



An integration of quadripartite and helplessness-hopelessness models of depression using the Turkish version of the Learned Helplessness Scale (LHS)

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ABSTRACT

The main focus of this study was to investigate links between the diathesis-stress hypotheses of the quadripartite model and the helplessness-hopelessness theory of depression. Simultaneously the study tested the psychometric properties of the Turkish version of the Learned Helplessness Scale (LHS). To this end, the LHS was initially administered to a pilot sample consisting of 440 college students. Next, the LHS, Beck Hopelessness Scale (BHS), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Pittsburgh Sleep Quality Index (PSQI), Generalised Self-Efficacy Scale (GSES), and Rosenberg Self-Esteem Scale (RSES) were administered to 191 college students. Factor structures extracted from the data on the initial sample was tested on the validation sample and a three-factor structure containing “Internal and Stable Appraisals”, “Losing Control” and “General Helplessness” was confirmed. Considering the differentiation between anxiety and depression along with the hypothesis of helplessness-hopelessness theory, it appeared that hopelessness and poor self-esteem constituted specific dimensions of depressive symptomatology. Poor sleep quality was a non-specific component of both anxiety and depression. Helplessness was strongly associated with low self-worth. The results of the present study are discussed in light of quadripartite and helplessness-hopelessness models of depression.

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Introduction

In the most recent revision of the Diagnostic and Statistical Manual of Mental Disorders, the constellation of diagnostic criteria for major depressive disorder consists of depressed mood, anhedonia, weight loss or gain, insomnia or hypersomnia, motor retardation or agitation, loss of energy, decreased self-worth, and impaired capacity to make decisions. Five or more of these symptoms should be present during the past 2-week period (American Psychiatric Association [APA], 2013). The lifetime risk of at least one major depression episode has been estimated as being as much as 30% for males and 40% for females (Krujshaar et al., 2005).

Depression is a recurrent mental illness from which only one-fifth of inpatients with depression recover and remain continuously remitted (Kiloh, Andrews, & Neilson, 1988; Lee & Murray, 1988). Scholars have consistently reported linear associations between functional impairment and the number of depressive symptoms (Kessler, Zhao, Blazer, & Swartz, 1997; Sakashita, Slade, & Andrews, 2007; Ustun & Sartorius, 1995). Using taxometric analysis, an advanced statistical approach

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to determine whether a given construct is optimally represented by a taxonomic or a continuum model, a vast body of epidemiological evidence has indicated that depressive symptoms can be best understood in a continuum model rather than as a discrete diagnostic entity (Andrews et al., 2008; Widiger & Mullins-Sweatt, 2014).

Diagnosis of major depression reveals moderate to robust correlations with a broad range of psychiatric disorders, including generalised anxiety disorder (GAD), obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), panic disorder (PD), social phobia, agoraphobia and simple/social phobia (Watson, 2009). Nevertheless, most individuals with a diagnosis of depressive disorder also meet the criteria for a comorbid anxiety disorder (Mineka, Watson, & Clark, 1998; Watson, 2005, 2009; Yildirim, Boysan, & Kefeli, 2018). Various lines of research have posited accounts for the high comorbidity of depression and anxiety. Scholars have conceptualised the robust relationships between depression and anxiety in at least three ways: (a) clinical conditions along the same continuum, (b) alternative manifestations of shared aetiology, or (c) distinct phenomena, each of which may develop into the other over time. Each of these viewpoints has been empirically evidenced to an extent (Clark, 1989).

Diagnostic criteria for GAD encompass body tension, decreased emotional tolerance, fatigue, difficulty concentrating, irritability and sleep disturbance (APA, 2013). Differential diagnosis between depression and anxiety relies on the assessment of whether the clinical manifestation of the symptoms arises from physiological arousal or depressive mood (Eaton & Krueger, 2014). The premise that depressive psychopathology commonly co-occurs with anxiety disorders has been well-recognised (Eaton & Krueger, 2014; Krueger & Markon, 2006; Watson & Stasik, 2014). In a cohort study of comorbidity patterns of anxiety and depression, 67% of those participants with the depressive disorder had a current, and 75% had a lifetime, comorbid anxiety disorder, whereas 63% of those subjects with an anxiety disorder had a current, and 81% had a lifetime, depressive disorder (Lamers et al., 2011). Co-occurrence of depressive and anxiety disorders is dependent on earlier age at onset of the disorder, longer duration of both depression and/or anxiety, and greater symptom severity (Lamers et al., 2011; Schoevers, Beekman, Deeg, Jonker, & van Tilburg, 2003). A vast body of evidence suggests that anxiety-depression comorbidity appears to be at the more severe end of the affective dysregulation spectrum and can be best understood along a continuum. The prevailing notion holds that anxiety usually precedes depression in sequential order and eventually evolves into depressive symptomatology. A number of community surveys and clinical investigations of sequential overlap between anxiety and depression have lent robust evidence supporting the premise that anxious symptomatology is the key component in the development of depressive disorder (Fava et al., 2000; Kessler et al., 1996; Kovacs, Gatsonis, Paulauskas, & Richards, 1989; Parker et al., 1999; Rohde, Lewinsohn, & Seeley, 1991). The presence of prior anxious symptomatology also accounted for a considerable part of the gender differences in depression (Breslau, Schultz, & Peterson, 1995; Hettema, Prescott, & Kendler, 2003; Lewinsohn, Zinbarg, Seeley, Lewinsohn, & Sack, 1997). However, these findings are not immutable and more recent comorbidity studies of depression and anxiety showed that these two clinical entities are highly inter-related and each seems to be a crucial risk factor for the other disorder in sequential order (Kessler et al., 2008; Moffitt et al., 2007).

Several conceptual models of comorbidity have been contended to develop a more sophisticated understanding of the robust associations between depression and anxiety in particular, and affect regulation in general. The *two-factor affective model* posits that emotional experiences can be best understood through two higher-order dominant dimensions: negative affect and positive affect (Watson, Clark, and Carey, 1988; Watson, Wiese, Vaidya, & Tellegen, 1999). A more advanced *tripartite model of affect* proposes a multi-level architecture of affect regulation, such that a constellation of non-specific symptoms of depressed and anxious mood such as sleep problems or poor concentration represents a higher-order general distress dimension. Secondly, each construct includes unique features that differentiate one from the other. Anhedonia is suggested to be the key component specific to depressive mood, and higher levels of somatic tension and physiological

arousal is central to anxiety. The shared higher-order component represents broad individual differences in general distress or negative affectivity and is responsible for the overlap between these two clinical entities (Clark & Watson, 1991; Eaton & Krueger, 2014; Watson, 2005). Meta-analytic investigations concerning the relations between personality and affect report strong evidence for neuroticism, accounting for the general variance across various types of psychopathology (Kotov, Gamez, Schmidt, & Watson, 2010; Watson et al., 1999). The basic assumptions of the tripartite model have received extensive support (Boysan & Kiral, 2016; Chorpita, 2002; Guney, Kalafat, & Boysan, 2010; Watson, 2005; Watson et al., 1995).

Epidemiological studies have demonstrated the need for further theoretical refinements to understand the potential overlaps and discrepancies between anxiety and depression symptoms. Consistent with the previous scheme, Mineka et al. (1998) articulated an *integrative hierarchical model* representing a synthesis of the tripartite model and hierarchical organisation of the anxiety disorders. According to the model, the shared general factor represents broad individual differences in negative affectivity that are common to both anxiety and mood disorders. On the other hand, each disorder also consists of unique features that differentiate it from all others (Eaton & Krueger, 2014). Finally, Watson (2009) proposed the *quadripartite model* that focuses on specific symptom clusters within anxiety and mood disorders. The new scheme classifies anxiety and depression symptoms according to both specific and non-specific symptom dimensions. It was assumed that broad individual differences across disorders occur depending on the general negative affectivity component as well as specificity of symptom clusters to a respective mental disorder. In short, to enhance the differential diagnosis in assessment of comorbidity between clinical entities, more specifically anxiety and depression, we need to consider two qualitatively different properties of symptoms: the *level of symptom specificity*, and the *severity of general negative affectivity* (Watson et al., 2007; Watson, O'Hara, & Stuart, 2008). Varying combinations of these two quantitative elements were proposed to be used to promote differential diagnosis between clinical conditions (Watson, 2009).

The data from a large sample of college students, psychiatric patients and community adults subjected to a series of structural analyses demonstrated that dysphoria, suicidality, lassitude/fatigue and poor well-being had robust overall associations with depression and thus revealed impressive diagnostic specificity; whereas, appetite loss or gain, and sleep disturbance exhibited inconsistent evidence for diagnostic specificity. These findings can be interpreted as indicating that sleep problems may be a relatively weak and non-specific indicator of depressive disorder (Watson et al., 2007). The non-specific symptom dimensions have relatively unimpressive predictive value in differentiating mood disorders (Eaton & Krueger, 2014; Gamez, Kotov, & Watson, 2010; Watson, 2009; Watson et al., 2012; Watson et al., 2007; Watson et al., 2008). The non-specific symptom clusters, such as sleep problems, may be superfluous in the development and maintenance of depressive disorder but rather responsible for overlap with other clinical phenomena such as anxiety symptoms. It is particularly noteworthy that many depressive symptoms (e.g. sleep impairment, mood disturbance, fatigue) are also the key features of primary insomnia (Carney, Ulmer, Edinger, Krystal, & Knauss, 2009). On the other hand, alleviation in sleep impairment appears to be a good indicator of more positive clinical outcomes during the treatment of major depressive disorder (Gulec et al., 2011; Guzel Ozdemir et al., 2015; Selvi et al., 2010).

