death are factorially different and, when measured together, maintain their independent influences over mental wellbeing.

Weems et al. (2004) were similarly interested in the influence of multiple existential concerns on mental wellbeing. Their study measured existential anxiety in accordance to Tillich's three-tiered conceptualization of existential concerns: fate and death, emptiness and meaninglessness, and guilt and condemnation. In reference to the 'Big Five', these can be viewed as death, meaning, and the ontological guilt tied to freedom, respectively. Weems et al. formulated an Existential Anxiety Questionnaire (EAQ) reflective of these three concerns, which was found to correlate with depression. The EAQ also correlated significantly with both the Purpose in Life Test (PIL) and Identity Distress Scale (IDS; Berman, Montgomery, & Kurtines, 2004). Furthermore, the PIL and IDS also correlated significantly, suggesting that having a sense of purpose in life is negatively related to identity distress. The three concerns—death, meaning, and freedom—were also moderately inter-correlated.

Death anxiety and the search for meaning in life have been found to positively correlate in both student and school faculty member groups; however, only the student group reported a negative correlation between death anxiety and presence of meaning (Latha et al., 2013). Similarly, Viswanathan (1996) found purpose in life to be negatively related to death anxiety.

Existential philosophers and psychologists have postulated relationships between the other concerns, though there is little empirical support. Tillich (1959) suggested that as individualisation (identity) increases, so too does death anxiety, with people in collectivistic cultures therefore less susceptible to this type of anxiety. This claim is empirically supported by Terror Management Theory (TMT), which infers that emphasis of personal identity over cultural identity may lead to greater death anxiety in individuals (Kesebir & Pyszczynski, 2011).

Identity has also been posited to hold a strong relationship with isolation. Rank (1945) and Fromm (1956) both explained the parallel nature of separation and individualisation. All forms of alienation, including social alienation, have been argued to contribute positively to the development of self-identity (Rae, 2010).

The relationships mentioned in this section are only a few of the fifteen that may exist between the concerns. As all five concerns feed into the greater variable of existential unease, it is speculated that multiple relationships will exist.

The Current Study

In attempting to determine the simultaneous influences on depression of the 'Big Five' existential concerns as delineated by Koole et al. (2006), past findings are sparse and not entirely informative. There is surprisingly little research into the inter-relations between the concerns, or

their comparative influence on depression and existential thinking. The present study aims to address these gaps in the literature as well as validate past findings. Specifically, it is planned to test (i) the inter-relations between the concerns, (ii) the individual and relative influences of each concern on depression, and (iii) the relationships of the concerns with existential thinking. Multiple regression analyses (MRAs) will be conducted to build models that show the influence of the existential concerns on depression and existential thinking. Through generating partial correlations, the MRAs will also provide a more realistic indication of the influence of the variables. The variables to be assessed are Depression, Existential Thinking, Gender, Age, Socioeconomic Status (SES), and Religion. The Existential Concerns (ECs) are:

- Death—conceptualized as Death Anxiety;
- Identity—conceptualized as Identity Distress;
- Isolation—conceptualized as Existential Loneliness;
- Freedom—conceptualized as Reactance; and
- Meaning—conceptualized as Presence of Meaning and Search for Meaning.

It is considered that each of the EC variables is reflective of its respective paradigm (descriptions of each are given in the Method section). As Freedom is a difficult existential concern to conceptualise, it is noted that Reactance should be considered as a measure of the response to anxiety associated with loss of freedom, rather than a measure of Freedom *per se*. Although demographics have often been reported as influencing the experience of the ECs, demographic relations will not be explicitly hypothesised. For the directional hypotheses (*H2*, *H3*, & *H4*), one-tailed tests will be run, as they are mostly confirmatory, with their directions based on the findings in the literature. Two-tailed tests will be run on the exploratory hypotheses (*H1* and *H5*). The following hypotheses are proposed:

H1. There are relationships between Death Anxiety (DAS), Existential Loneliness (ELQ), Identity Distress (IDS), Reactance (HPRS), Presence of Meaning (MLQ-P), and Search for Meaning (MLQ-S).

H2. There are positive relationships between Depression and the five ECs (i) Death (i.e., Death Anxiety; DAS), (ii) Isolation (i.e., Existential Loneliness; ELQ), (iii) Identity (i.e., Identity Distress; IDS), (iv) Freedom (i.e., Reactance; HPRS), and (v) Meaning (i.e., Search for Meaning; MLQ-S).

H3. There is a negative relationship between Depression and Meaning (i.e., Presence of Meaning; MLQ-P).

H4. There are positive relationships between Existential Thinking and (i) Presence of Meaning and (ii) Search for Meaning.

H5. There are relationships between Existential Thinking and (i) Existential Loneliness, (ii) Identity Distress, and (iii) Reactance.

Method

Participants

The study tested 221 participants recruited through social networking avenues, flyers distributed at various locations, and the University of Adelaide's research pool. Although 308 participants started the questionnaire, 87 withdrew at various stages of the survey, with these cases removed from the final data set. First-year psychology students enrolled in the School of Psychology, University of Adelaide in 2015 received course credit for their participation. All participation was voluntarily and, other than course credit for students as a work-load option, no incentives were offered.

Participants were required to access a computer enabled for Internet access, and be fluent in English. Participants included 121 females (54.8%) and 100 males (45.2%), with ages ranging from 17 to 78 years ($M = 31$ years, $SD = 14$ years). To allow for the examination of between-group differences, the participants were split into three age groups: young adult (17-25 years), adult (26-39 years), and middle-aged to older adult (40-78 years).

Measures

Demographic information was collected in regards to Age, Gender, Religious Denomination, and Country of Origin.

Socioeconomic Status (SES). The SES measure utilised two items: (i) approximate annual household income (Income) and (ii) highest level of education (Education). Income was measured in Australian dollars, and education levels were set in a South Australian context.

