

Measuring the Thinking Styles: Psychometric Properties of the Georgian Version of the Cognitive Distortion Scale

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The current study presents the psychometric investigation of the Georgian version of the Cognitive Distortion Scale (G-CDS) (Covin et al., 2011). The Cognitive Distortion Scale measures the 10 cognitive distortions in interpersonal and achievement domains. Altogether 941 individuals, across seven samples (37 clinical participants amongst them) participated in the standardization of the instrument. Confirmatory factor analysis demonstrated good model fit with a 10-factor solution. The G-CDS exhibited acceptable internal reliability and correlated in expected directions with other clinically relevant inventories. Although women scored higher than men on one factor (Should Statements) there were no other gender differences. There were significant differences in all cognitive distortions scores between clinical and control group. Given its respectable psychometric properties, the G-CDS appears to have a high degree of both clinical and research potential.

Keywords: Cognitive Distortion Scale; cognitive distortions; cognitive errors; cognitive behavioral therapy

The term cognitive distortion first appeared in Beck's (1967) discussion of depression and refers to a self-statement displaying the misinterpretation of an event. Led by the individual's important beliefs or schemas, cognitive distortions usually occur when information processing is ineffective or biased. Beck (1967) recognized that such faulty information processing impacts habitual patterns of thought and predictably produces maladaptive emotion and behavior. Although they may appear valid, these distortions are irrational or unhelpful, inducing emotional turmoil, which may manifest itself in narrowed repertoire of behaviors. By treating distortions as a rule, one can change behaviors in a way that they no longer respond to one's ultimate goals (Törneke et al., 2008). Hence, uncovering cognitive errors and developing insight

about them is a critical component of dealing with mood disorders throughout therapy. Assessing cognitive distortions in psychotherapy can guide clinicians to promote more adaptive cognitions and robust environmental responses (Strohmeier et al., 2016).

COGNITIVE DISTORTIONS AND MENTAL DISORDERS

Cognitive distortions and dysfunctional beliefs may lead to different mental health problems (Kuru et al., 2017). Shaped by early childhood experience, these dysfunctional beliefs may foster expectations about the world that no longer corresponds to reality. When this happens, cognitive distortions may arise and hinder individuals' ability to interpret the world in a realistic way, thus preventing them to deal with the problem. Cognitive distortions therefore play a major role in the development and continuation of all kinds of psychological malfunction (Rosenfield, 2004).

Burns (1980) assumes that "Depression is not an emotional disorder at all" (p. 28). Rather, he believed that illogical pessimistic attitudes fuel one's mind and play a fundamental role in the onset and maintenance of all the symptoms. For example, as a result of these cognitive errors, depressed individuals show faulty processing of information and constantly justify their negative assumptions and expectations about the world. Cognitive distortions or dysfunctional cognitions such as irrational beliefs correlate with disorder symptomatology and contribute unique variance in predicting depression (Tecuta et al., 2019). A number of studies have supported the role of negatively biased cognitive processing as a vulnerability factor for depression (e.g., Dozois & Beck, 2008; Lefebvre, 1981; Rnic et al., 2016; Rosenfield, 2004; Yurica, 2002). Cognitive errors have been demonstrated to be significant predictors of depression, anxiety, and stress (Kostoglou & Pidgeon, 2016).

Cognitive models suggest that irrational beliefs and thoughts may also be fundamental to understanding anxiety disorders. For example, cognitive model of social anxiety disorder (SAD) posits that socially anxious individuals show a strong desire to make good impression on others and a lack of confidence about one's ability to do so (Clark & Wells, 1995). People with SAD develop negative self-impressions based on their prior beliefs about the self. This negative self-impression drives subsequent self-assessment of social performance (e.g., Abbott & Rapee, 2004). Self-report studies show a consistent pattern whereby socially anxious individuals interpret their social performance more negatively than do others (e.g., Amir et al., 1998; Constans et al., 1999; Stopa & Clark, 2000). Cognitive biases can also lead to the development of panic disorder. Clark (1988) assumed that panic attacks often result from misinterpretation of normal body sensations and considering them as a sign of imminent catastrophe. Supporting this view, Casey et al. (2004) found catastrophic misinterpretations of bodily sensations were related to severity of panic attacks among individuals who suffer from panic disorder.

There is evidence of a relationship between comorbidity of personality disorders (PDs) and cognitive distortions. Rosenfield (2004) found a significant and positive relationship between the severity and frequency of PDs and the frequency of cognitive distortions. As stated by Beck and colleagues (2001), "... the essence of a personality disorder is revealed in the dysfunctional beliefs that characterize and perpetuate it" (p. 1214). According to cognitive theorists, cognitive distortions are central to personality disorders, they influence how people with PDs view the world or themselves and significantly contribute to their negative emotions (Beck et al., 2004).

Cognitive therapy posits (Beck, 1976) that thoughts that occur spontaneously and are immediate interpretation of situations, are called automatic thoughts. Schemas or beliefs, the deeper dysfunctional thoughts, are in the roots of these distorted automatic interpretations. The fixed core beliefs in these cognitive structures form individual's thinking style and foster cognitive distortions encountered in mental problems (Knapp & Beck, 2008).

COGNITIVE DISTORTIONS AND PERSONALITY

Personality traits play an important role in development and maintenance psychological disorders (Widiger & Smith 2008). Studies suggest that neuroticism is the most consistent personality variable associated with various pathological indicators (e.g., McCrae & Costa, 2003; Quirk et al., 2003; Saulsman & Page, 2004; Samuel & Widiger, 2008). In fact, high neuroticism and low extraversion generate a diversity of psychiatric populations (Zuckerman, 1999). Empirical research also shows that there are strong correlations between pathological personality traits and psychological disorders (e.g., Anderson et al., 2016; Bach et al., 2018; Díaz-Batanero et al., 2019; Few et al., 2013).

Moreover, emerging evidence suggest that personality pathology and cognitive vulnerabilities of psychological disorders are associated (Abela et al., 2003; Farabaugh et al., 2007; O’Leary et al., 1991; Rose et al., 1994; Smith et al., 2006; Tucker et al., 2016; Van Rijsbergen et al., 2015). The more recent research (Hong & Tan, 2020) shows that individuals with pathological personality tendencies (especially negative affectivity and detachment) hold a wide range of cognitive risk variables associated with depression, anxiety, and obsessive-compulsive symptoms.