Biological, social and cognitive aspects of predisposing, precipitating and perpetuating factors are of crucial importance in conceptualising the development and co-occurrence of psychopathology (Monroe & Simons, 1991). Cognitive vulnerability models largely predicated upon diathesis-stress interactions are the prevailing notion in understanding the underlying risk factors for either depression or anxiety as well as overlaps and differences between symptom patterns of these two clinical entities (Hankin & Abela, 2005; Mathews & MacLeod, 2005). Accordingly, individuals high in cognitive vulnerability are more prone to develop increased depressive symptomatology in stressful situations; on the other hand, cognitively vulnerable individuals are no more at greater risk than less vulnerable individuals in the absence of negative life events (Abela & Hankin, 2008). The helplessness-hopelessness model of emotion dysregulation is one of the early conceptualisations accounting for

causal relations between cognitive appraisals and mood changes (Swendsen, 1997, 1998). The theory holds that the helplessness emerges from the belief that outcomes are not dependent upon the strivings of an individual in the face of a stressful situation. From this view, a tendency to generalise from an experience of a failure in a specific situation to a more general sense of inadequacy in many situations plays a part in depressive attribution style. Thus, the helplessness model suggests that depressive symptomatology is associated with past failures to control stressful experiences that lead to a maladaptive expectation of uncontrollability (Seligman, 1975).

The reformulated learned-helplessness theory held a key role for future expectations of non-contingency heavily reliant upon attributions relevant to the causes of stressful life events (Abramson, Seligman, & Teasdale, 1978). The reformulated model of helplessness in depression proposed three dimensions of causal judgments that arise from a person's expectations of non-contingency: (i) whether the causes of aversive events are attributed to the person or the situation; (ii) whether the causes of bad events are attributed to a variety of situations or a particular situation; and (iii) whether the causes of stressful situations are considered as stable or transient factors. The inclination to make internal, global and stable causality attributions for negative events accompanied by an opposite style for good events is thought to be indicative of the "depressive attributional style" (Buchanan & Seligman, 1995). Given the relatively poor reliability of internal attributions, this dimension was considered to be more relevant to low self-esteem (Abramson, Alloy, & Metalsky, 1986).

The helplessness-hopelessness theory of depression represents a revision and refinement of the reformulated learned-helplessness theory in combination with the assumptions of the cognitive diathesis-stress view of psychopathology (Atherley, 1988). Hopelessness is defined as having negative expectancies about the future and feeling helpless in regards to one's ability to alter these negative outcomes. Hopelessness is suggested to be a proximal cognitive vulnerability factor for the development, maintenance and recurrence of depressive symptomatology (Abramson, Alloy, & Metalsky, 1989; Alloy, Abramson, Metalsky, & Hartlage, 1988). Metalsky, Joiner, Hardin, and Abramson (1993) proposed and empirically evidenced an integration between low self-esteem and helplessness-hopelessness theory to more fully account for the central role of cognitive vulnerability in depression. In keeping with the assumptions of the integrated helplessness-hopelessness model of depression, depressogenic inferential styles interacting with negative life events were crucial antecedents of depressive symptoms among individuals with low self-esteem (Abela & Skitch, 2007; Abela, 2002; Abela & Payne, 2003; Southall & Roberts, 2002). In addition, even though, low self-esteem was found to be associated with both depression and anxiety; it was more likely to be a specific antecedent of depression rather than anxiety (Sowislo & Orth, 2013).

In this vein, reliable assessment of the construct of helplessness is important to help understand the vulnerability and protective factors implicated in negative emotional states from the view of helplessness-hopelessness models. Although, the helplessness-hopelessness theory has been advanced by a number of researchers, few instruments with sound psychometric properties have been designed for objective assessment of relevant behaviours (Quinless & Nelson, 1988). The Attributional Style Questionnaire (ASQ), the most widely used screening tool in the assessment of depressogenic attributional style, consists of 12 hypothetical vignettes. The respondents are asked to evaluate the degree of each hypothetical event which is contingent upon internal versus external, global versus specific, and stable versus transient causes (Peterson et al., 1982). However, there has been a controversy that the ASQ lacks acceptable norms and uses hypothetical events to identify depressogenic attributions (Hammen & Cochran, 1981). It has also been questioned whether a depressive attributional style is a stable aspect of personality or dependent on an interaction between internal states and contextual factors (Persons & Rao, 1985). Researchers have identified that significant relationships between depressive symptoms and negative cognitive appraisals of hypothetical events may be a function of psychopathology which may also be indicative of the state-dependent nature of ASQ assessment (Miranda, Persons, & Byers, 1990; Persons & Miranda, 1992, 2002).

An alternative screening tool, the 20-item self-report Learned Helplessness Scale (LHS) was designed by Quinless and Nelson (1988) to assess a general tendency to experience helplessness in clinical and nonclinical adult samples. Twenty items were selected from an item pool containing 50 items and the psychometric properties of LHS were investigated on datasets collected from community and patient samples consisting of oncology, haemodialysis and spinal cord patients. Alpha reliability coefficients were above .83 among various samples recruited from the general population and inpatients. The scores on LHS were positively associated with hopelessness and negatively associated with self-esteem, providing robust evidence of construct validity. A five-factor structure of depressive attributional style was extracted using explanatory factor analysis (Quinless & Nelson, 1988). In keeping with the theoretical framework of the cognitive helplessness model, three factors consisting of internal vs external, global vs specific and stable vs unstable accounted for 45% of the variance and two factors remained with two items in each which explained 2% of the variance. Although LHS has been used in a number of empirical investigations of helplessness as a vulnerability factor (Boysan, Beşiroğlu, Kara, Kayri, & Keskin, 2008; McKean, 1994; Wilson, Varcella, Brems, Benning, & Renfro, 1993), the psychometric properties of the instrument have received no further attention. Therefore, the current study offers a preliminary investigation of the factor structure and psychometric features of LHS after the original validation study by Quinless and Nelson (1988).

The helplessness-hopelessness theory reformulated as a vulnerability model of psychopathology posits that individuals high in self-esteem are much less likely to use depressogenic inferential styles in response to negative life experiences in which self-esteem buffers against depression and anxiety (Alloy & Riskind, 2006). The helplessness-hopelessness model also puts forward a distinct subtype of depression, hopelessness depression, characterised by the presence of at least five of 11 symptoms over the past two weeks: sadness, retarded initiation of voluntary responses, suicidal ideation, sleep disturbance, fatigue, self-blame, concentration difficulties, psychomotor retardation, repetitive thoughts, reduced self-esteem, and dependency (Alloy et al., 2006). Research on this hopelessness depression subtype has largely focused on the differential diagnosis of hopelessness versus non-hopelessness depression as a negative outcome of diathesis-stress interaction (Abela, Gagnon, & Auerbach, 2007; Haslam & Beck, 1994; Joiner et al., 2001; Metalsky & Joiner, 1997; Whisman, Miller, Norman, & Keitner, 1995; Whisman & Pinto, 1997). Findings have been equivocal and the hopelessness depression subtype mostly overlapped with other forms of depressive symptomatology (Liu, Kleiman, Nestor, & Cheek, 2015). On the other hand, the quadripartite model of emotional disorders places an emphasis on the differential diagnosis of depression and anxiety, providing a framework for analysing symptoms – the level of symptom specificity and the magnitude of the general distress variance (Watson, 2009). A reconciliation between the helplessness-hopelessness theory and the quadripartite model in the differential diagnosis of anxiety and depression would be very helpful for clinical practice. Evaluation of discrepancies in the strength of associations of self-esteem, hopelessness and helplessness with anxiety and depression may be helpful in understanding overlaps and discrepancies between depression and anxiety. Moreover, differences in direct and indirect relationships of cognitive vulnerability factors with anxiety and depression may also add to the theoretical considerations concerning the complex relationships between these clinical phenomena.

To this end, the present study was undertaken in an effort to (a) assess the psychometric properties of the Turkish version of LHS; (b) explore the associations of depression and anxiety with learned helplessness, hopelessness, self-esteem, self-efficacy, and sleep quality based on the assumptions of the quadripartite model; and (c) investigate significant relations between depression and anxiety mediated by learned helplessness, hopelessness, self-esteem, self-efficacy, and sleep quality. It was hypothesised that scores on learned helplessness as indexed by the Turkish version of LHS would indicate sound and promising psychometric properties. In addition, consistent with the helplessness-hopelessness model of depression, hopelessness, helplessness, and self-esteem would be found to be stronger correlates of depressive symptoms relative to anxiety symptoms. Conversely, in keeping with the quadripartite model, sleep was expected to be identified as a non-specific component in its relationships with anxiety and depression. In addition, mediator regression models

would show that anxiety and depression have significant indirect associations through mediator variables irrespective of whether these mediator variables are specific or non-specific components of anxiety or depression.