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item forced-choice self-report measure of depression. Designed to assess the characteristics of depression as defined by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000), the items are reflective of the cognitive, affective, and somatic symptoms associated with depression. For example: "I am sad all the time" (scores 2 points). Recent analyses of the BDI-II reported strong internal consistency ($\alpha = .92$) and test-retest reliability coefficients ranging from .72 to .93 (Hill, Musso, Jones, Pella, & Gouvier, 2012). The measure has good convergent, concurrent, and discriminant validity (Wang & Gorenstein, 2013).

Scale for Existential Thinking (SET; Allan & Shearer, 2012). The SET is an 11-item self-report measure, answered on a 5-point Likert scale to reflect the degree to which one thinks about existential concepts (0 = I don't know, to 5 = all the time). For example: "Do you ever reflect on your purpose in life?" The SET has a strong test-retest reliability (.91), and internal consistencies ranging from $\alpha = .88$ to $\alpha = .94$ (Allan & Shearer, 2012). Convergent validity was demonstrated through significant correlations between the scale and measures of theoretically related variables, including the Spiritual Intelligence Self-Report Inventory ($r = .67$) and its subscale of existential thinking ($r = .67$; Allan & Shearer, 2012).

Templer Death Anxiety Scale (DAS; Templer, 1970). The DAS was selected to measure death concerns as it has strong psychometric properties and has been utilised in prior existential

research (Weems et al., 2004). The DAS is a 15-item self-report, with each item answered as either 'true' or 'false'. For example: "I am very much afraid to die". Initial validation of the scale reported a high test-retest reliability (.83) in a three-week period, and good internal consistency (.76; Templer, 1970). Good construct and content validity have been shown through correlations between the DAS and measures of anxiety; see also, Royal and Elahi (2011).

Existential Loneliness Questionnaire (ELQ; Mayers et al., 2002). Although multiple scales exist to measure social, emotional, and cultural isolation, this was the only scale found to target existential isolation specifically. The scale was developed to measure existential loneliness in HIV-infected women. The ELQ was initially constructed with 32 items, but after item analysis was reduced to 22 items. Items are responded to on a 6-point Likert scale reflecting how true the statement is of the individual (1 = not at all true of me, to 6 = very much true of me). For example: "I am happy with the way I have lived my life". The ELQ has strong internal consistency (.90; Brandstatter, Baumann, Borasio, & Fegg, 2012). In the present study, three of the 22 questions in the ELQ were modified to remove specific reference to HIV. The modified scale demonstrated good reliability ($\alpha = .78$).

Identity Distress Survey (IDS; Berman et al., 2004). The IDS was selected to measure identity concerns as it incorporates the accompanying stress of identity exploration and commitment. The IDS has also been utilised to measure identity concerns in prior existential research (Weems et al., 2004). The IDS is a 10-item self-report measure answered on a 5-point Likert scale, with higher scores indicating higher distress (ranging from 1 = none at all, to 5 = very severely). Identity issues include: "long-term goals", "career choice", "friendships", "sexual orientation and behaviour", "religion", "values and beliefs", and "group loyalties". The IDS has strong internal consistency (.84), and a test-retest coefficient of .82 within a three-month period. Positive correlations between the IDS and identity exploration have also been revealed, further supported by negative correlations found between the IDS and identity commitment (Berman et al., 2004).

Revised Hong Psychological Reactance Scale (HPRS-R; Hong & Faedda, 1996). This scale was selected as reactance theory has been illustrated as a paradigm reflective of existential freedom (Koole et al., 2006). The HPRS-R is an 11-item self-report measure of psychological reactance. The revised scale is an improvement on the original 14-item scale. Responses are recorded on a 5-point Likert scale (1 = strongly disagree, to 5 = strongly agree). For example: "I find contradicting others stimulating". High scores indicate reactant personalities. Brown, Finney, and France (2010) found that 78% of variance in HPRS scores can be attributed to the construct of reactance. The HPRS has good construct validity through its relationships with variables presented alongside the scale (i.e. attitude, intention, and perceived threat to freedom; Shen & Dillard, 2005).

Meaning in Life Questionnaire (MLQ; Steger et al., 2006). The MLQ was selected as it distinguishes between the presence of meaning in life and the search for meaning in life through two sub-scales—the MLQ-P (presence) and MLQ-S (search). Furthermore, it was ranked a perfect 1.0 in terms of quality by a systematic review on meaning in life instruments (Brandstatter et al., 2012). The MLQ is a 10-item self-report measure, answered on a 7-point Likert scale (1 = absolutely untrue, to 7 = absolutely true). For example: "I understand my life's

meaning”. The MLQ has good reliability, with a test-retest coefficient of .70 in a one-month period and strong internal consistency for both the MLQ-P (.86) and MLQ-S (.87) subscales.

Procedure

Ethics approval was granted by the Human Research Ethics Committee. As the study was available for online completion, the direct link to the survey was incorporated in posts published on consenting social networking sites (i.e., Facebook), and was written on the recruitment flyers. Participants recruited through the University of Adelaide could access the survey through a link posted on the university’s Research Participation webpage.

The first page of the study was participant information, detailing the purpose of the study, task requirements, the complaint process, associated risks, the telephone numbers of help-lines in case of distress, and the terms of ethics. Upon agreeing to continue, the participants automatically gave their consent and commenced the study.

Results

Preliminary Findings

Descriptive Statistics of the Dependent Variables (BDI and SET) and the ECs can be found in Table 1. To test the distributions for normality, the skewness and kurtosis values were divided by their respective *SE* values, and if the statistics were between ± 1.96 (not significant), they were regarded as normal (George & Mallery, 2010). The results from this test showed that the sample significantly deviated from normality in scores on both the BDI and the SET, which are our dependent variables. Significant deviations were also found for the variables gender and age. Nonparametric testing was thus required on the relevant data.