Studies investigating relationship between personality traits and specific cognitive distortions suggest that psychopathic, sadistic, and borderline personality traits are positively linked to cognitive errors (Chabrol et al., 2011); agreeableness constantly correlates negatively with cognitive distortions, whereas conscientiousness doesn’t show such a stable pattern (Koolen et al., 2012). Research also shows that psychoticism is a significant predictor of cognitive distortions (Pace et al., 2019).

We assume that pathological personality traits will be positively related to cognitive disorders. Specifically, we focus on the Alternative Model of Personality Disorder of the DSM-5 Section III (APA, 2013) that consists of five broad domains of pathological personality trait variation, namely Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism. The new model was designed to confront the categorical paradigm of the existing approach and create a dimensional classification with pathological alternatives of five-factor model (Krueger et al., 2014).

Furthermore, there is evidence that cognitive distortions are related with Alexithymia (Fang & Chung, 2019)—a dimensional personality trait (Taylor & Bagby, 2012), which was initially defined as a subclinical phenomenon involving a relative constriction in emotional functioning of psychosomatic patients (Sifneos, 1973). Alexithymic persons are characterized as having difficulties in identifying and verbally describing feelings and being oriented toward external stimuli (Taylor et al., 1997). Alexithymia often is considered to be a risk factor for the development and maintenance or at least a correlate of various mental disorders (Taylor et al., 1997).

MEASURES OF COGNITIVE DISTORTIONS

A number of leading theorists have posited various cognitive distortions that impact different forms of psychopathology. Beck (1967) originally identified six types of cognitive distortions. This list was expanded by Burns (1980), offering 10 cognitive distortions commonly seen in depression. Since then, many types of cognitive distortions have been proposed (Burns, 1980, 1999; Freeman & Oster, 1999; Yurica, 2002). Some authors have postulated disorder-specific cognitive distortions (Barriga et al., 2000; Briere, 2001; Najavits et al., 2004).

There have also been several attempts to measure cognitive distortions over time, generally using self-report inventories. Krantz and Hammen (1979) developed the Cognitive Bias Questionnaire (CBQ), which assesses the degree to which a person’s thinking is negatively biased. However, this instrument did not explicitly examine specific cognitive errors. Lefebvre (1981) sought to measure seven cognitive errors with the Cognitive Errors Questionnaire (CEQ). Other

questionnaires with acceptable psychometric properties that profess to measure some aspect of cognitive distortions include the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980), the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978), the Cognitive Distortion Scale (CDS; Briere, 2001).

However, most of these instruments have a number of theoretical and technical limitations. They were either designed to examine cognitive errors related to depression or obtained only an overall score of distortion (Rosenfield, 2004). The great advantage of Cognitive Distortion Scale (CDS; Covin et al., 2011) is that it assesses 10 different cognitive errors on two separate domains and offers a framework that is equally suitable for both clinical and nonclinical samples, thereby bringing all the existing models to completion.

COGNITIVE DISTORTION SCALE

The CDS (Covin et al., 2011) is a 20-item self-report, Likert-type scale, which assesses thinking distortions using case examples in two domains: Interpersonal and personal achievement. As authors point out, the decision was based on the theoretical and empirical research related to interpersonal and achievement schemas (Beck, 1995; Clark et al., 1999). The CDS assesses the frequency with which respondents experience each of cognitive errors: Mind reading, catastrophizing, all-or-nothing thinking, emotional reasoning, labeling, mental filter, overgeneralization, personalization, “should” statements, and minimizing or disqualifying the positive. Authors (Covin et al., 2011) presumed that cognitive errors may occur with differing frequency across social and achievement domains and they developed a measure to estimate the degree to which errors were experienced in both domains.

Based on the extant literature referring to these errors, the CDS seeks to detect cognitive distortions held by a person providing definitions of individual cognitive distortions and illustrating them with one-paragraph case examples for each domain. The respondent is asked to estimate how often s/he uses that type of thinking. In the process of crafting definitions, the diversity of population was taken into consideration to make the questionnaire applicable to a variety of populations. To avoid bias in the language, the authors (Covin et al., 2011) used both female and male characters in the item scenarios.

Another quality of the CDS is that the words “biased,” “distortions,” and “errors” are not mentioned and the name of the questionnaire is “The Types of Thinking Scale.” The reason for building the questionnaire in this way was to reduce the participants’ defensiveness. The authors argued (Covin et al., 2011) that if respondents were to believe that this questionnaire measured the extent to which they made mistakes in their thinking; they might be less likely to respond to items honestly. They believed that using neutral language to describe the measure would lower the probability that individuals would respond defensively.

Authors (Covin et al., 2011) examined the psychometric properties and found out that CDS is a promising tool to measure cognitive distortions. The instrument has been translated in other languages and results support its reliability and validity (Besta et al., 2014; Özdel et al., 2014).

THE PRESENT STUDY

The aim of the present study was to adapt and develop a valid and reliable measure for cognitive distortions. Specifically, to translate CDS into Georgian and investigate the psychometric properties of the Georgian translation—the analysis of the factor structure, scale reliability, convergent, and criterion validity.

Based on previous studies we hypothesize that cognitive errors will be positively related to all major psychiatric dimensions and negative automatic thoughts as well as to negative emotional states and negative affectivity. We also assume that cognitive errors will be positively related to pathological personality traits and alexithymia. As for the criterion validity, we expect that there will be significant differences between control and clinical group with the former one scoring higher on all cognitive distortions.

METHOD

Translation Procedure

First, a panel of experts prepared two independent translations. Next, those two versions were combined. After that, the inventory was back-translated by an independent translator in order to verify the translation. The original and back-translated versions were compared to identify differences, which showed the semantic equivalence of back-translation and English version. As in original, avoiding the bias in the language, we used both female and male characters in the item scenarios and asked respondents to estimate how often they tend to make the cognitive errors on a scale from 1 (*Never*) to 7 (*All the Time*). We only replaced characters' names with popular Georgian names to make the instrument more easily understandable.