Method

Participants and procedure

The initial sample consisted of 440 undergraduates (286 males & 154 females) who were enrolled in various programmes at Van Yüzüncü Yıl University, Turkey. Close to 11% of participants were financially strained, 67.73% had an average income and 21.37% had an upper level of income. The mean age of participants was 21.55 ($SD \pm 3.13$). The participants in the validation sample consisted of 192 undergraduates between the ages of 17 and 25. The mean age was 19.67 ($SD \pm 1.53$) and 59.38% of participants were female. Approximately two-thirds of the sample (68.23%) were from families with average income, 14.58% had financial difficulties and 17.19% were from higher socioeconomic status.

The opportunity to participate in the study was announced in classrooms. Volunteers were briefly informed about the purpose and procedures of the study and a battery of psychometric measures were administered during the end of the fall semester in 2004. All participants provided written informed consent.

In order to develop the Turkish version of LHS, all 20 items were translated from English to Turkish. Items of the translated version of the Turkish LHS were reviewed by three bilingual academicians and a final Turkish version of the instrument was finalised.

Instruments

Learned Helplessness Scale (LHS)

The LHS (Quinless & Nelson, 1988) is a 20-item self-report questionnaire designed to assess the degree of perceived helplessness. Each item is rated on a 4-point scale ranging from 1 to 4, with half of the items requiring reverse coding. To obtain normative and clinical data, the original English version was administered to community samples and clinical adult populations including oncology patients, haemodialysis patients and spinal cord injury patients. Factor analysis of scores on the LHS yielded a five-factor structure, of which three factors overlapped with the reformulated helplessness theory (internal versus external, global versus specific and stable versus unstable). Two items tapping Factor 4 are related to ability-inability to control outcomes of situations. Factor 5 contains items concerning one's ability-inability to make choices in situations. The internal consistency coefficients for both the adult community sample and the clinical samples on the original English LHS were .83 or above. The LHS was positively associated with hopelessness and negatively associated with self-esteem (Quinless & Nelson, 1988). Further research on learned helplessness among undergraduates identified significant associations of scores on the LHS with procrastination (McKean, 1994), sleep-related beliefs and behaviours (Hood, Carney, & Harris, 2011), and with environmental concern (Landry, Gifford, Milfont, Weeks, & Arnocky, 2018).

Beck Hopelessness Scale (BHS)

The BHS (Beck, Weissman, Lester, & Trexler, 1974) is a 20-item self-report questionnaire designed to assesses hopelessness. Respondents are asked to rate each item as true or false and the theoretical range is 0 to 20. The Turkish version of the scale has good psychometric properties, with an internal consistency coefficient of $\alpha = .85$ and good convergent validity with depression (Durak, 1994; Durak & Palabiyıkođlu, 1994).

Beck Depression Inventory (BDI)

The BDI (Beck, Rush, Shaw, & Emery, 1979) is a 21-item self-report questionnaire developed to assess the frequency and symptom severity of depression. Each item is responded to on a scale ranging from 0 to 3 and the theoretical range is 0 to 63. The Turkish version has good reliability and validity with a Cronbach's alpha of $\alpha=.80$. The Turkish BDI was found to be significantly correlated with Minnesota Multiphasic Personality Inventory depression subscale (Hisli, 1989).

Beck Anxiety Inventory (BAI)

The BAI (Beck, Brown, Epstein, & Steer, 1988) is a 21-item self-report questionnaire to assess frequency and severity of physiological symptoms of anxiety. Each item-response ranges from 0 to 3 and the instrument yields a theoretical range of 0 to 63. The BAI was adapted for use in Turkey by Ulusoy, Sahin, and Erkmen (1998). The Turkish version has good reliability with an internal consistency of $\alpha=.93$. It also has good convergent validity with depression, hopelessness, automatic thoughts and state-trait anxiety.

Pittsburgh Sleep Quality Index (PSQI)

Sleep quality was assessed using the PSQI (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), a self-report questionnaire developed to evaluate seven components of sleep during the past month: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medication and daytime dysfunction. High scores on the PSQI indicate poor sleep quality. The Turkish version of the PSQI has sound psychometric properties with an internal consistency of $\alpha=.80$ (Ağargün, Kara, & Anlar, 1996). Overall, the diagnostic efficiency of scores on the PSQI has been reported to be 97.5% (Yildirim & Boysan, 2017).

Generalised Self-Efficacy Scale (GSES)

The GSES (Schwarzer & Jerusalem, 1995) is a 10-item self-report instrument developed to evaluate self-efficacy. Aypay (2010) has reported a good internal consistency of $\alpha=.83$ for the Turkish adaptation. The GSES has been found to be significantly correlated with problem-focused coping and self-esteem.

Rosenberg Self-Esteem Scale (RSES)

The RSES (Rosenberg, 1965) is a 10-item brief scale developed to assess the self-worth of individuals using a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). Low scores on the scale indicate poor self-esteem. The Turkish version of the scale had a test-retest reliability of $r=.71$ during a 4-week period. RSES scores have been found to differentiate between psychotic adolescents and adolescents without any psychiatric disorders (Çuhadaroğlu, 1986).

Statistical Analysis

The pilot sample data were subjected to explanatory factor analyses (EFAs). To test the latent factor structure of the LHS, a series of confirmatory factor analyses (CFAs) were performed. Alternative models were compared using difference tests.

Two mediation regression analyses using the "conditional process analysis" approach with the bootstrapping procedure recommended by Hayes (2013) were performed. In the first mediation regression analysis, the relationship between depression and anxiety was mediated by learned helplessness, hopelessness and poor sleep quality after controlling for age, gender and perceived income (Figure 2). In the second analysis, self-esteem and self-efficacy were added as mediators to the former mediation regression model and .95% bias-corrected confidence intervals for the indirect pathways were computed (confidence intervals that do not include 0 denote significant indirect effects). Direct and indirect effects were estimated using the SPSS macro developed by Preacher and Hayes (2008).

Results

Exploratory and confirmatory factor analyses

A principal components analysis (PCA) with varimax rotation was conducted on the LHS items using the pilot sample. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.812 which indicated an accurate sample size for the factor analytical investigation. Bartlett's test of sphericity exhibited a significant value of $\chi^2_{(190)} = 1191.199$. Examination of the pattern and theoretical coherence of the item loadings suggested a two-factor model, accounting for 31.25% of the total variance (see Table 1).

To test the latent factor structure of the Turkish LHS identified in the pilot sample, a series of CFAs were carried out on the data recruited from the validation sample. Five alternative models were tested. A two-factor structure with correlated latent factors was specified as Model 1. Model 1 had a poor fit to the data: Weighted Least Squares (WLS) $\chi^2_{(169)} = 309.327$, $p < .001$; Root Mean Square Error of Approximation (RMSEA) was 0.068 (90% CI = 0.056 to 0.080, $p = .009$); Comparative Fit Index (CFI) was 0.864; and weighted root mean square residual (WRMR) was 1.107.

Next, a three-factor model with correlated latent factors was specified (Model 2). Model 2 also revealed a poor fit: WLS $\chi^2_{(167)} = 316.317$, $p < .001$; RMSEA was 0.07 (90% CI = 0.058 to 0.082, $p = .003$); CFI was 0.856; and WRMR was 1.118. Using a difference test, model comparisons were performed. In comparison to Model 1, Model 2 did not significantly improve the model χ^2 ($\Delta\chi^2_{(2)} = 4.667$, $p = .097$). Therefore, the two-factor structure of the LHS was accepted as the baseline model (Model 1), and two error covariance parameters were added based on the suggestions of modification indices. Either error covariance between Items 4 and 7 or between Items 14 and 15 resulted in a significant improvement in the model χ^2 ($p < .01$). Nevertheless, the model fit was not in an acceptable range: WLS $\chi^2_{(167)} = 287.419$, $p < .001$; RMSEA was 0.063 (90% CI = 0.051 to 0.075, $p = .043$); CFI was 0.884; and WRMR was 1.054. Finally, a bifactor model consisting of two-factor structure and a general learned helplessness latent factor revealed an adequate model fit, except for the chi square statistic which is invariably significant with a large sample size: WLS $\chi^2_{(147)} = 246.193$, $p < .001$; RMSEA was 0.061 (90% CI = 0.047 to 0.074, $p = .088$); CFI was 0.904; and WRMR was 0.898. The bifactor model outperformed alternative models. Weighted least square estimates for factor loadings are presented in Table 1 and model fit indices for tested confirmatory factor analysis (CFA) models are presented in Table 2. The path diagram is illustrated in Figure 1.

Factor analytic investigation of scores on the Turkish LHS did not replicate the five-factor structure of the original English version identified by Quinless and Nelson (1988). The discrepancy in factor structures may be due to the possibility that alternative factor structures were not tested in the original English version of the instrument. In addition, factor analyses of scores on English and Turkish versions of the LHS were conducted in samples with qualitatively different characteristics.

Convergence and divergence validity

To investigate the convergence and divergence validity of LHS, Pearson product-moment correlation coefficients between scale scores were computed. Moderate correlations between two factors of LHS and strong correlations with the LHS total were observed, which can be interpreted as indicating that learned helplessness is not a unidimensional psychological construct.

The utility of a factor structure should be indicated through associations with external criteria. The LHS total score exhibited associations of small to robust magnitude with theoretically related constructs. The LHS total and "Feelings of losing control" subscale were moderately associated with the BHS, BDI, and BAI; whereas Internal and Stable Attributions' subscale of the LHS revealed weak relationships with these measures of negative affect. The LHS total and subscale scores were negatively correlated with the RSES and GSES and the magnitude of connections with self-

Table 1. Factor loadings for exploratory and confirmatory factor analyses.