Table 1. Descriptive Statistics of the Dependent Variables (BDI & SET) and the ECs

Variable	<i>M</i>	<i>SD</i>	α	Range		
				Potential	Actual	95% CI
BDI	13.97	11.51	.93	0-63	0-57	[12.45, 15.50]
SET	31.48	10.18	.91	0-55	13-55	[30.13, 32.83]
DAS	6.48	3.24	.77	0-15	0-14	[6.05, 6.90]
ELQ	51.60	15.31	.78	22-110	27-91	[49.57, 53.63]
IDS	24.60	8.35	.87	10-50	10-46	[23.49, 25.70]
HPRS	33.33	7.24	.86	14-70	14-53	[32.37, 34.29]
MLQ	43.82	9.64	.61	7-70	10-67	[42.55, 45.10]

Note. BDI = Beck Depression Inventory; SET = Scale for Existential Thinking; DAS = Templer’s Death Anxiety Scale; ELQ = Existential Loneliness Questionnaire, IDS = Identity Distress Scale; HPRS = Hong’s Psychological Reactance Scale; MLQ = Meaning in Life Questionnaire.

The dichotomous variable gender was tested using a two-tailed Mann-Whitney U test. The results showed now statistically significant differences in BDI scores ($z = -.64, p = .52$).

Kruskal-Wallis tests were employed to examine between-group differences on the variables age, income, education, and religion. All tests were two-tailed. The results can be found in Table 2. These findings indicate there are age differences on depression and existential

thinking, and that religion and income have influences on levels of depression. It was therefore proposed to include the demographic variables in the multiple regression analyses.

Table 2. *Kruskal-Wallis Test Results for Demographic Variables (Age, Income, Education Level and Religion) by Depression (BDI) and Existential Thinking (SET)*

Variable	df	BDI	SET
Age	2	14.23**	9.85*
Income	6	12.88*	8.20
Education	4	5.24	6.25
Religion	4	31.56**	5.15

Note. BDI = Beck Depression Inventory; SET = Scale for Existential Thinking; * $p < .05$; ** $p < .01$

Planned Analysis

H1. There are relationships between Death Anxiety (DAS), Existential Loneliness (ELQ), Identity Distress (IDS), Reactance (HPRS), Presence of Meaning (MLQ-P), and Search for Meaning (MLQ-S). Table 3 is a correlation matrix of the ECs. All ECs correlate significantly with each other except DAS and HPRS. A Bonferroni Correction was made by dividing the critical p value ($\alpha = .05$) by the number of tests made which was 15: The new critical $p = \alpha/15 = .05/15 = .003$. Eleven p values were still significant. Eleven of 15 sub-hypotheses were supported.

Table 3. *Correlation Matrix: The ECs*

Variable	1.	2.	3.	4.	5.
1. DAS	-				
2. ELQ	.21*	-			
3. IDS	.28*	.74*	-		
4. HPRS	.09	.40*	.34*	-	
5. MLQ-P	-.18	-.67*	-.55*	-.28*	-
6. MLQ-S	.25*	.37*	.41*	.18	-.18

Note. DAS = Templer's Death Anxiety Scale; ELQ = Existential Loneliness Questionnaire, IDS = Identity Distress Scale; HPRS = Hong's Psychological Reactance Scale; MLQ-P = Meaning in Life Questionnaire—Presence; MLQ-S = Meaning in Life Questionnaire—Search. * $p < .003$

H2. There are positive relationships between Depression and the five ECs (as listed by Koole et al., 2006): (i) Death (i.e., Death Anxiety; DAS), (ii) Isolation (i.e., Existential Loneliness; ELQ), (iii) Identity (i.e., Identity Distress; IDS), (iv) Freedom (i.e., Reactance; HPRS), and (v) Meaning (i.e., Search for Meaning; MLQ-S).

(i) The correlation between Death Anxiety (DAS) and Depression (BDI) was positive and significant, $r_s(219) = .15$, $p = .015$. The hypothesis was supported.

(ii) The correlation between Existential Loneliness (ELQ) and Depression (BDI) was positive and significant, $r_s(219) = .74$, $p < .001$. The hypothesis was supported.

(iii) The correlation between Identity Distress (IDS) and Depression (BDI) was positive and significant, $r_s(219) = .64$, $p < .001$. The hypothesis was supported.

(iv) The correlation between Reactance (HPRS) and Depression (BDI) was positive and significant, $r_s(219) = .31$, $p < .001$. The hypothesis was supported.

(v) The correlation between Search for Meaning (MLQ-S) and Depression (BDI) was positive and significant, $r_s(219) = .25$, $p < .001$. The hypothesis was supported.

H3. There is a negative relationship between Depression and Meaning (i.e., Presence of Meaning). The correlation was negative and significant, $r_s(219) = -.60$, $p < .001$. The hypothesis was supported.

H4. There are positive relationships between Existential Thinking (SET) and (i) Presence of Meaning and (ii) Search for Meaning. The correlation between SET and MLQ-S was positive and significant, $r_s(219) = .28$, $p < .001$. However, the correlation between SET and MLQ-P, although positive, was not significant. The hypothesis was partly supported.

H5. There are relationships between Existential Thinking and (i) Existential Loneliness, (ii) Identity Distress, and (iii) Reactance. All three relationships were positive and significant:

- SET and ELQ, $r_s(219) = .18$, $p = .004$.
- SET and IDS, $r_s(219) = .28$, $p < .001$.
- SET and HPRS, $r_s(219) = .20$, $p = .002$.

The hypothesis was supported.