Following this, seven experts, professional clinical psychologists with primary theoretical orientation of Cognitive Behavioral Therapy (CBT) (also, holding master's diploma in psychological counseling) assessed the content validity of the 10 cognitive errors. Some scenarios with the disagreements of expert assessment were revised. Specifically, based on experts' recommendations we revised the scenarios: Emotional reasoning, catastrophizing, and overall generalization. Namely, emotional reasoning scenario has been changed as experts decided that in Georgian culture the situation described in scenario could rather be the real example of social rejection than the example of emotional reasoning. In catastrophizing and overall generalization scenarios we changed the wordings or made the scenario more intense (e.g., catastrophizing item "he'll have a tough time getting into medical school" was replaced with "he taught that life was over"). Experts also assessed whether each situation, described in the items of the CDS, was related to an achievement or social relationship domain. In that regard, there was an absolute agreement between experts which situation was related to which domain.

Next, an initial administration of the first Georgian version of CDS (G-CDS) was conducted ($N = 45$) to assess task coherence. From this pilot work, it became clear that the All-or-nothing thinking item needed to be revised (specifically, the English expression: "You're either in her 'good book' or you're not" appeared not having a clear meaning in Georgian and we removed it). After that, the second pilot study was conducted ($N = 50$), which revealed no need for further revision.

Participants

Nonclinical Sample. Altogether, 915 individuals across six samples ($M_{age} = 33.36$, $SD = 13.92$) participated in the scale standardization process. Eleven cases were deleted due to missing values. Three hundred and ninety (43.1%) participants (out of remaining 904) were men and 514 (56.9%) were women. Forty-three percent of the participants were current students from the University (name deleted to maintain the integrity of the review process), who have been rewarded by the course bonus and 57.0% were lay people who volunteered to participate in the study without any compensation (convenience sample).

Clinical Sample and Group-Matched Controls. Thirty-eight patients with psychological disorders diagnosis (31 women; M of age = 28.03, SD = 6.75) volunteered to participate in the study and were group-matched on average chronological age and a balanced male/female ratio with 42 controls—individuals without any history of mental problems (33 women; M of age = 28.07, SD = 9.16). The control group was recruited by convenience sampling with the exclusion criterion—History of mental problems. The clinical sample (patients who went through psychological treatment) was recruited by a therapist. Clinical participants were diagnosed with mental disorders, according to Diagnostic and Statistical Manual for Mental Disorders (APA, 2013). Specifically: Panic Disorder—37.8%; Obsessive compulsive disorder—21.6%; Generalized anxiety disorder—10.8%; Major depressive disorder—10.8%; Social phobia—8.1%; Social Phobia and Anorexia Nervosa—2.7%; Major depressive disorder and Generalized anxiety disorder—2.7%; Panic Disorder and Major depressive disorder—2.7%; Specific Phobia (situational)—2.7%. Neither Clinical sample nor group-matched controls got any compensation in exchange for their participation.

There is no Ethical Review Board at the university, but the National Science Foundation of Georgia funded the research project and the board of experts (the evaluation committee), also evaluates the ethical aspects of the study, while assessing the projects for funding. Besides, we used standardized, well-established research instruments, thus, the questionnaire items were not of any ethical concern.

All participants have been informed about the goal of the study and about the possibility to drop out at any time without any explanation. Informed consent was obtained from all of them. Participants completed paper-and-pencil questionnaires anonymously in small groups or individually, and were subsequently debriefed.

Instruments

In order to evaluate the convergent validity of the Georgian translation of CDS, we used several clinically and theoretically relevant measures. Some of them (namely, Automatic Thoughts Questionnaire; Depression, Anxiety, Stress Scales, and the Positive and Negative Affect Schedule) were used in validation study of the original version of the instrument. In addition, we used Hopkins Symptom Checklist to check the correlations with primary psychiatric dimensions. Moreover, to check the correlations with personality variables we used the Personality Inventory for DSM-5 and the Toronto Alexithymia Scale.

Automatic Thoughts Questionnaire-Negative (ATQ-N; Hollon & Kendall, 1980). The Georgian translation of the ATQ-N (Kobiashvili, 2016) as the original version of the instrument is a self-report scale designed to measure the frequency of automatic negative thoughts. Questionnaire consists of 30 items with 5-point scale. For each item, respondents are asked to indicate how frequently each thought occurred during the past week (1 = *not at all*, 5 = *all the time*). The English version of the questionnaire (Dobson & Breiter, 1983; Hollon et al., 1986) as the Georgian translation has good psychometric properties (Kobiashvili, 2016)—Reliability coefficients for subscales vary from .82 to .84, and .96 for the total scale. The psychometric investigation of the instrument (Kobiashvili, 2016) shows good convergent validity coefficients with clinically relevant measures as well as good criterion validity on clinical patients.

Depression, Anxiety, Stress, and Scales (DASS-42) (S. H. Lovibond & Lovibond, 1995b). The Georgian version (Martskvishvili, 2015) as the original DASS42 is a self-report instrument designed to measure the three related negative emotional states of depression, anxiety, and tension/stress. Each of the three DASS42 scales contains 14 items, rated on a 4-point scale to evaluate the extent of symptom frequency to which they have experienced each state over the past week. The DASS-42 has a good internal consistency and replicable three-factor structure (e.g., Antony et al., 1998; Brown et al., 1997; Clara et al., 2001; Crawford & Henry, 2003; P. F. Lovibond

& Lovibond, 1995a; Page et al., 2007). The three-factor structure has been replicated in Georgian translation (Martskvishvili, 2015), which also has a good internal consistency (*alphas* vary from .84 to .89) and shows logical correlations with theoretically relevant measures.