	Internal and stable appraisals	Losing control	Internal and stable appraisals		Losing control		General learned helplessness	
	λ	λ	β	p	β	p	β	p
Item 1	0.286	0.509			0.407	.063	0.523	.004
Item 2	0.630	-0.003	0.454	.002			0.439	.002
Item 3	0.554	0.233	0.354	.026			0.460	<.001
Item 4	-0.110	0.286			0.136	.232	0.152	.113
Item 5	0.490	-0.144	0.399	<.001			0.197	.127
Item 6	0.601	0.161	0.569	<.001			0.428	.017
Item 7	0.260	0.563			0.007	.978	0.586	<.001
Item 8	-0.094	0.601			0.476	.044	0.517	.006
Item 9	0.037	0.502			0.217	.321	0.510	<.001
Item 10	0.425	0.250	0.351	.001			0.287	.016
Item 11	0.130	0.428			0.002	.993	0.585	<.001
Item 12	0.375	0.230	0.216	.008			0.162	.067
Item 13	0.195	0.461			0.111	.652	0.591	<.001
Item 14	0.639	0.176	0.199	.277			0.533	<.001
Item 15	0.541	0.056	0.308	.004			0.222	.073
Item 16	0.638	0.139	0.315	.075			0.478	<.001
Item 17	-0.055	0.585			0.121	.610	0.611	<.001
Item 18	0.232	0.562			0.132	.590	0.576	<.001
Item 19	0.545	0.060	0.372	.003			0.329	.012
Item 20	0.564	-0.131	0.360	<.001			0.257	.053

Notes: λ , Varimax rotated factor loadings extracted from principal components analysis; β , standardised weighted least squares estimates derived from confirmatory factor analysis. Significant factor loadings are in bold.

variables was strong. All these relationships between screening tools were in the expected direction and indicated good convergent validity of the Turkish version of LHS. Finally, associations between the LHS total and subscale scores and the PSQI were relatively small but were indicative of divergence validity of LHS. Table 3 presents Pearson product-moment correlation coefficients.

As can be seen in Table 3, LHS exhibited excellent internal consistency, with a Cronbach's alpha of $\alpha = .80$. Both Internal and Stable Appraisals (Cronbach's $\alpha = .72$) and Feelings of Losing Control (Cronbach's $\alpha = .71$) subscales had acceptable internal reliability.

Mediation analysis

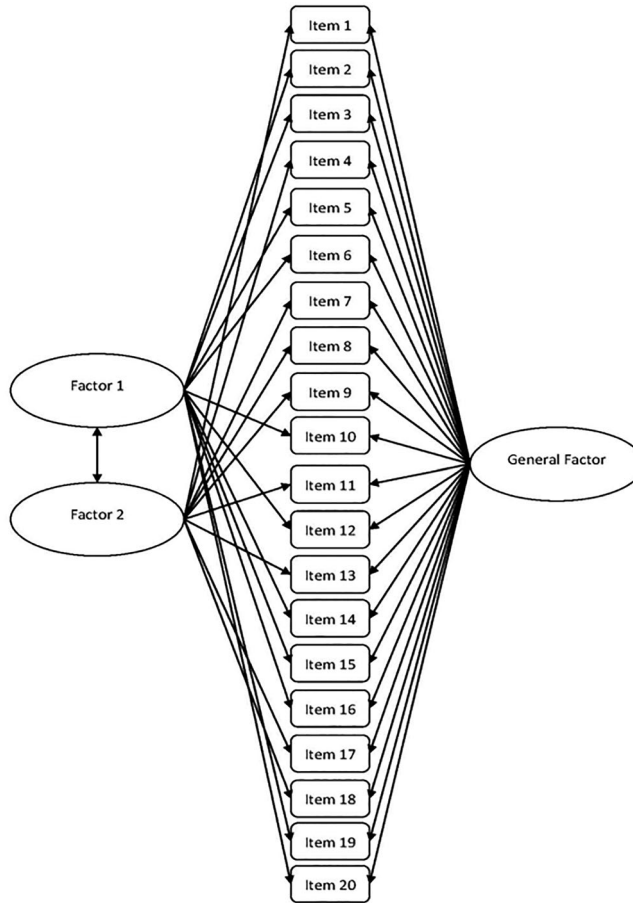
Using mediation regression analysis, the relationship between anxiety and depression mediated by learned helplessness, hopelessness, and sleep quality was investigated after controlling for age, gender and perceived income. The mediation regression model suggested that hopelessness ($\beta = 0.11$, 95% CI = 0.06 to 0.21), learned helplessness ($\beta = 0.03$, 95% CI = 0.01 to 0.09) and poor sleep quality ($\beta = 0.07$, 95% CI = 0.02 to 0.15) significantly mediated the relationship between anxiety and depression after controlling for demographic variables (age, gender and income). Figure 2 represents the mediation regression model.

To explore the shared variance between self-related variables (self-esteem and self-efficacy), helplessness-hopelessness and sleep in mediating the relationship between anxiety and depression, the second mediation regression model was tested. The nested model suggested that self-esteem ($\beta = 0.07$, 95% CI = 0.02 to 0.15) significantly mediated the relationship between anxiety and depression but not self-efficacy ($\beta = 0.004$, 95% CI = -0.01 to 0.04). When the self-related variables were entered into the model, both hopelessness ($\beta = 0.10$, 95% CI = 0.04 to 0.16) and sleep quality ($\beta = 0.06$, 95% CI = 0.01 to 0.16) remained significant mediators, whereas the mediation effect of learned helplessness ($\beta = 0.01$, 95% CI = -0.02 to 0.05) fell short of significance. Figure 3 represents the nested mediation regression model.

Table 2. Model fit indices for confirmatory factor analyses.

	Models	H1 vs H0	$\Delta\chi^2$ test	df	<i>p</i>	WLS χ^2	df	<i>p</i>	RMSEA	90% CI	<i>p</i>	CFI	WRMR
M1	2-Factor					309.327	169	<.001	0.068	0.056–0.080	.009	0.864	1.107
M2	3-Factor	M2 vs M1	4.667	2	.0970	316.317	167	<.001	0.070	0.058–0.082	.003	0.856	1.118
M3	2-Factor θ_1	M3 vs M1	22.539	1	<.001	296.996	168	<.001	0.065	0.053–0.077	.023	0.875	1.078
M4	2-Factor θ_1 and θ_2	M4 vs M3	13.775	1	<.001	287.419	167	<.001	0.063	0.051–0.075	.043	0.884	1.054
M5	Hierarchical 2-Factor θ_1 and θ_2	M5 vs M4	50.753	20	<.001	246.193	147	<.001	0.061	0.047–0.074	.088	0.904	0.898

Note: θ_1 , error covariance between item 4 and 7; θ_2 , error covariance between item 14 and 15; $\Delta\chi^2$ test, weighted least square χ^2 test for difference testing; RMSEA, root mean square error of approximation; CFI, comparative fit index; WRMR, weighted root mean square residual.

Figure 1. Bifactor model of helplessness.

Discussion

The central focus of this study was two-fold: examining the psychometric properties of the Turkish version of LHS and testing a model representing the relations between anxiety, depression, helplessness, sleep difficulties and self-esteem based on the hypotheses of the quadripartite model of mood regulation.

Although LHS is one of the well-known assessment tools for the learned helplessness construct, the psychometric properties of the screening instrument have received almost no attention. The current study revealed that LHS is a valuable instrument for measuring a tendency to experience helplessness in response to stressful situations. The Turkish version of LHS performed well psychometrically: (a) a three-factor structure (e.g. internal and stable attributions, feelings of losing control, and general learned helplessness) in part congruent with the helplessness-hopelessness theory, (b) excellent internal reliability, and (c) good convergent and discriminant validity.

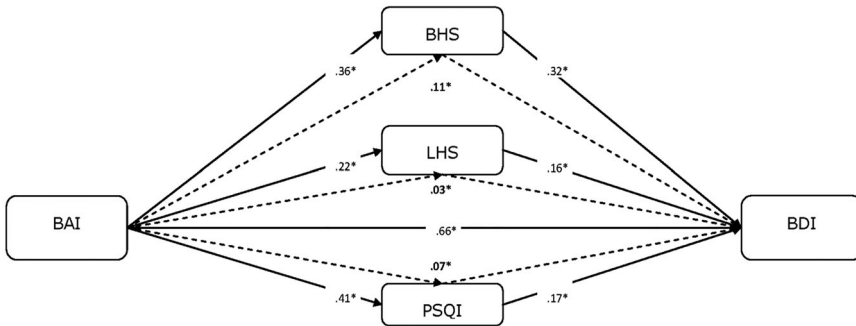
The three-factor latent structure of the Turkish LHS was inconsistent with the five-factor structure of the English version extracted by Quinless and Nelson (1988), who reported that three factors reflecting the reformulated helplessness model (internal-external, global-specific and stable-unstable) accounted for 45% of the variance. However, two remaining factors, with two-items each, explained 2% of the variance (1% for Factor 4 and %1 for Factor 5). Therefore, these findings can be interpreted as indicating that there were relative overlaps between the factor structures of the Turkish and English versions of the LHS. Additionally, psychometric investigations heavily

Table 3. Means, standard deviations, Cronbach's alphas and Pearson product-moment correlation coefficients.