The above results suggest that most ECs are related to each other, as well as being related to depression (BDI) and existential thinking (SET). In order to determine whether two correlated variables in each hypothesis also correlate with the ECs tested in the other hypotheses, as well as to partial out (i.e., control) their influence to get a truer indication of each relationship, multiple regression analyses (MRAs) were performed.

Multiple Regression Analyses

A series of MRAs were run to determine which predictors produced the best fit for each of our dependent variables, Depression (BDI) and Existential Thinking (SET). In each model, the 'forward' method was used to enter all predictor variables: Age, Gender, Religion, Income, Education, Death Anxiety (DAS), Existential Loneliness (ELQ), Identity Distress (IDS), Reactance (HPRS), Presence of Meaning (MLQ-P), and Search for Meaning (MLQ-S). BDI and SET were also entered as possible predictors when they were not dependent variables in their own MRA.

The multiple regression assumptions of (i) normality, (ii) linearity, (iii) outliers, (iv) independence of the variables, and (v) homoscedasticity were assessed for each model. Normality and linearity were determined through visual inspection of the histogram, PP-plot, and scatterplot generated for each model. Outliers were determined from the Mahalanobis Distance, in which significant outliers were indicated when the maximum observed value exceeded the critical value given by the chi-square distribution, with degrees of freedom (df) determined from the number of predictors in the model. The probability level set for this test was $\alpha < .001$. Multicollinearity was not a problem if Tolerance was greater than .2. Homoscedasticity was assessed by visual inspection of the scatterplots and White's test, which indicates

homoscedasticity of the data when the calculated value exceeds the critical value (White, 1980). The thorough testing of these assumptions was important given that heteroscedasticity and collinearity can adversely affect the Beta weights and standard errors, and therefore the validity of the model.

Although the visual inspections of the plots for both models suggested homoscedasticity, White's test results indicated heteroscedasticity in both models. The nature of White's test, however, suggests that little can be done to reduce heteroscedasticity without compromising the model. Formal tests have also been criticized as over-emphasizing the problem of heteroscedasticity, so visual inspection of the plots was considered sufficient evidence of homoscedastic data (B. Willson, personal communication, September 8, 2015). Locally weighted smoothing lines (LOESS lines; entered using the 'uniform' method) were added to the scatterplots to aid the visual interpretation of homoscedasticity, which is indicated by a flat appearance of the LOESS line.

So that comparisons could be made, the MRAs generated both zero-order and partial correlations in all four models. Zero-order correlations do not account for the influence of other variables in the model. The partial correlations, however, reveal a more accurate and reliable association between a predictor and dependent variable as the influences of the other variables in the model are controlled.

Multiple Regression Analysis (MRA₁)—BDI. In order to produce a model that predicts Depression (as measured by BDI score) an MRA was performed. The assumptions of normality and linearity were not violated. The critical statistic for the Mahalanobis Distance is 18.46 when $df = 4$, $\alpha < .001$. The highest was 16.57, indicating no outliers. Multicollinearity was not indicated, as Tolerance was greater than .2. Upon visual inspection, the scatterplot appeared heteroscedastic. The BDI score was therefore transformed (using a square-root transformation) and a new model was run. The new model showed no visual evidence of heteroscedasticity with a relatively flat LOESS line.

There was, however, only a minimal difference between the results of the original and transformed model. Both models included ELQ and IDS as the two strongest predictors, with nearly equal p values. The original model also included MLQ-S and Gender, both of which made minor contributions to the model. The transformed model instead included MLQ-P, which made a minor contribution, but MLQ-S and Gender were both excluded. The inverse relationship between the presence and search for meaning suggests that only one needs to exist in the model, but not both. Furthermore, Gender does not correlate significantly with BDI, so its absence in the transformed model is understandable, and it is noted that it has a very minor influence in the original model. As the ELQ and IDS appear to be the variables of importance and differ little between models, both models are relevant. The transformed results can be seen in Table 4, but given their similarity only the original model will be described.

There were four predictor variables in the original regression model: Existential Loneliness (ELQ), Identity Distress (IDS), Search for Meaning (MLQ-S), and Gender. All other variables were excluded. The regression results can be seen in Table 5.

The association between the criterion variable (BDI) and the explanatory variables was strong (Multiple $R = .79$) and highly significant, $F(4, 216) = 87.50$, $p < .001$. Table 6 shows the standardized regression coefficients (β) for the four variables in the final regression model. All were significant predictors as shown by t and p values. The value of R^2 indicates 62% of the variance in depression was accounted for by these variables. ELQ was the strongest predictor

Table 4. Multiple Regression Results for Depression (BDI)—Transformed

Variable	df	F	R	R ²	Adj. R ²	β	t	p	Correlation	
									Zero-Order	Partial
ELQ	1	293.14*	.76	.57	.57	.53	7.59	< .001	.44	.53
IDS	2	157.06*	.77	.59	.59	.17	3.15	.002	.37	.23
MLQ-P	3	110.10*	.79	.61	.60	-.15	-2.62	.009	-.26	-.21

* $p < .001$

in the model, followed by similar, minor contributions from IDS, MLQ-S, and Gender. The β coefficient for MLQ-S revealed a negative relationship with BDI, which is supported by the partial correlation and contradicted by the zero-order correlation. The importance of generating partial correlations to determine the true nature of a relationship is thus highlighted through this finding.

Table 5. Multiple Regression Results for Depression (BDI)

Variable	df	F	R	R ²	Adj. R ²	β	t	p	Correlation	
									Zero-Order	Partial
ELQ	1	314.75*	.77	.59	.59	.67	11.26	< .001	.77	.61
IDS	2	166.22*	.78	.60	.60	.20	3.30	.001	.62	.22
MLQ-S	3	113.60*	.78	.61	.61	-.10	-2.11	.036	.22	-.14
Gender	4	87.50*	.79	.62	.61	.09	2.05	.042	.003	.14

* $p < .001$

Multiple Regression Analysis (MRA₂)—SET. In order to produce a model that predicts Existential Thinking (as measured by SET score), an MRA was performed. The assumptions of normality and linearity were not violated. The critical statistic for the Mahalanobis Distance is 16.26 when $df = 3$, $\alpha < .001$. The highest was 11.49, indicating no outliers. There was no strong visual evidence of heteroscedasticity, although the LOESS line was not ideal. Multicollinearity was not indicated, as Tolerance was greater than .2.