Symptom Checklist-90-Revised (SCL-90-R; Derogatis & Unger, 2010). SCL-90-R is a self-report instrument used for assessing a broad range of psychopathology symptoms. The instrument is designed to provide an overview of symptoms and their intensity. The inventory contains 90 items rated on a 5-point Likert scale from 0 (*Not At All*) to 5 (*extremely*), which measure nine primary symptom dimensions: Anxiety; Depression; Hostility; Interpersonal Sensitivity; Obsessive-Compulsive; Phobic Anxiety; Paranoid Ideation; Psychoticism; Somatization as well as Global Indices: Global Severity Index (overall psychological distress); Positive Symptom Distress Index (intensity of symptoms); and Positive Symptom Total (number of self-reported symptoms). The SCL-90-R is an established instrument. It has been translated into approximately 30 languages and hundreds of clinical as well as nonclinical studies have demonstrated its reliability, validity, and utility (Derogatis & Unger, 2010). Studies in Georgian context shows that instrument demonstrates good internal consistencies and validity coefficients (e.g., see Kobiashvili, 2016; Martskvishvili et al., 2014).

The Positive and Negative Affect Schedule (PANAS-X; Watson, & Clark, 1994). The Georgian translation (Martskvishvili, 2019) is based on the PANAS-X, which is a self-report instrument and consists of 60 items—words and phrases describing various feelings and emotions. Participants are asked to indicate to what extent they have felt this way during the past few weeks. The instrument assesses the specific, distinguishable affective emotional states that emerge from within the broader general dimensions of positive and negative emotional experience. The English version of PANAS (Crawford & Henry, 2004; Watson et al., 1988) as well as the Georgian translation is a reliable and valid instrument (Martskvishvili, 2019).

Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994). The Georgian version of TAS (TAS-20-G) (Martskvishvili, 2020) contains 20 items rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*), assessing the three dimensions of the construct: Difficulty Describing Feelings subscale (5 items); Difficulty Identifying Feeling (7 items); Externally Oriented Thinking (8 items). The TAS-20 is the most widely used instrument to measure Alexithymia, which has been validated in clinical and nonclinical population, including mental and chronic physical illness. TAS-20 has demonstrated good test-retest reliability, internal consistency, and a replicable three-factor structure remains relatively stable in several cultures and languages (Parker et al., 2003; Taylor et al., 2003). The psychometric investigation of TAS-20-G (Martskvishvili, 2020) reveals replication of the three-factor structure, good internal consistency coefficients (*alphas* range from .71 to .84), and reasonable correlations with relevant measures (see also Abuladze & Martskvishvili, 2016).

The Personality Inventory for DSM-5 (PID-5)—Adult (Krueger et al., 2012). The Georgian version of the instrument (Kamushadze, 2016) like the original instrument is a self-rated personality trait assessment scale for adults. PID-5 contains 220 items rated on a 4-point scale from 0 (*Very False or Often False*) to 3 (*Very True or Often True*) and assesses 25 pathological personality traits and five factors: Antagonism; Negative affect; Detachment; Disinhibition; and Psychoticism. Studies have demonstrated reliability, validity, and utility PID-5 in different languages (Bastiaens et al., 2016; Bo et al., 2016; Gutiérrez et al., 2016; Roskam et al., 2015; Zimmermann et al., 2014). The investigation of the psychometric properties of the Georgian version (Kamushadze, 2016) suggests that five-factor structure is replicated, correlation indicators are similar to the original version, without exception, and the reliability of the scales and factors prove to be adequate.

ANALYSIS

Prior to analysis, data were examined for accuracy of entry, missing values, and fit between their distributions and the assumptions of analysis. Missing values analysis revealed that performing complete cases analysis would yield a loss of 11 participants and cases with missing values have been deleted. The factor structure of the G-CDS was assessed using confirmatory factor analysis (CFA) as CFA allows assessment of fit between observed data and an a priori conceptualized, theoretically grounded model. After that, to assess distributional properties, internal consistency, gender differences, and convergent and criterion validity of the instrument, a normality test, internal consistency coefficients, Mann-Whitney U Test, and bivariate correlations were computed.

RESULTS

Factor Structure of the G-CDS

We used confirmatory factor analyses to test the factor structure of G-CDS ($n = 904$) and compared three different models: (a) A ten-factor solution—according to theoretically proposed model of ten cognitive errors (Covin et al., 2011); (b) A two-factor solution—having good conceptual reasons for comparing errors in social versus achievement contexts (Besta et al., 2014); and (c) A one-factor solution—conceptualizing the global factor as the general tendency to experience cognitive errors, which was also observed in other studies (Covin et al., 2011; Özdel et al., 2014).

Several fit indices were used to determine model fit: χ^2 ; comparative fit index = CFI; root mean square error of approximation = RMSEA; Tucker-Lewis index = TLI; and standardized root mean residual = SRMR. The fit indices evidenced the best model fit ($\chi^2 = 285.644, p < .000, \chi^2/df = 2.28, TLI = .96, CFI = .97, RMSEA = .04, SRMR = .02$) with a ten-factor solutions compared with the two-factor ($\chi^2 = 1561.76, p < .000, \chi^2/df = 9.24, TLI = .72, CFI = .75, RMSEA = .09, SRMR = .06$) and one-factor solution ($\chi^2 = 1571.59, p < .000, \chi^2/df = 9.24, TLI = .72, CFI = .75, RMSEA = .06$).

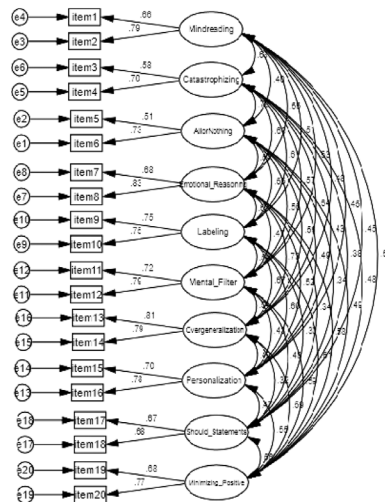


FIGURE 1. Standardized factor loadings for the model.

= .09, SRMR = .06). Comparing the one-factor solution to the ten (TRd = 794.77; $\Delta df = 45$; $p < .0001$) and two-factor models (TRd = 5.82; $\Delta df = 1$; $p < .01$) showed that the differences were statistically significant

We expected that cognitive errors would be positively related with each other, as different distortions can be a part of distorted cognitive processing in general. We calculated correlations among 10 cognitive errors. All cognitive errors correlated positively with each other. The weakest correlation (.20) was observed between “should” statements and labeling errors, whereas the strongest correlation (.54) was observed between emotional reasoning and overgeneralization errors. The factor structure and factor intercorrelations are presented in Figure 1 and Table 1, respectively.