		1	2	3	4	5	6	7	8	9
1. Learned Helplessness Scale	<i>r</i>	1.00								
	<i>n</i>	181								
2. Internal and stable appraisals	<i>r</i>	0.87**	1.00							
	<i>n</i>	181	181							
3. Feelings of losing control	<i>r</i>	0.85**	0.48**	1.00						
	<i>n</i>	181	181	181						
4. Beck Hopelessness Scale	<i>r</i>	0.43**	0.40**	0.34**	1.00					
	<i>n</i>	178	178	178	187					
5. Beck Depression Inventory	<i>r</i>	0.37**	0.18*	0.45**	0.57**	1.00				
	<i>n</i>	181	181	181	187	192				
6. Beck Anxiety Inventory	<i>r</i>	0.22**	0.04	0.34**	0.38**	0.64**	1.00			
	<i>n</i>	181	181	181	187	192	192			
7. Pittsburgh Sleep Quality Index	<i>r</i>	0.03	-0.12	0.18*	0.17*	0.40**	0.43**	1.00		
	<i>n</i>	168	168	168	174	178	178	178		
8. Rosenberg Self-esteem Scale	<i>r</i>	-0.56**	-0.44**	-0.53**	-0.51**	-0.59**	-0.37**	-0.18*	1.00	
	<i>n</i>	181	181	181	187	192	192	178	192	
9. Generalised Self-Efficacy Scale	<i>r</i>	-0.55**	-0.55**	-0.39**	-0.33**	-0.31**	-0.13	0.05	0.53**	1.00
	<i>n</i>	181	181	181	187	192	192	178	192	192
Mean		41.92	22.76	19.17	4.35	13.64	13.59	6.79	22.02	30.14
Standard deviation		7.15	4.25	4.07	4.30	8.49	10.21	3.44	5.58	6.36
Cronbach's α		0.80	0.72	0.71	0.87	0.85	0.89	0.70	0.83	0.90

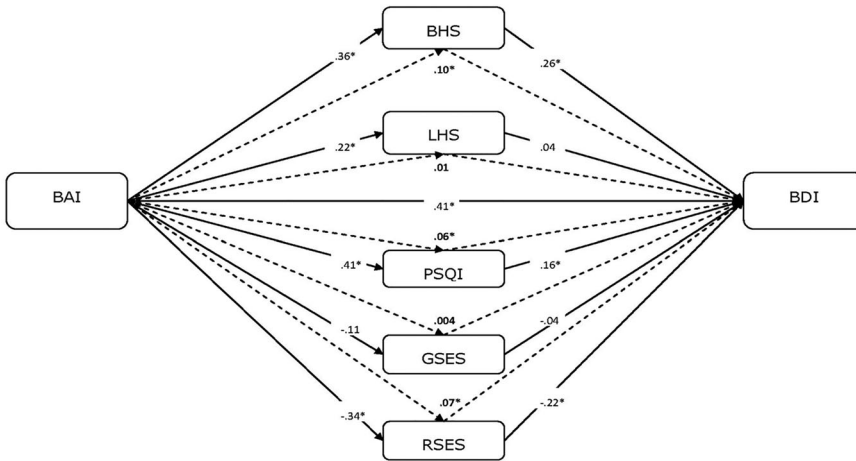
** $p < .01$.

Figure 2. Mediation regression analysis of the relationship between anxiety and depression mediated by hopelessness, helplessness and sleep quality after controlling for age, gender, and income.



Note: Indirect effects are indicated with dashed lines, indirect standardised path coefficients are boldfaced (* $p < .05$). BAI, Beck Anxiety Inventory; BHS, Beck Hopelessness Scale; LHS, Learned Helplessness Scale; PSQI, Pittsburgh Sleep Quality Index; BDI, Beck Depression Inventory.

Figure 3. Mediation regression analysis of the relationship between anxiety and depression mediated by hopelessness, helplessness, sleep quality, self-efficacy and self-esteem after controlling for age, gender, and income.



Note: Indirect effects are indicated with dashed lines, indirect standardised path coefficients are boldfaced (* $p < .05$). BAI, Beck Anxiety Inventory; BHS, Beck Hopelessness Scale; LHS, Learned Helplessness Scale; PSQI, Pittsburgh Sleep Quality Index; GSES, General Self-Efficacy Scale; RSES, Rosenberg Self-Esteem Scale; BDI, Beck Depression Inventory.

relying on ASQ showed that learned helplessness is a multifaceted construct. Early studies consistently suggested a three-dimensional construct including internality, globality and stability for the reformulated understanding of learned helplessness (Peterson et al., 1982; Peterson & Villanova, 1988; Seligman, Abramson, Semmel, & von Baeyer, 1979). Factor analytic solutions by Asner-Self and Schreiber (2004) replicated the previously suggested factor structure for globality and stability subscales of ASQ, but internality items tapped two focus factors of locus-achievement and locus-affiliation. As for the data on the Turkish LHS, internality and stability items tapped a unique factor and a new dimension of feelings of losing control emerged. The Turkish LHS had an adequate internal reliability greater than .70. Moderate and positive correlations of scores on the LHS with depression and hopelessness, and moderate and negative correlations with self-esteem and generalised self-efficacy were supportive of the construct validity of the scale.

The helplessness-hopelessness model of depression posits that the severity of depressive symptoms varies on a continuum ranging from subclinical mundane experiences to clinically critical depressive levels as a function of (i) the severity of depressogenic inferential styles, (ii) the severity of adverse life events, and (iii) the levels of hopelessness (Abramson et al., 1989). On the other hand, self-esteem theory of depressive disorders (Brown & Harris, 1978) argues that low self-esteem is a vulnerability factor that interacts with stressful life situations and in turn contributes to hopelessness which is a proximal cause of depression (Abramson et al., 1989). Metalsky et al. (1993) hypothesised an integrative theory of hopelessness and self-esteem in which depressogenic appraisals may interact with adverse life events among individuals with low self-esteem while, conversely, high self-esteem buffers against life challenges through breaking the potential link between depressogenic attributional styles and hopelessness. A body of research has provided evidence supporting the hypotheses of the integrated helplessness-hopelessness theory of mood disturbances (Abela, 2002; Abela & Hankin, 2008; Abela & Payne, 2003; Robinson, Garber, & Hillsman, 1995). Expanding the prior research findings, the current results provided robust evidence for the integrative diathesis-stress model of the helplessness-hopelessness theory of depressive disorders.

Even though the present findings warrant further research and replication, they potentially have crucial implications for counselling interventions, particularly with respect to the assessment and prevention of, and interventions for, depression and anxiety. From the perspective of the quadripartite model of affect regulation (Watson, 2009; Watson & Stasik, 2014), sleep-related symptomatology appears to represent one non-specific dimension of depressive symptomatology. In line with empirical findings of the quadripartite model, significant associations of sleep quality with psychiatric disorders have long been established (Acar, Ögülmüş, & Boysan, 2019; Aydin et al., 2013; Kilicaslan et al., 2017; Selvi et al., 2010; Selvi et al., 2017; Yildirim, Boysan, & Yılmaz, 2018). Consistent with the assumptions of the quadripartite model that the magnitude of general negative affectivity variance was high for sleep, the magnitude of Pearson product-moment correlation coefficients of sleep quality with anxiety and depression were found to be very similar in the present study. Although sleep appears to be a transdiagnostic phenomenon, sleep quality is a heterogeneous psychological construct in nature (Selvi et al., 2018; Yildirim & Boysan, 2017) and specificity of the relationships of the various aspects of sleep with affective problems needs further investigation.

Hopelessness, referring to the negative expectations about the future, was strongly correlated with depressive symptoms and is likely to be a specific dimension of the disorder. The current investigation found further evidence that both hopelessness and poor self-esteem revealed higher specificity to depressive psychopathology than anxiety, which may be helpful in the differential diagnosis of the disorder. In keeping with prior theoretical considerations and empirical evidence (Abela, 2002; Abela & Hankin, 2008; Abela & Payne, 2003; Metalsky et al., 1993; Robinson et al., 1995), either hopelessness or poor self-esteem equally related to depression and had clear consequences for differential assessment between depression and anxiety. Similarly, helplessness was moderately associated with depression and weakly associated with anxiety. However, the moderating effect of helplessness between anxiety and depression became nonsignificant after controlling for self-esteem and generalised self-efficacy. It appears that a tendency to helplessness may represent a specific feature of self-related appraisals, particularly self-concept rather than emotion dysregulation in terms of depressive or anxious symptomatology. Thus, assessing only helplessness when working with a new client who may be suffering from major depressive disorder would not be sufficient to make a differential diagnosis. Assessing self-esteem and helplessness-hopelessness together would enhance the counsellor's ability to make a more accurate diagnosis, which is typically the goal in an initial assessment.

The study has several limitations. First, the development study of the original LHS by Quinless and Nelson (1988) was based on community samples and three patient groups that differed highly in context and the backgrounds of the subjects, possibly resulting in differences in item responses. Second, a sample of college students was used for this study and these findings should be replicated in clinical populations. Third, the research design of the study was cross-sectional and any inferences regarding causality minimally require the use of a longitudinal design. Fourth, in accordance with

guidelines on the translation of a scale like the LHS (Sousa & Rojjanasrirat, 2011), back translation was not carried out for the Turkish LHS. Fifth, the generalisability of these findings are limited by the lack of use of a random sampling method. Sixth, the order of the instruments used was not randomised to avoid an ordering effect. Finally, the criterion validity for the Turkish version of LHS needs to be established. Taken together, the results should be considered with caution and these limitations need to be addressed in future research.