There were three predictor variables in the final regression model: Search for Meaning (MLQ-S), Identity Distress (IDS), and Education. All other variables were excluded. The regression results can be seen in Table 6.

The association between the criterion variable (SET) and the explanatory variables was strong (Multiple $R = .35$) and significant, $F(3, 217) = 11.20$, $p < .001$. Table 10 shows the standardized regression coefficients (β) for the three variables in the final regression model. All were significant predictors as shown by t and p values. The value of R^2 indicates that 13% of the variance in existential thinking was accounted for by these variables. MLQ-S was the strongest predictor in the model. IDS and Education followed, with the two variables making very similar, though minor, contributions.

Table 6. Multiple Regression Results for Existential Thinking (SET)

Variable	df	F	R	R ²	Adj. R ²	β	t	p	Correlation	
									Zero-Order	Partial
MLQ-S	1	17.77*	.27	.07	.07	.21	3.03	.003	.27	.20
IDS	2	12.84*	.33	.11	.10	.20	2.80	.006	.27	.19
Education	3	11.20*	.35	.13	.12	.17	2.69	.008	.13	.18

**p* < .001

Review of the MRAs. Results from the partial correlation analyses warrant particular scrutiny. From inspections of Tables 4, 5, and 6, it was found, for ECs as predictors only, that 70% of the partial correlations (7 out of 10 test results) were weaker than the corresponding zero-order correlations, with the remaining 30% being stronger. This finding brings into question the zero-order correlations reported in the literature, as these do not control for other correlates. For this reason, it is important to make a distinction: The partial correlations in this study are theoretically and statistically different from the zero-order correlations reported, and should be viewed as contributing to a new, more accurate, data set. Table 7 facilitates easy comparison of the ECs excluded from each model, revealing Death Anxiety (DAS) and Reactance (HPRS) to be excluded from all models, whereas only Identity Distress (IDS) was included as a predictor for both dependent variables.

Table 7. MRA Models: Excluded Existential Concerns (ECs)

EC	MRA Model		
	MRA _{1a} Depression	MRA _{1b} Depression (transformed BDI)	MRA ₂ Existential Thinking
DAS	×	×	×
ELQ	✓	✓	×
IDS	✓	✓	✓
HPRS	×	×	×
MLQ-P	✓	×	×
MLQ-S	×	✓	✓

Note: × = excluded; ✓ = included

Discussion

The major aim of the present study was to investigate the relationships between the five existential concerns (ECs) listed by Koole et al. (2006), as well as their relationships with two dependent variables: depression and existential thinking. As we will explain below, these relationships have implications for future research. The influences of the demographic variables (gender and education) as predictors of the dependent variables (depression and existential thinking) were shown in two MRAs above, although only education proved to be a demographic variable of some import—see the section *Multiple Regression Analyses* below for further comment. In the sections that follow, confirmatory and exploratory findings will also be discussed.

Relationships Between the Existential Concerns

In *H1*, the DAS/HPRS correlation was the only relationship found between the ECs that was not significant. The MLQ-P negatively correlated with the other ECs, with the remaining ECs all positively correlated. These results suggest that existential loneliness, identity distress, death anxiety, reactance, and *search* for meaning in life are all counterbalanced by the *presence* of meaning in life. This finding supports the ethos of Frankl (1959) and the necessity of meaning emphasised by Camus (1942), as it suggests that the presence of meaning in life is paramount to existential wellbeing. Accordingly, the presence of meaning may need to play a central role in future research.

The significant relationships found between the DAS, IDS, HPRS, MLQ-P, and MLQ-S support the moderate correlations found between similar constructs by Weems et al. (2004). Although the results of Reker et al.'s (1987) study suggest measures of death, freedom, and meaning to be factorially different, the results of the present study suggest that they are highly related constructs. The negative relationship found between the DAS and MLQ-P support similar findings by Latha et al. (2013) and Viswanathan (1996). The positive association revealed between the DAS and IDS supports claims by Tillich (1959) as well as findings from experiments that test Terror Management Theory (see the section above, *Simultaneous Analysis of the 'Big Five' Concerns*; see also, Kesebir & Pyszczynski, 2011).

The significant positive relationship found between the ELQ and IDS was the strongest of all the EC correlations. As identity distress is linked to identity exploration (Samuolis et al., 2015), this finding supports claims that isolation is a necessary feature of individualisation, as suggested by Rank (1945) and Fromm (1956). This finding also has important developmental, cultural, and clinical implications, and may offer an alternative avenue of research.

The significant correlations between all the ECs (excluding DAS with HPRS) are consistent with existential concepts such as those discussed by Heidegger (1962), who used the term 'Dasein' (German for 'being there') to express the essential nature of humans as 'beings-in-the-world'. He proposed the fundamental character of our 'being-in-the-world' to be ontological curiosity—that questioning the nature of being, which is possibly encapsulated in the experience of the ECs, is in itself our mode of being. The term Dasein also reflects the unity of our being and the inappropriateness of considering humans in terms of subdivisions of themselves. As beings are essentially whole, the five concerns should not be considered as separate constructs, but rather as contributing to a singular albeit multi-factorial experience. This view may be reflected in the significant relationships found between all ECs.