Distributional Properties and Internal Consistency

Kolmogorov–Smirnov (KS) test revealed that normality was not achieved for any of cognitive distortions: Mindreading (KS (904) = .13, $p < .000$); Catastrophizing (KS (904) = .17, $p < .000$); All-or-Nothing Thinking (KS (904) = .16, $p < .000$); Emotional Reasoning (KS (904) = .16, $p < .000$); Labeling (KS (904) = .18, $p < .000$); Mental Filter (KS (904) = .16, $p < .000$); Overgeneralization (KS (904) = .21, $p < .000$); Personalization (KS (904) = .13, $p < .000$); Should Statements (KS (904) = .08, $p < .000$); Minimizing the Positive (KS (904) = .09, $p < .000$). All cognitive distortions scores are skewed positively (see Table 2). It is noteworthy that non-normal distribution of the distortions is the matter of validity rather than a weakness. The sample is nonclinical sample and not surprising that scores are clustered to the left at the low values.

The internal consistency coefficients (the Raykov’s Rho) are given in Table 2. Among the 10 cognitive distortions, 5 approached or exceeded the recommended minimum level of .70 and 5 had lower reliability (varying between .56 and .69).

TABLE 1. G-CDS FACTOR INTERCORRELATIONS

		1	2	3	4	5	6	7	8	9	10
1	Mindreading	–	–	–	–	–	–	–	–	–	–
2	Catastrophizing	.413**	–	–	–	–	–	–	–	–	–
3	All-or-Nothing Thinking	.257**	.391**	–	–	–	–	–	–	–	–
4	Emotional Reasoning	.392**	.401**	.369**	–	–	–	–	–	–	–
5	Labeling	.353**	.399**	.344**	.455**	–	–	–	–	–	–
6	Mental Filter	.391**	.378**	.358**	.337**	.391**	–	–	–	–	–
7	Overgeneralization	.360**	.416**	.380**	.545**	.503**	.411**	–	–	–	–
8	Personalization	.307**	.279**	.303**	.379**	.429**	.306**	.368**	–	–	–
9	Should Statements	.297**	.229**	.211**	.232**	.200**	.318**	.221**	.317**	–	–
10	Minimizing the Positive	.354**	.310**	.308**	.406**	.363**	.417**	.437**	.383**	.363**	–

Note. $N = 904$.

** $p = .01$.

* $p = .05$.

TABLE 2. DESCRIPTIVE STATISTICS AND INTERNAL CONSISTENCIES FOR THE G-CDS SCALES BY GENDER

	N of items	Men (n = 390)		Women (n = 514)		Raykov's Rho	Skewness (n = 904)	Kurtoses (n = 904)	Mann-Whitney	Effect size (r)
		Md	IQR	Md	IQR					
Mindreading	2	2.50	1.50–3.50	2.50	1.50–4.00	.69	0.789	.211	98747	.01
Catastrophizing	2	2.00	1.00–3.00	2.00	1.00–3.00	.58	1.212	1.239	97927	.02
All-or-Nothing Thinking	2	2.00	1.00–3.00	2.00	1.00–3.00	.56	1.016	0.561	94060	.05
Emotional Reasoning	2	2.00	1.00–3.00	2.00	1.00–3.00	.73	1.059	0.748	96153	.03
Labeling	2	2.00	1.00–3.00	2.00	1.00–3.00	.72	1.252	1.272	100071	.00
Mental Filter	2	2.00	1.00–3.00	2.00	1.00–3.50	.73	1.023	0.598	98758	.01
Overgeneralization	2	1.50	1.00–3.00	1.50	1.00–2.50	.78	1.449	1.877	100103	.00
Personalization	2	2.50	1.50–3.50	2.50	1.50–3.50	.71	0.758	0.340	92791	.06
Should Statements	2	3.00	2.00–4.00	3.50	2.00–4.50	.63	0.296	-0.716	87351 **	.11
Minimizing the Positive	2	2.50	1.50–3.50	2.50	1.50–3.50	.69	0.713	-0.047	98969	.01

Note. G-CDS = The Georgian version of the Cognitive Distortion Scale.

** $p < .01$.

Gender Differences

To check the gender difference in cognitive errors, we used nonparametric test, as the data was not normally distributed. Mann-Whitney U test showed that there were no gender differences in cognitive errors, except for significant differences in “Should” statements. On this scale, women ($Md = 3.50$, $n = 514$) scored higher than men ($Md = 3.00$, $n = 390$), $U = 87351$, $p < .01$, $d = .22$). Gender differences are broadly consistent with those reported by Covin et al. (2011), who found no significant gender differences on the CDS or its subscales. Women’s higher scores on “Should” statements can be explained by cultural differences. The gender-specific descriptive statistics for cognitive distortions can be seen in Table 2.

Convergent Validity

The validity of the G-CDS was assessed by performing a series of correlations with relevant measures (see Table 3). The descriptive statistics: Means, standard deviations, and reliability coefficients (Cronbach’s alpha) of instruments used for validation are also reported in Table 3. In