Conclusion

Excessive comorbidity rates in depressive and anxiety disorders indicate that it is beneficial to assess both disorders simultaneously irrespective of the primary reason for seeking counselling. Each of depression or anxiety and comorbidity patterns between these two disorders appear to be best understood in a continuum framework rather than a taxonomic approach. More importantly, aetiological models of mood disturbances should take the high comorbidity rates into consideration in accounting for emotional dysregulation. In the current study, the findings have highlighted the importance of integrating the helplessness-hopelessness and quadripartite models in order to promote a more in-depth understanding of depressive mood reactions. Helplessness and hopelessness along with poor self-esteem appear to take part together in the aetiology of difficulties in self-regulation, particularly depression. Additionally, sleep disturbances critically contribute to psychological symptoms. Specifically, assessment of helplessness, hopelessness, self-esteem and sleep disturbances together may facilitate the provision of management strategies and efficiency of psychological counselling in high-risk populations. The LHS provides an opportunity to advance knowledge about helplessness-hopelessness across various populations for research and counselling purposes. The Turkish version of the scale has demonstrated sound and promising properties in the present study.

Disclosure statement

No potential conflict of interest was reported by the author.

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Murat Boysan is an assistant professor in the Department of Psychology at Van Yüzüncü Yıl University, Turkey. He teaches introductory psychology courses. He also contributes to a postgraduate program of counselling psychology and teaches theories of counselling and psychometrics.

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References

- Abela, J. R., & Skitch, S. A. (2007). Dysfunctional attitudes, self-esteem, and hassles: Cognitive vulnerability to depression in children of affectively ill parents. *Behaviour Research and Therapy*, 45(6), 1127–1140. doi:10.1016/j.brat.2006.09.011
- Abela, J. R. Z. (2002). Depressive mood reactions to failure in the achievement domain: A test of the integration of the hopelessness and self-esteem theories of depression. *Cognitive Therapy and Research*, 26(4), 531–552. doi:10.1023/A:1016236018858
- Abela, J. R. Z., Gagnon, H., & Auerbach, R. P. (2007). Hopelessness depression in children: An examination of the symptom component of the hopelessness theory. *Cognitive Therapy and Research*, 31, 401–417. doi:10.1007/s10608-007-9144-z
- Abela, J. R. Z., & Hankin, B. L. (2008). Cognitive vulnerability to depression in children and adolescents: A developmental psychopathology perspective. In J. R. Z. Abela, & B. L. Hankin (Eds.), *Handbook of depression in children and adolescents* (pp. 35–78). New York, NY: Guilford Press.

- Abela, J. R. Z., & Payne, A. V. L. (2003). A test of the integration of the hopelessness and self-esteem theories of depression in schoolchildren. *Cognitive Therapy and Research*, 27(5), 519–535. doi:10.1023/A:1026303020478
- Abramson, L. Y., Alloy, L. B., & Metalsky, G. I. (1986). The hopelessness theory of depression: Does the research test the theory. In L. Y. Abramson (Ed.), *Social cognition and clinical psychology: A synthesis* (pp. 33–65). New York, NY: Guilford Press.
- Abramson, L. Y., Alloy, L. B., & Metalsky, G. I. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, 96(2), 358–372. doi:10.1037//0033-295x.96.2.358
- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, 87, 49–74.
- Acar, ÖF, Ögülmüş, S., & Boysan, M. (2019). Associations between circadian preferences, sleep quality, dissociation, post-traumatic cognitions, and post-traumatic stress disorder (PTSD) among incarcerated offenders. *Sleep and Hypnosis*, 21(3), 201–219. doi:10.5350/Sleep.Hypn.2019.21.0188
- Ağargün, M. Y., Kara, H., & Anlar, Ö. (1996). Validity and reliability of the Pittsburgh Sleep Quality Index. *Turkish Journal of Psychiatry*, 7(2), 107–115.
- Alloy, L. B., Abramson, L. Y., Metalsky, G. I., & Hartlage, S. (1988). The hopelessness theory of depression: Attributional aspects. *British Journal of Clinical Psychology*, 27, 5–21.
- Alloy, L. B., Abramson, L. Y., Whitehouse, W. G., Hogan, M. E., Panzarella, C., & Rose, D. T. (2006). Prospective incidence of first onsets and recurrences of depression in individuals at high and low cognitive risk for depression. *Journal of Abnormal Psychology*, 115(1), 145–156. doi:10.1037/0021-843X.115.1.145
- Alloy, L. B., & Riskind, J. H. (2006). *Cognitive vulnerability to emotional disorders*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- American Psychiatric Association [APA]. (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5*. Washington, DC: American Psychiatric Publishing.
- Andrews, G., Brugha, T., Thase, M., Duffy, F. F., Rucci, P., & Slade, T. (2008). Dimensionality and the category of major depressive episode. In J. E. Helzer, H. C. Kraemer, R. F. Krueger, H.-U. Wittchen, P. J. Sirovatka, & D. A. Regier (Eds.), *Dimensional approaches to diagnostic classification: Refining the research agenda for DSM-V* (pp. 35–51). Washington, DC: American Psychiatric Association.
- Asner-Self, K. K., & Schreiber, J. B. (2004). A factor analytic study of the attributional style questionnaire with Central American immigrants. *Measurement and Evaluation in Counseling and Development*, 37(3), 144–153.
- Atherley, C. (1988). The cognitive, learned-helplessness and hopelessness theories of depression: A review with implications for counselors. *British Journal of Guidance & Counselling*, 16(3), 286–299. doi:10.1080/03069888808253562
- Aydin, A., Selvi, Y., Besiroglu, L., Boysan, M., Atli, A., Ozdemir, O., ... Balaharoglu, R. (2013). Mood and metabolic consequences of sleep deprivation as a potential endophenotype in bipolar disorder. *Journal of Affective Disorders*, 150(2), 284–294. doi:10.1016/j.jad.2013.04.007
- Aypay, A. (2010). The adaptation study of General Self-Efficacy (GSE) Scale to Turkish. *Inonu University Journal of the Faculty of Education*, 11(2), 113–131.
- Beck, A. T., Brown, G., Epstein, N., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893–897. doi:10.1037/0022-006x.56.6.893
- Beck, A. T., Rush, J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York, NY: Guilford Press.
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, 42(6), 861–865. doi:10.1037/h0037562
- Boysan, M., Beşiroğlu, L., Kara, H., Kayri, M., & Keskin, S. (2008). Associations between the levels of depression and the sense of limitedness: A psychometric analysis. *Anatolian Journal of Psychiatry*, 9(4), 191–196.
- Boysan, M., & Kiral, E. (2016). An investigation into the interactions between positive and negative aspects of personality, perfectionism, coping, and locus of control: A latent profile analysis. *Sleep and Hypnosis*, 18(3), 53–64. doi:10.5350/Sleep.Hypn.2016.18.0116
- Breslau, N., Schultz, L., & Peterson, E. (1995). Sex differences in depression: A role for preexisting anxiety. *Psychiatry Research*, 58(1), 1–12. doi:10.1016/0165-1781(95)02765-0
- Brown, G. W., & Harris, T. O. (1978). *Social origins of depression: A study of psychiatric disorder in women*. New York, NY: Free Press.
- Buchanan, G. M., & Seligman, M. E. P. (1995). *Explanatory style*. New York, NY: Routledge.
- Buyse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193–213. doi:10.1016/0165-1781(89)90047-4
- Carney, C. E., Ulmer, C., Edinger, J. D., Krystal, A. D., & Knauss, F. (2009). Assessing depression symptoms in those with insomnia: An examination of the beck depression inventory second edition (BDI-II). *Journal of Psychiatry Research*, 43(5), 576–582. doi:10.1016/j.jpsychi.2008.09.002
- Chorhita, B. F. (2002). The tripartite model and dimensions of anxiety and depression: An examination of structure in a large school sample. *Journal of Abnormal Child Psychology*, 30(2), 177–190. doi:10.1023/A:1014709417132
- Clark, L. A. (1989). The anxiety and depressive disorders: Descriptive psychopathology and differential diagnosis. In P. C. Kendall, & D. Watson (Eds.), *Anxiety and depression: Distinctive and overlapping features* (pp. 83–129). New York, NY: Academic Press.