The Existential Concerns

Death. The significant positive relationship between the DAS and BDI in *H2* provides evidence for claims by Yalom (1980) that death anxiety is associated with depression. This finding also supports research regarding the association between death anxiety and depression by Conte et al. (1982) and Weems et al. (2004).

Isolation. The significant positive relationship between the ELQ and BDI in *H2* provides evidence of a strong relationship between existential loneliness and depression, as revealed in initial testing of the measure by Mayers et al. (2002). Their study only included HIV-infected women, but the above finding suggests that the relationship also exists in a non-clinical

population. Similarly, it extends the association between social isolation and depression, as thoroughly documented in a review by Cruwys et al. (2014), to include existential isolation.

Identity. The significant positive relationships between the IDS and BDI in *H2* is consistent with Samuolis et al.'s (2015) finding that identity distress is strongly associated with depression.

Freedom. The significant positive relationship found between the HPRS and BDI in *H2* supports previous findings of a relationship between reactance and depression by Hong and Giannakopoulos (1994). At this stage, since correlation does not necessarily indicate causality, we cannot discern whether reactance comes first as a bid for freedom that results in depression, or reactance is a response to a depressive state. Further confirmatory and exploratory research is needed.

Search for Meaning. The significant positive relationship found between the MLQ-S and BDI in *H2* provides evidence for the positive relationship between the search for meaning and depression, as found in initial testing of the MLQ by Steger et al. (2006). This finding indirectly supports Grouden and Jose (2015), who suggest that searching for meaning in life correlates negatively with mental wellbeing, thus indicating the pivotal role played by the search for meaning.

Presence of Meaning. In *H3*, the significant negative relationship found between the MLQ-P and BDI provides evidence for Frankl's (1959) claim that without meaning, one faces depression—as revealed by a number of other studies that support this relationship (García-Alandete et al., 2009; Mascaro & Rosen, 2005; Schnell, 2010).

Existential Thinking

The significant positive relationship found between the SET and the MLQ-S in *H4* supports the hypothesis and findings from initial testing of the SET by Allan and Shearer (2012). This finding suggests that those actively searching for meaning are highly engaged in existential thought, which seems a logical assumption given that the search for meaning involves a thoughtful examination of one's existence. The relationships found between the MLQ-S and the dependent variables are largely consistent with past research.

However, the non-significant and negative relationship found between the SET and the MLQ-P is contrary to our hypothesis (*H4*) and findings by Allan and Shearer (2012). Even though the SET is positively related to all the ECs, this contrary finding is consistent with the present study's finding that the MLQ-P negatively correlates with all the ECs (see Table 6; for further comments, and see again the above section, *Relationships Between the Existential Concerns*). It may therefore be the case that the more presence of meaning one has in one's life, the less inclined one is to think existentially, as one is content with one's existential position. This finding would imply that existential thinking is more likely to arise when there is no presence of meaning.

The significant positive relationship found between the SET and ELQ in *H5* suggests that the more time one spends alone (existential loneliness), the more time one has to think and contemplate one's existence (existential thinking). For example, many prominent existential philosophers, such as Kierkegaard and Nietzsche, lived exceptionally lonely lives. However, it is

also possible that existential thought results in certain insights that lead one (perhaps in a one-sided way) to realise (or conclude) that phenomenological isolation is inherent in being human.

The significant positive relationship between the SET and IDS in *H5* suggests that identity distress is tied to existential thinking. If one were to feel distressed about one's identity, one may begin questioning one's fundamental being and thus begin to think existentially. However, this relationship again may best be considered bi-directional, with both constructs equally influencing the experience of the other.

Finally, the significant positive relationship found between the SET and HPRS in *H5* suggests that an individual's level of reactance (bid for freedom) is associated with their level of existential thought. High reactance indicates a high value of one's freedom and independence; if one is highly reactant, it could be expected that they are more likely to think individually and critically, which could lead to thinking in an existential context. Equally, through thinking existentially, individuals could become more aware and defensive of their freedom and thus be more reactant.

Multiple Regression Analyses

MRA₁ revealed existential loneliness to be the strongest predictor of depression (BDI). Due to possible heteroscedasticity, the MRA was re-run after a transformation on the BDI data, and comparisons were made between the two models. As highlighted in the Results section, meaning (presence and search) and gender add only a little to their respective models, with existential loneliness and identity distress being the major contributors. Although transforming variables is not ideal, both models have their advantages. The model with transformed BDI scores excludes gender, which suggests that depression is not more of a problem for females than males. The four predictors in the original model explained 62% of variance in BDI scores, and 61% was explained by the three predictors in the transformed model. While the contributions from meaning (both measures) are minor, each model favours one meaning measure over the other, but, either way, both the *search* for and the *presence* of meaning are predictors (and maybe solutions) for depression. (i.e., high scores on meaning tend to indicate low levels of depression, as is indicated by the negative partial correlations in both models). Further research may shed more light on which model is superior.

MRA₂ revealed search for meaning to be the strongest predictor of existential thinking (SET). It may be that by actively searching for meaning in one's life, one is actively thinking about existential concepts. Identity distress contributed a little to the model, followed by education, which may be explained by the fact that thinking, generally, is developed and encouraged in schools and universities. In total, these three predictors explained 13% of the variance in SET scores.

The differences found between the zero-order and partial correlations generated for the predictors that were included in the models (see Tables 8 to 10), suggest that the relationships between the ECs, depression, and existential thinking may in reality differ to those suggested in the reviewed literature. In particular, although the zero-order correlation is positive for search for meaning (MLQ-S) in MRA₁, the partial correlation shows a negative relationship between MLQ-S and BDI, which actually disconfirms past research (Grouden & Jose, 2015; Steger et al., 2006).