TABLE 3. MEANS, STANDARD DEVIATIONS, INTERNAL CONSISTENCIES, AND CORRELATIONS FOR THE SCALES EXAMINED

	N	Age	Balance		Number of items	Cronbach's Alphas	M	SD	Mindreading	Catastrophizing	All-or-Nothing Thinking	Emotional Reasoning	Labeling	Mental Filter	Overgeneralization	Personalization	Should Statements	Minimizing the Positive	
			women/	men (%)															
	M	SD																	
ATQ-N	135	28.69	11.64	57/47	30	.96	62.87	23.11	.414 ²	.401 ^{**}	.289 ^{**}	.366 ^{**}	.428 ^{**}	.312 ^{**}	.340 ^{**}	.286 ^{**}	.382 ^{**}	.280 ^{**}	
SCL-90-R																			
Somatization	157	40.16	14.57	49/51	12	.83	11.08	7.51	.129	.335 ^{**}	.137	.208 ^{**}	.262 ^{**}	.211 ^{**}	.213 ^{**}	.231 ^{**}	.164 ³	.232 ^{**}	
Obsessive-Compulsive	157	40.16	14.57	49/51	10	.64	11.41	5.19	.112	.114	.170 [*]	.363 ^{**}	.237 ^{**}	.207 ^{**}	.247 ^{**}	.183 ^{**}	0.14	.248 ^{**}	
Interpersonal Sensitivity	157	40.16	14.57	49/51	9	.74	7.88	5.24	.208 ^{**}	.295 ^{**}	.267 ^{**}	.325 ^{**}	.431 ^{**}	.343 ^{**}	.365 ^{**}	.182 ^{**}	.303 ^{**}	.278 ^{**}	
Depression	157	40.16	14.57	49/51	17	.78	13.81	7.82	.135	.342 ^{**}	.163 ^{**}	.341 ^{**}	.348 ^{**}	.229 ^{**}	.315 ^{**}	.227 ^{**}	.221 ^{**}	.257 ^{**}	
Anxiety	157	40.16	14.57	49/51	10	.82	9.18	6.32	.177 [*]	.282 ^{**}	.252 ^{**}	.303 ^{**}	.275 ^{**}	.266 ^{**}	.301 ^{**}	.244 ^{**}	.172 [*]	.273 ^{**}	
Hostility	157	40.16	14.57	49/51	6	.67	4.94	3.55	.160 [*]	.218 ^{**}	.216 ^{**}	.140	.182 [*]	.111	.073	.172 [*]	-.039	.069	
Phobic Anxiety	157	40.16	14.57	49/51	7	.63	2.35	2.64	.055	.222 ^{**}	.129	.313 ^{**}	.151	.228 ^{**}	.254 ^{**}	.101	.155	.134	
Paranoid Ideation	157	40.16	14.57	49/51	6	.68	4.64	3.59	.195 [*]	.203 [*]	.224 [*]	.295 ^{**}	.280 ^{**}	.234 ^{**}	.227 ^{**}	.160 [*]	.180 [*]	0.138	
Psychoticism	157	40.16	14.57	49/51	10	.70	5.91	4.67	.163 [*]	.183 [*]	0.086	0.147	.343 ^{**}	.255 ^{**}	.260 ^{**}	.161 [*]	.168 [*]	.214 ^{**}	
Global Severity Index	157	40.16	14.57	49/51	90	.95	74.46	38.29	.192 [*]	.332 ^{**}	.234 ^{**}	.341 ^{**}	.368 ^{**}	.301 ^{**}	.326 ^{**}	.247 ^{**}	.213 ^{**}	.278 ^{**}	
PANAS-X																			
State negative affectivity	239	32.03	12.28	67/33	12	.91	9.03	2.02	.407 ^{**}	.384 ^{**}	.284 ^{**}	.459 ^{**}	.347 ^{**}	.266 ^{**}	.377 ^{**}	.226 ^{**}	.167 ^{**}	.164 [*]	
State positive affectivity	239	32.03	12.28	67/33	17	.88	8.77	2.86	-.067	-.010	-.054	-.085	-.130 [*]	-.034	-.074	-.044	.158 [*]	.014	

TABLE 3. (continued)

	N	Age	Balance		Number of items	Cronbach's Alphas	M	SD	Mindreading	Catastrophizing	Nothing Thinking	All-or-Nothing Thinking	Emotional Reasoning	Labeling	Mental Filter	Overgeneralization	Personalization	Should Statements	Minimizing the Positive
			women/ men (%)	men (%)															
	M	SD																	
DASS-42																			
Depression	333	33.85	12.95	62/38	14	.89	8.54	7.45	.358 ^{**}	.314 ^{**}	.218 ^{**}	.369 ^{**}	.319 ^{**}	.120 [*]	.340 ^{**}	.115 [*]	.074	.068	
Anxiety	333	33.85	12.95	62/38	14	.88	7.04	6.69	.289 ^{**}	.308 ^{**}	.228 ^{**}	.380 ^{**}	.203 ^{**}	.117 [*]	.355 ^{**}	.124 [*]	.124 [*]	.086	
Stress	333	33.85	12.95	62/38	14	.87	12.5	7.84	.284 ^{**}	.219 ^{**}	.197 ^{**}	.229 ^{**}	.190 ^{**}	.065	.232 ^{**}	.200 ^{**}	.300 ^{**}	.109 [*]	
Alexithymia																			
Difficulty Identifying Feelings	83	38.60	14.47	49/51	7	.69	16.85	5.93	-.297 ^{**}	.074	-.031	.228 [*]	.258 [*]	.008	.006	.133	.043	-.073	
Difficulty Describing Feelings	83	38.60	14.47	49/51	5	.36	12.45	3.68	-.016	0.091	0.109	.222 [*]	.242 [*]	-.0023	.321 ^{**}	.252 [*]	0.178	.316 ^{**}	
Externally-Oriented Thinking	83	38.60	14.47	49/51	8	.64	23.62	6.22	.063	-.056	-.034	.057	.202	.046	.016	.245 [*]	.332 ^{**}	.141	
PID-5-BF																			
Negative affect	57	27.77	6.53	100/0	23	.89	32.57	13.40	.432 ^{**}	.490 ^{**}	.367 ^{**}	.475 ^{**}	.469 ^{**}	.331 [*]	.347 ^{**}	.423 ^{**}	.286 [*]	.250	
Detachment	57	27.77	6.53	100/0	24	.91	23.32	12.97	.273 [*]	.334 [*]	.325 [*]	.479 ^{**}	.297 [*]	.394 ^{**}	.423 ^{**}	.407 ^{**}	.340 [*]	.559 ^{**}	
Antagonism	57	27.77	6.53	100/0	20	.85	16.26	8.96	.344 ^{**}	.232	.480 ^{**}	.14	.088	.343 ^{**}	.093	.111	.223	.101	
Disinhibition	57	27.77	6.53	100/0	22	.88	21.45	11.21	.285 [*]	.215	.273 [*]	.437 ^{**}	.298 [*]	.312 [*]	.379 ^{**}	.280 [*]	.212	.513 ^{**}	
Psychoticism	57	27.77	6.53	100/0	31	.94	31.78	18.67	.257	.18	.286 [*]	.221	.12	.299 [*]	.203	.196	.295 [*]	.290 [*]	

Note. ATQ-N = Automatic thoughts questionnaire-Negative; SCL-90-R = Symptom Checklist-90-Revised; PANAS-X = The Positive and Negative Affect Schedule; DASS-42 = Depression, Stress and Anxiety Scale; PID-5-BF = The Personality Inventory for DSM-5—Brief Form.