- 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. doi:10.1037/0021-843X.100.3.316
- Çuhadaroğlu, F. (1986). *Self-esteem in the adolescent* (Unpublished doctoral dissertation). Hacettepe University. Ankara, Turkey.
- Durak, A. (1994). Beck Umutsuzluk Ölçeği'nin geçerlik ve güvenirlik çalışması. *Türk Psikoloji Dergisi, 9*(31), 1–11.
- Durak, A., & Palabıykoğlu, R. (1994). Validation study of the Beck Hopelessness Scale. *Journal of Crisis, 2*(2), 311–319.
- Eaton, N. R., & Krueger, R. F. (2014). Depressive disorders, comorbidity issues, and assessment strategies. In C. S. Richards, & M. W. O'Hara (Eds.), *The Oxford handbook of depression and comorbidity* (pp. 66–83). New York, NY: Oxford University Press.
- Fava, M., Rankin, M. A., Wright, E. C., Alpert, J. E., Nierenberg, A. A., Pava, J., & Rosenbaum, J. F. (2000). Anxiety disorders in major depression. *Comprehensive Psychiatry, 41*(2), 97–102. doi:10.1016/S0010-440X(00)90140-8
- Gamez, W., Kotov, R., & Watson, D. (2010). The validity of self-report assessment of avoidance and distress. *Anxiety, Stress, & Coping, 23*(1), 87–99. doi:10.1080/10615800802699198
- Gulec, M., Selvi, Y., Boysan, M., Aydin, A., Besiroglu, L., & Agargun, M. Y. (2011). Ongoing or re-emerging subjective insomnia symptoms after full/partial remission or recovery of major depressive disorder mainly with the selective serotonin reuptake inhibitors and risk of relapse or recurrence: A 52-week follow-up study. *Journal of Affective Disorders, 134*(1-3), 257–265. doi:10.1016/j.jad.2011.05.056
- Guney, S., Kalafat, T., & Boysan, M. (2010). Dimensions of mental health: Life satisfaction, anxiety and depression: A preventive mental health study in Ankara University students population. *Procedia-Social and Behavioral Sciences, 2*(2), 1210–1213. doi:10.1016/j.sbspro.2010.03.174
- Guzel Ozdemir, P., Boysan, M., Smolensky, M. H., Selvi, Y., Aydin, A., & Yilmaz, E. (2015). Comparison of venlafaxine alone versus venlafaxine plus bright light therapy combination for severe major depressive disorder. *Journal of Clinical Psychiatry, 76*(5), e645–e654. doi:10.4088/JCP.14m09376
- Hammen, C., & Cochran, S. (1981). Cognitive correlates of life stress and depression in college students. *Journal of Abnormal Psychology, 90*, 23–27.
- Hankin, B. L., & Abela, J. R. (2005). *Development of psychopathology: A vulnerability-stress perspectives*. Thousand Oaks, CA: Sage.
- Haslam, N., & Beck, A. T. (1994). Subtyping major depression: A taxometric analysis. *Journal of Abnormal Psychology, 103*(4), 686–692.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford.
- Hetteima, J. M., Prescott, C. A., & Kendler, K. S. (2003). The effects of anxiety, substance use and conduct disorders on risk of major depressive disorder. *Psychological Medicine, 33*(8), 1423–1432. doi:10.1017/S0033291703008365
- Hisli, N. (1989). The validity and reliability of the Beck Depression Inventory among university students. *Turkish Journal of Psychology, 7*, 3–13.
- Hood, H. K., Carney, C. E., & Harris, A. L. (2011). Rethinking safety behaviors in insomnia: Examining the perceived utility of sleep-related safety behaviors. *Behavior Therapy, 42*(4), 644–654. doi:10.1016/j.beth.2011.02.004
- Joiner, T. E., Jr., Steer, R. A., Abramson, L. Y., Alloy, L. B., Metalsky, G. I., & Schmidt, N. B. (2001). Hopelessness depression as a distinct dimension of depressive symptoms among clinical and non-clinical samples. *Behaviour Research and Therapy, 39*(5), 523–536.
- Kessler, R. C., Gruber, M., Hetteima, J. M., Hwang, I., Sampson, N., & Yonkers, K. A. (2008). Co-morbid major depression and generalized anxiety disorders in the National Comorbidity Survey follow-up. *Psychological Medicine, 38*(3), 365–374. doi:10.1017/S0033291707002012
- Kessler, R. C., Nelson, C. B., McGonagle, K. A., Liu, J., Swartz, M., & Blazer, D. G. (1996). Comorbidity of DSM-III-R major depressive disorder in the general population: Results from the US National Comorbidity Survey. *British Journal of Psychiatry, 168*(S30), 17–30.
- Kessler, R. C., Zhao, S., Blazer, D. G., & Swartz, M. (1997). Prevalence, correlates, and course of minor depression and major depression in the National Comorbidity Survey. *Journal of Affective Disorders, 45*(1-2), 19–30. doi:10.1016/S0165-0327(97)00056-6
- Kilicaslan, E. E., Esen, A. T., Kasal, M. I., Ozelci, E., Boysan, M., & Gulec, M. (2017). Childhood trauma, depression, and sleep quality and their association with psychotic symptoms and suicidality in schizophrenia. *Psychiatry Research, 258*, 557–564. doi:10.1016/j.psychres.2017.08.081
- Kiloh, L. G., Andrews, G., & Neilson, M. (1988). The long-term outcome of depressive illness. *British Journal of Psychiatry, 153*(6), 752–757. doi:10.1192/bjp.153.6.752
- Kotov, R., Gamez, W., Schmidt, F., & Watson, D. (2010). Linking “big” personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychological Bulletin, 136*(5), 768–821. doi:10.1037/a0020327
- Kovacs, M., Gatsonis, C., Paulauskas, S. L., & Richards, C. (1989). Depressive disorders in childhood. IV. A longitudinal study of comorbidity with and risk for anxiety disorders. *Archives of General Psychiatry, 46*(9), 776–782. doi:10.1001/archpsyc.1989.01810090018003
- Krueger, R. F., & Markon, K. E. (2006). Reinterpreting comorbidity: A model-based approach to understanding and classifying psychopathology. *Annual Review of Clinical Psychology, 2*, 111–133. doi:10.1146/annurev.clinpsy.2.022305.095213

- Kruijshaar, M. E., Barendregt, J., Vos, T., de Graaf, R., Spijker, J., & Andrews, G. (2005). Lifetime prevalence estimates of major depression: An indirect estimation method and a quantification of recall bias. *European Journal of Epidemiology*, 20(1), 103–111. doi:10.1007/s10654-004-1009-0
- Lamers, F., van Oppen, P., Comijs, H. C., Smit, J. H., Spinhoven, P., van Balkom, A. J., ... Penninx, B. W. (2011). Comorbidity patterns of anxiety and depressive disorders in a large cohort study: The Netherlands Study of Depression and Anxiety (NESDA). *Journal of Clinical Psychiatry*, 72(3), 341–348. doi:10.4088/JCP.10m06176blu
- Landry, N., Gifford, R., Milfont, T. L., Weeks, A., & Arnocky, S. (2018). Learned helplessness moderates the relationship between environmental concern and behavior. *Journal of Environmental Psychology*, 55, 18–22. doi:10.1016/j.jenvp.2017.12.003
- Lee, A. S., & Murray, R. M. (1988). The long-term outcome of Maudsley depressives. *British Journal of Psychiatry*, 153, 741–751. doi:10.1192/bjp.153.6.741
- Lewinsohn, P. M., Zinbarg, R., Seeley, J. R., Lewinsohn, M., & Sack, W. H. (1997). Lifetime comorbidity among anxiety disorders and between anxiety disorders and other mental disorders in adolescents. *Journal of Anxiety Disorders*, 11(4), 377–394. doi:10.1016/S0887-6185(97)00017-0
- Liu, R. T., Kleiman, E. M., Nestor, B. A., & Cheek, S. M. (2015). The hopelessness theory of depression: A quarter century in review. *Clinical Psychology: Science and Practice*, 22(4), 345–365. doi:10.1111/cpsp.12125
- Mathews, A., & MacLeod, C. (2005). Cognitive vulnerability to emotional disorders. *Annual Review of Clinical Psychology*, 1, 167–195. doi:10.1146/annurev.clinpsy.1.102803.143916
- McKean, K. J. (1994). Using multiple risk factors to assess the behavioral, cognitive, and affective effects of learned helplessness. *The Journal of Psychology*, 128(2), 177–183. doi:10.1080/00223980.1994.9712721
- Metalsky, G. I., & Joiner, T. E. (1997). The hopelessness depression symptom questionnaire. *Cognitive Therapy and Research*, 21(3), 359–384. doi:10.1023/A:1021882717784
- Metalsky, G. I., Joiner, T. E., Hardin, T. S., & Abramson, L. Y. (1993). Depressive reactions to failure in a naturalistic setting: A test of the hopelessness and self-esteem theories of depression. *Journal of Abnormal Psychology*, 102(1), 101–109. doi:10.1037/0021-843x.102.1.101
- Mineka, S., Watson, D., & Clark, L. A. (1998). Comorbidity of anxiety and unipolar mood disorders. *Annual Review of Psychology*, 49, 377–412. doi:10.1146/annurev.psych.49.1.377
- Miranda, J., Persons, J. B., & Byers, C. N. (1990). Endorsement of dysfunctional beliefs depends on current mood state. *Journal of Abnormal Psychology*, 99(3), 237–241. doi:10.1037/0021-843x.99.3.237
- Moffitt, T. E., Harrington, H., Caspi, A., Kim-Cohen, J., Goldberg, D., Gregory, A. M., & Poulton, R. (2007). Depression and generalized anxiety disorder: Cumulative and sequential comorbidity in a birth cohort followed prospectively to age 32 years. *Archives of General Psychiatry*, 64(6), 651–660. doi:10.1001/archpsyc.64.6.651
- Monroe, S. M., & Simons, A. D. (1991). Diathesis-stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin*, 110(3), 406–425.
- Parker, G., Wilhelm, K., Mitchell, P., Austin, M. P., Roussos, J., & Gladstone, G. (1999). The influence of anxiety as a risk to early onset major depression. *Journal of Affective Disorders*, 52(1-3), 11–17.
- Persons, J. B., & Miranda, J. (1992). Cognitive theories of vulnerability to depression: Reconciling negative evidence. *Cognitive Therapy and Research*, 16(4), 485–502. doi:10.1007/BF01183170
- Persons, J. B., & Miranda, J. (2002). Treating dysfunctional beliefs: Implications of the mood–state hypothesis. In R. L. Leahy, & E. T. Dowd (Eds.), *Clinical advances in cognitive psychotherapy: Theory and application* (pp. 62–74). New York, NY: Springer.
- Persons, J. B., & Rao, P. A. (1985). Longitudinal study of cognitions, life events and depression in psychiatric in-patients. *Journal of Abnormal Psychology*, 94(1), 51–63.
- Peterson, C., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. P. (1982). The Attributional Style Questionnaire. *Cognitive Therapy and Research*, 6(3), 287–300.
- Peterson, C., & Villanova, P. (1988). An expanded attributional style questionnaire. *Journal of Abnormal Psychology*, 97(1), 87–89. doi:10.1037//0021-843x.97.1.87
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.
- Quinless, F. W., & Nelson, M. A. (1988). Development of a measure of learned helplessness. *Nursing Research*, 37(1), 11–15. doi:10.1097/00006199-198801000-00003
- Robinson, N. S., Garber, J., & Hillsman, R. (1995). Cognitions and stress: Direct and moderating effects on depressive versus externalizing symptoms during the junior-high-school transition. *Journal of Abnormal Psychology*, 104(3), 453–463. doi:10.1037//0021-843x.104.3.453
- Rohde, P., Lewinsohn, P. M., & Seeley, J. R. (1991). Comorbidity of unipolar depression: II. Comorbidity with other mental disorders in adolescents and adults. *Journal of Abnormal Psychology*, 100(2), 214–222. doi:10.1037/0021-843x.100.2.214
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Sakashita, C., Slade, T., & Andrews, G. (2007). Empirical investigation of two assumptions in the diagnosis of DSM-IV major depressive episode. *Australian & New Zealand Journal of Psychiatry*, 41(1), 17–23. doi:10.1080/00048670601050440