Limitations

One limitation of the study is that only the five ECs (and some demographic variables) were assessed, but it was well beyond the scope of the present study to identify and investigate all potentially related variables. Past research has suggested that many such variables are likely to influence the experience of one or more of the ECs, as well as the three dependent variables, such as an individual's spirituality, their physical wellbeing, and if they have children (Becker, 2006; Wink, 2006; Zhou, Lei, Marley, & Chen, 2009). Existential concerns encompass all of our existence, so it could be posited that every factor in life has the potential to influence the ECs and how they associate with depression and existential thinking.

Practical Applications, Implications, and Future Research

Recognition of the associations between the ECs and depression could enhance clinical understandings of these relationships and consequently aid in the treatment of clients who exhibit existential distress. The findings are relevant to fields such as health psychology and psycho-oncology, in which existential distress is commonly encountered. The strong positive relationship found between existential loneliness and depression in particular suggests that if an individual is feeling isolated and alone, they are likely to have higher levels of depression. Similarly, if an individual presents with high levels of depression, it may prove beneficial for the clinician to assess the individual's existential loneliness (assuming the therapy does not already follow that course), in order to help provide the individual with the best possible treatment.

The association found between the ECs and existential thinking might also be of interest to theoreticians and clinicians. Therapies that target thinking patterns, such as cognitive-behaviour therapy (CBT), may benefit from this empirical insight of how existential thought is related to the ECs.

The negative correlation found between the ECs and presence of meaning offers support to meaning-centred psychotherapy, such as Frankl's (1959) logotherapy. The emphasis these therapies place on assisting clients to see meaning in life could be adopted by other therapies to enhance their effectiveness, given that the presence of meaning tends to reduce the experience of the other ECs. Presence of meaning also related negatively to depression, providing further evidence that lack of meaning is a clinical issue.

The strong relationships between the ECs (see the section above, *Relationships Between the Existential Concerns*) suggest that they might be elements of a single over-arching construct. This is of particular relevance to meaning-centered clinical approaches and therapy. If so, our findings imply that the ECs should be viewed and studied in relation to one another. Thus, a multi-factorial approach would be preferred over the sole focus on one concern, as the latter overlooks the influence of each concern on the other. In fact, the results from the MRAs (in particular, the partial correlations) confirm that standard (zero-order) correlations, reported in most of the studies reviewed, are often inaccurate (inflated or deflated) and are thus misleading. In that regard, further research in this area should also focus on the roles of ECs as possible mediators and moderators in the various relationships such as those found above.

Conclusion

The findings from this study principally revealed the ECs (death anxiety, existential loneliness, identity distress, reactance, search for meaning and presence of meaning) to be highly inter-related—with significant correlations found between all ECs except for the relationship between death anxiety and reactance. All ECs were positively related with one another and to depression and existential thinking, apart from the presence of meaning, which related negatively to the other concerns and the two dependent variables. These findings have implications for the important role of presence of meaning in mediating the other ECs, depression and existential thinking.

Although the five ECs that Koole et al. (2006) listed have been investigated separately in past research, there is evidently a large literature gap in studies addressing all five concerns simultaneously. Through studying the ECs concurrently, and viewing them as a single albeit multi-factorial experience, rather than as separate, unrelated factors, the way in which they manifest psychologically could benefit our understanding. An increased awareness of the ECs may also reveal how the fundamental questions of life can be viewed positively and utilised to enrich our existence.

References

- Allan, B. A., & Shearer, C. B. (2012). The Scale for Existential Thinking. *International Journal of Transpersonal Studies*, 31(1), 21-37.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Becker, D. (2006). Therapy for the middle-aged: The relevance of existential issues. *American Journal of Psychotherapy Association for the Advancement of Psychotherapy*, 60(1), 87-99.
- Berman, S. L., Montgomery, M. J., & Kurtines, W. M. (2004). The development and validation of a measure of identity distress. *Identity*, 4(1), 1-8.
- Berman, S. L., Weems, C. F., & Stickle, T. R. (2006). Existential anxiety in adolescents: Prevalence, structure, association with psychological symptoms and identity development. *Journal of Youth and Adolescence*, 35(3), 285-292.
- Brandstatter, M., Baumann, U., Borasio, G. D., & Fegg, M. J. (2012). Systematic review of meaning in life assessment instruments. *Psychooncology*, 21(10), 1034-1052.
- Brehm, J. W. (1966). *A theory of psychological reactance*. New York, NY: Academic Press.
- Brown, A. R., Finney, S. J., & France, M. K. (2010). Using the bifactor model to assess the dimensionality of the Hong Psychological Reactance Scale. *Educational and Psychological Measurement*, 71(1), 170-185.
- Camus, A. (1942). *The myth of Sisyphus*. London, England: Penguin Books.
- Conte, H. R., Plutchik, R., & Weiner, M. B. (1982). Measuring death anxiety: Conceptual, psychometric, and factor-analytic aspects. *Journal of Personality and Social Psychology*, 43(4), 775-785.
- Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, 18(3), 215-238.