*** $p < .001$.
 ** $p < .01$.
 * $p < .05$.

(continued)

TABLE 4. DESCRIPTIVE STATISTICS AND INTERNAL CONSISTENCIES FOR THE G-CDS SCALES BY GROUP (CLINICAL VERSUS CONTROL)

	N of items	Clinical (n = 37)			Control (n = 42)			Skewness		Kurtoses		Effect size (r)	
		Md	IQR	α	Md	IQR	α	Clinical	Control	Clinical	Control		Mann-Whitney
Mindreading	2	3.75	2.50-5.00	.70	2.50	1.50-4.00	.52	.214	.373	-.489	-.773	510.50**	.28
Catastrophizing	2	4.50	2.75-5.62	.72	2.50	1.87-3.50	.59	-.095	.763	-.991	.525	373.50**	.44
All-or-Nothing Thinking	2	3.00	1.50-5.00	.83	2.50	1.00-3.62	.62	.354	.282	-1.067	-1.205	572.50*	.23
Emotional Reasoning	2	3.50	2.00-4.75	.69	2.50	1.00-4.00	.78	.309	.227	-.926	-1.140	519.50**	.26
Labeling	2	4.00	2.00-5.75	.78	2.50	1.50-3.62	.66	-.055	.863	-1.332	-.167	447.00**	.34
Mental Filter	2	3.50	2.25-5.00	.84	2.50	1.50-3.50	.69	.166	.782	-.909	-.002	516.00**	.28
Overgeneralization	2	4.00	1.50-6.00	.89	2.00	1.00-3.50	.68	.010	.796	-1.495	-.215	459.00**	.33
Personalization	2	4.75	2.87-6.00	.87	3.50	2.00-4.00	.57	-.378	.273	-1.039	.011	463.00**	.32
Should Statements	2	5.50	3.75-6.50	.84	4.00	2.37-5.50	.78	-.675	.093	-.496	-.838	49300**	.31
Minimizing the Positive	2	3.50	2.50-5.12	.56	2.50	1.00-4.00	.81	.340	.498	-.675	-.954	434**	.37

Note. G-CDS = The Georgian version of the Cognitive Distortion Scale.

***p < .001.

**p < .01.

*p < .05.

support of the scale's convergent validity, all cognitive errors correlated in expected directions with all theoretically relevant measures. Namely, higher scores on all cognitive distortions were positively associated with automatic thoughts questionnaire score (Negative). The lowest correlation was observed between Minimizing the positive (.280) and negative automatic thoughts, while the highest correlation (.428) was observed between Labeling and negative automatic thoughts.

Higher scores on cognitive distortions were positively associated with all nine primary psychiatric symptom dimensions: Anxiety; Depression; Hostility; Interpersonal Sensitivity; Obsessive-Compulsive; Phobic Anxiety; Paranoid Ideation; Psychoticism; Somatization. The correlation coefficients varied from .16 to .36. The lowest coefficient was observed between Mindreading and Hostility and the highest between Overgeneralization and Interpersonal sensitivity, respectively.

We assumed that cognitive distortions positively correlate with state negative affectivity as well as with negative emotional states such as depression, anxiety, and stress. The results showed that all cognitive distortions positively correlated with state negative affectivity, while state positive affectivity negatively correlated only with labeling and unexpected to our expectation, was positively associated with "Should" statements. The correlation coefficients between state negative affectivity and cognitive distortions varied from .16 (Minimizing the positive and negative affectivity) to .46 (Emotional reasoning and negative affectivity). Likewise, negative emotional states such as depression, anxiety and stress were positively related with all cognitive distortions. Depressive emotional state revealed the strongest correlation with Emotional Reasoning (.37) and Mindreading (.36), Anxiety was most strongly related with Overgeneralization (.34), and Emotional Reasoning (.38), while distress showed the highest correlation with "Should" statements (.30).

Regarding the personality variables, we assumed that cognitive errors will be positively related with Alexithymia, which was partially confirmed. Basically, most of the cognitive errors were positively related to Alexithymia, however, there was some exception. Specifically, mindreading was negatively related to difficulty of identification of emotions (Alexithymia subscale).

And finally, we hypothesized that higher scores of cognitive errors will be positively related to pathological personality traits, which was also confirmed. The PID trait domains: Antagonism; Negative affect; Detachment; Disinhibition; and Psychoticism were positively related to most of the cognitive errors. The lowest correlation was observed between Disinhibition and All-or-Nothing thinking (.27) and the highest between Detachment and Minimizing the Positive (.56).

Criterion Validity

To check G-CDS criterion validity we compared the cognitive distortion scores of clinical and control groups. Clinical group participants were group-matched on average chronological age and a balanced male/female ratio with the control group (individuals without any history of mental problems). An independent sample *t* test showed no significant differences in the mean age of clinical participants and controls $t(77) = -0.02, p = .98$ and there were no significant between group differences in the distribution of gender $\chi^2(1) = 1.13, p = .79$.

Prior to analysis, data were examined for the fit between distribution and the assumptions of analysis. The normality of distribution was violated for most of the cognitive distortions in control and in clinical group. The distortions' scores tend to be skewed negatively in clinical group (see Table 4), which is not surprising for the clinical sample. The "Should" statements' scores were most strongly clustered at the high end. A Mann-Whitney test results showed that there were significant differences for clinical and control groups in terms of all cognitive distortions (Table 4), with the biggest effect size for Catastrophizing (.44) and Minimizing the Positive (.37) and with the smallest effect size for All-or-Nothing Thinking scale (.23).