- Schoevers, R. A., Beekman, A. T., Deeg, D. J., Jonker, C., & van Tilburg, W. (2003). Comorbidity and risk-patterns of depression, generalised anxiety disorder and mixed anxiety-depression in later life: Results from the AMSTEL study. *International Journal of Geriatric Psychiatry, 18*(11), 994–1001. doi:10.1002/gps.1001
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy Scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio* (pp. 35–37). Windsor: Nfer-Nelson.
- Seligman, M. E. P. (1975). *Helplessness: On depression, development and death*. San Francisco, CA: Freeman.
- Seligman, M. E. P., Abramson, L. Y., Semmel, A., & von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology, 88*(3), 242–247.
- Selvi, Y., Aydin, A., Boysan, M., Atli, A., Agargun, M. Y., & Besiroglu, L. (2010). Associations between chronotype, sleep quality, suicidality, and depressive symptoms in patients with major depression and healthy controls. *Chronobiology International, 27*(9–10), 1813–1828. doi:10.3109/07420528.2010.516380
- Selvi, Y., Boysan, M., Kandeger, A., Uygur, O. F., Sayin, A. A., Akbaba, N., & Koc, B. (2018). Heterogeneity of sleep quality in relation to circadian preferences and depressive symptomatology among major depressive patients. *Journal of Affective Disorders, 235*, 242–249. doi:10.1016/j.jad.2018.02.018
- Selvi, Y., Kandeger, A., Boysan, M., Akbaba, N., Sayin, A. A., Tekinarslan, E., ... Sar, V. (2017). The effects of individual biological rhythm differences on sleep quality, daytime sleepiness, and dissociative experiences. *Psychiatry Research, 256*, 243–248. doi:10.1016/j.psychres.2017.06.059
- Sousa, V. D., & Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice, 17*(2), 268–274. doi:10.1111/j.1365-2753.2010.01434.x
- Southall, D., & Roberts, J. E. (2002). Attributional style and self-esteem in vulnerability to adolescent depressive symptoms following life stress: A 14-week prospective study. *Cognitive Therapy and Research, 26*(5), 563–579. doi:10.1023/A:1020457508320
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139*(1), 213–240. doi:10.1037/a0028931
- Swendsen, J. D. (1997). Anxiety, depression, and their comorbidity: An experience sampling test of the helplessness-hopelessness theory. *Cognitive Therapy and Research, 21*(1), 97–114. doi:10.1023/A:1021872410824
- Swendsen, J. D. (1998). The helplessness-hopelessness theory and daily mood experience: An idiographic and cross-situational perspective. *Journal of Personality and Social Psychology, 74*(5), 1398–1408. doi:10.1037//0022-3514.74.5.1398
- Ulusoy, M., Sahin, N. H., & Erkmén, H. (1998). Turkish version of the Beck Anxiety Inventory: Psychometric properties. *Journal of Cognitive Psychotherapy, 12*(2), 63–172.
- Ustun, T. B., & Sartorius, N. (1995). *Mental illness in general health care: An international study*. London: John Wiley & Sons.
- Watson, D. (2005). Rethinking the mood and anxiety disorders: A quantitative hierarchical model for DSM-V. *Journal of Abnormal Psychology, 114*(4), 522–536. doi:10.1037/0021-843X.114.4.522
- Watson, D. (2009). Differentiating the mood and anxiety disorders: A quadripartite model. *Annual Review of Clinical Psychology, 5*, 221–247. doi:10.1146/annurev.clinpsy.032408.153510
- Watson, D., O'Hara, M. W., Naragon-Gainey, K., Koffel, E., Chmielewski, M., Kotov, R., ... Ruggero, C. J. (2012). Development and validation of new anxiety and bipolar symptom scales for an expanded version of the IDAS (the IDAS-II). *Assessment, 19*(4), 399–420. doi:10.1177/1073191112449857
- Watson, D., O'Hara, M. W., Simms, L. J., Kotov, R., Chmielewski, M., McDade-Montez, E. A., ... Stuart, S. (2007). Development and validation of the Inventory of Depression and Anxiety Symptoms (IDAS). *Psychological Assessment, 19*(3), 253–268. doi:10.1037/1040-3590.19.3.253
- Watson, D., Clark, L. A., & Carey, G. (1988). Positive and negative affectivity and their relation to anxiety and depressive disorders. *Journal of Abnormal Psychology, 97*(3), 346–353. doi:10.1037/0021-843X.97.3.346
- Watson, D., O'Hara, M. W., & Stuart, S. (2008). Hierarchical structures of affect and psychopathology and their implications for the classification of emotional disorders. *Depression and Anxiety, 25*(4), 282–288. doi:10.1002/da.20496
- Watson, D., & Stasik, S. M. (2014). Examining the comorbidity between depression and the anxiety disorders from the perspective of the quadripartite model. In C. S. Richards, & M. W. O'Hara (Eds.), *The Oxford handbook of depression and comorbidity* (pp. 46–65). New York, NY: Oxford University Press.
- Watson, D., Weber, K., Assenheimer, J. S., Clark, L. A., Strauss, M. E., & McCormick, R. A. (1995). Testing a tripartite model: I. Evaluating the convergent and discriminant validity of anxiety and depression symptom scales. *Journal of Abnormal Psychology, 104*(1), 3–14. doi:10.1037/0021-843X.104.1.3
- Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence. *Journal of Personality and Social Psychology, 76*(5), 820–838. doi:10.1037/0022-3514.76.5.820
- Whisman, M. A., Miller, I. W., Norman, W. H., & Keitner, G. I. (1995). Hopelessness depression in depressed inpatients: Symptomatology, patient characteristics, and outcome. *Cognitive Therapy and Research, 19*(4), 377–398.
- Whisman, M. A., & Pinto, A. (1997). Hopelessness depression in depressed inpatient adolescents. *Cognitive Therapy and Research, 21*(3), 345–358.

- Widiger, T. A., & Mullins-Sweatt, S. (2014). Mental disorders as discrete clinical conditions: Dimensional versus categorical classification. In D. C. Beidel, B. C. Frueh, & M. Hersen (Eds.), *Adult psychopathology and diagnosis* (7th ed., pp. 3–33). Hoboken, NJ: John Wiley & Sons.
- Wilson, K., Varella, R., Brems, C., Benning, D., & Renfro, N. (1993). Levels of learned helplessness in abused women. *Women and Therapy, 13*(4), 53–67. doi:10.1300/J015v13n04_04
- Yildirim, A., & Boysan, M. (2017). Heterogeneity of sleep quality based on the Pittsburgh Sleep Quality Index in a community sample: A latent class analysis. *Sleep and Biological Rhythms, 15*(3), 197–205. doi:10.1007/s41105-017-0097-7
- Yildirim, A., Boysan, M., & Kefeli, M. C. (2018). Psychometric properties of the Turkish version of the Depression Anxiety Stress Scale-21 (DASS-21). *British Journal of Guidance & Counselling, 1*–14. doi:10.1080/03069885.2018.1442558
- Yildirim, A., Boysan, M., & Yilmaz, O. (2018). The mediating role of pathological worry in associations between dissociative experiences and sleep quality among health staff. *Sleep and Hypnosis, 20*(3), 190–209. doi:10.5350/Sleep.Hypn.2017.19.0152

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