- Fernandez, A. (2014). Depression as existential feeling or de-situatedness? Distinguishing structure from mode in psychopathology. *Phenomenology and the Cognitive Sciences*, 13(4), 595-612.
- Frankl, V. E. (1959). *Man's search for meaning*. New York, NY: Pocket Books.
- Fromm, E. (1956). *The art of loving*. New York, NY: Harper & Row.
- García-Alandete, J., Gallego-Pérez, J. F., & Pérez-Delgado, E. (2009). Purpose in life and hopelessness: An empirical study. *Universitas Psychologica*, 8(2), 447- 455.
- George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference*. Boston, MA: Pearson.
- Grouden, M. E., & Jose, P. E. (2015). Do sources of meaning differentially predict search for meaning, presence of meaning, and wellbeing? *International Journal of Wellbeing*, 5(1), 33-52.
- Heidegger, M. (1962). *Being and time*. New York, NY: Harper Perennial.
- Hill, B. D., Musso, M., Jones, G. N., Pella, R. D., & Gouvier, W. D. (2012). A psychometric evaluation of the STAI-Y, BDI-II, and PAI using single and multifactorial models in young adults seeking psychoeducational evaluation. *Journal of Psychoeducational Assessment*, 31(3), 300-312.
- Hong, S. M., & Faedda, S. (1996). Refinement of the Hong Psychological Reactance Scale. *Educational & Psychological Measurement*, 56(1), 173-182.
- Hong, S. M., & Giannakopoulos, E. (1994). The relationship of satisfaction with life to personality characteristics. *The Journal of Psychology*, 128(5), 547-558.
- Hullett, M. A. (1994). *A validation study of the Existential Anxiety Scale*. Paper presented at the Annual Meeting of the Middle Tennessee Psychological Association, Nashville, TN.
- Kesebir, P., & Pyszczynski, T. (2011). *The role of death in life: Existential aspects of human motivation*. New York, NY: Oxford University Press.
- Koole, S. L., Greenberg, J., & Pyszczynski, T. (2006). Introducing science to the psychology of the soul. *Current Directions in Psychological Science*, 15(5), 212-216.
- Kroger, J., & Marcia, J. E. (2011). The identity statuses: Origins, meanings, and interpretations. *Handbook of identity theory and research* (pp. 31-53). New York, NY: Springer.
- Lantz, J., & Harper, K. (1989). Network intervention, existential depression, and the relocated Appalachian family. *Contemporary Family Therapy*, 11(3), 213-223.
- Latha, K. S., Sahana, M., Mariella, D., Subbannayya, K., & Asha, K. (2013). Factors related to life satisfaction, meaning of life, religiosity and death anxiety in health care staff and students: A cross sectional study from India. *Online Journal of Health and Allied Sciences*, 12(2), 1-7.
- Mascaro, N., & Rosen, D. H. (2005). Existential meaning's role in the enhancement of hope and prevention of depressive symptoms. *Journal of Personality*, 73(4), 985-1013.
- May, R. (2004). Contributions of existential psychotherapy. In R. May, E. Angel, & H. F. Ellenberger (Eds.), *Existence* (pp. 37-92). Maryland: Rowman & Littlefield.
- May, R. (1983). *The discovery of being*. New York, NY: Norton.
- 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.
- Rae, G. (2010). Alienation, authenticity and the self. *History of the Human Sciences*, 23(4), 21-36.
- Rank, O. (1945). *Will therapy and truth and reality* (J. Taft, Trans.). New York, NY: Knopf.

- 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.
- Royal, K. D., & Elahi, F. (2011). Psychometric properties of the Death Anxiety Scale (DAS) among terminally ill cancer patients. *Journal of Psychosocial Oncology*, 29(4), 359-371.
- Samuolis, J., Barcellos, M., LaFlam, J., Belson, D., & Berard, J. (2015). Mental health issues and their relation to identity distress in college students. *Identity*, 15(1), 66-73.
- Schnell, T. (2010). Existential indifference: Another quality of meaning in life. *Journal of Humanistic Psychology*, 50(3), 351-373.
- Shen, L., & Dillard, J. P. (2005). Psychometric properties of the Hong Psychological Reactance Scale. *Journal of Personality Assessment*, 85(1), 74-81.
- Shiah, Y. J., Chang, F., Chiang, S. K., Lin, I. M., & Tam, W. C. (2015). Religion and health: Anxiety, religiosity, meaning of life and mental health. *Journal of Religion and Health*, 54(1), 35-45.
- Spinelli, E. (1989). *The interpreted world: An introduction to phenomenological psychology*. London, England: Sage.
- 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.
- Templer, D. I. (1970). The construction and validation of a Death Anxiety Scale. *The Journal of General Psychology*, 82(2), 165-177.
- Tillich, P. (1959). *The courage to be*. Clinton, MA: Yale University Press.
- Van Bruggen, V., Vos, J., Westerhof, G., Bohlmeijer, E., & Glas, G. (2014). Systematic review of existential anxiety instruments. *Journal of Humanistic Psychology*, 55(2), 173-201.
- Van der Heyden, K., Dezutter, J., & Beyers, W. (2015). Meaning in life and depressive symptoms: A person-oriented approach in residential and community-dwelling older adults. *Aging & Mental Health*, 19(12), 1063-1070.
- Vink, D., Aartsen, M. J., Comijs, H. C., Heymans, M. W., Penninx, B., Stek, M. I. ... & Beekman, A. (2009). Onset of anxiety and depression in the aging population: Comparison of risk factors in a 9-year prospective study. *American Journal of Geriatric Psychiatry*, 17(8), 642-652.
- Viswanathan, R. (1996). Death anxiety, locus of control, and purpose in life of physicians. *Psychosomatics*, 37(4), 339-345.
- Wang, Y. P., & Gorenstein, C. (2013). Psychometric properties of the Beck Depression Inventory-II: A comprehensive review. *Revista Brasileira de Psiquiatria*, 35(4), 416-431.
- Weems, C. F., Costa, N. M., Dehon, C., & Berman, S. L. (2004). Paul Tillich's theory of existential anxiety: A preliminary conceptual and empirical examination. *Anxiety, Stress & Coping*, 17(4), 383-399.
- White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica*, 48(4), 817-838.
- Wink, P. (2006). Who is afraid of death? Religiousness, spirituality, and death anxiety in late adulthood. *Journal of Religion, Spirituality & Aging*, 18(2-3), 93-110.
- Yalom, I. (1980). *Existential psychotherapy*. New York, NY: Basic Books.
- Zhou, X., Lei, Q., Marley, S. C., & Chen, J. (2009). Existential function of babies: Babies as a buffer of death-related anxiety. *Asian Journal of Social Psychology*, 12(1), 40-46.