DISCUSSION

The goal of our study was to adapt and validate the CDS (Covin et al., 2011) for Georgian-speaking population. The instrument measures 10 cognitive errors that are typically discussed and used in CBT. There have been several attempts in the research literature to measure cognitive errors; however, most of these instruments are designed either for assessing cognitive distortions related to depression or yield only a total distortion score (Rosenfield, 2004). In contrast, the CDS measures 10 different cognitive distortions in two separate domains: Social and achievement. Thus, offers a significant advantage over other measures. Generally, the measures of cognitive distortions are sparse, and this deficit is even more severe when it comes to instruments used for such a small population, like Georgians. Therefore, the G-CDS helps to fill this gap for clinicians working with people with mental problems.

The factor analysis supported neither the two- nor one-factor solution like this was suggested by the previous studies (Besta et al., 2014; Covin, et al., 2011; Özdel, et al., 2014). However, the fit indices evidenced the best model fit with 10-factor solution, which is in agreement with the theoretical assumptions of ten cognitive errors and can be clinically more useful at the individual level.

Overall, the G-CDS and its 10 subscales showed very good convergent validity, as there emerged a consistent pattern of relationships with theoretically relevant variables. Based on previous studies (e.g., Kostoglou & Pidgeon, 2016; Özdel et al., 2014) we assumed that cognitive errors will be positively related to automatic thoughts. The results showed that all 10 cognitive errors scores positively correlated with ATQ-N score. Our results are highly consistent with findings, which shows that the correlation coefficients between total score of Automatic Thoughts Questionnaire and different cognitive distortions vary from weak to moderate (Kostoglou & Pidgeon, 2016; Özdel et al., 2014).

Based on numerous studies we hypothesized that cognitive errors will be positively related to all major psychiatric dimensions as well as to negative emotional states. The results showed that cognitive distortions are correlated positively with: Anxiety; Depression; Somatization; Obsessive-Compulsive; Interpersonal Sensitivity; Hostility; Phobic Anxiety; Paranoid Ideation; Psychoticism as well as with symptoms related to negative emotional states, such as depression, anxiety, and stress. These results are consistent with findings of various studies which demonstrate that cognitive distortions and dysfunctional beliefs may lead to different mental health problems (e.g., Kostoglou & Pidgeon, 2016; Kuru et al., 2017; Lefebvre, 1981; Rnic et al., 2016; Rosenfield, 2004; Stopa & Clark 2000; Strohmeier et al., 2016; Tecuta et al., 2019; Weems et al., 2001).

In support of the scale's validity, cognitive errors correlated in expected directions with all measures: Cognitive errors positively correlated with state negative affectivity and Alexithymia. Though there were some exceptions. Specifically, "Should" statements were positively linked to positive affectivity, and Mind-reading was negatively related to difficulty of identification of emotions. It might well be that positive affectivity makes people think that things should or must be a certain way. Also, those individuals who believe that they are able to read others' mind, may have the feeling that they are able to identify and "read" emotions.

We assumed that pathological personality traits will be positively related to cognitive disorders. Our hypothesis was confirmed—Cognitive errors scores were positively related to alternative models of personality assessing five personality trait domains: Antagonism; Negative affect; Detachment; Disinhibition; and Psychoticism. Negative affect and detachment showed the most robust pattern of positive correlations with distortions. This result is in agreement with Hong and Tan (2020) study, which demonstrated that pathological personality tendencies (especially negative affectivity and detachment) hold a wide range of cognitive risk variables associated with mental disorders' symptoms.

The research consistently demonstrates that women report more mental health difficulties than men. However, women have more internalized problems, such as affective or anxiety disorders, whereas men report a higher frequency of personality disorders (e.g., antisocial personality disorder) and substance abuse (Simon, 2002). Such results logically led to examine the gender differences in cognitive distortions as they can play a crucial role in development and maintenance of mental disorders. However, the results of our study showed, that although women scored higher than men on one factor (Should statements) there were no other gender differences. Gender differences are broadly consistent with those reported by Covin et al. (2011). Based on their non-clinical and sub-clinical samples, Covin et al. (2011) found no significant gender differences on the CDS or its subscales. The findings from the our study revealed only one exception—Women scored higher than men on the “Should” statements scale, which can easily be explained by cultural differences. Georgian culture, at some point having an eastern traditional orientation, might be still dictating to women what they should do.

This result also leads to the idea of the cross-cultural applications of the instrument. We tried to avoid the bias in the language and used both female and male characters in the item scenarios and replaced characters’ names with popular Georgian names to make the instrument more easily understandable, nevertheless, the cultural context of the scenario had an impact on respondents estimation how often they tend to make the cognitive errors. It’s important to take into account that cultural values might have an influence on how individuals in each society misinterpret events or process the information.

Generally, empirical studies investigating psychological constructs by yielding data from a region like Georgia, which doesn’t represent the WEIRD (Western, Educated, Industrialized, Rich, and Democratic; Henrich et al., 2010) society, is highly under-represented in the scientific literature. Studies aiming at the effects of psychotherapy are even more limited. Moreover, psychological research requires valid and reliable instruments to assess cognitive vulnerabilities. The widely used scales need to be adapted on specific languages in order to properly measure the psychological construct across cultures. Although in this process some adjustments may become necessary.

The study results supported the use of G-CDS for clinical sample. There were significant differences in terms of all cognitive distortions, with the clinical group scoring much higher than controls on all cognitive errors with the biggest effect size for Catastrophizing. This seems reasonable if take into consideration that most of our clinical sample participants were suffering from panic disorder. Cognitive errors can lead to the development of panic disorders. For example, research (Clark, 1988) shows that panic attacks often result from misinterpretation of normal body sensations when they are considered as a sign of forthcoming catastrophe. Also, Casey et al. (2004) found catastrophic misinterpretations of bodily sensations were related to severity of panic attacks among individuals who suffer from panic disorder.

The distortions’ scores tend to be skewed negatively in clinical sample. The “should” statements’ scores were most strongly clustered at the high end. As our clinical sample mostly consists of women, this result is in agreement with our study, where women scored higher on this factor. Moreover, most of the clinical participants were diagnosed with Anxiety disorder for whom “should” statements are characterized.

Some limitations in this research are important to point out. First, for testing the factor structure, we used nonclinical sample, as our clinical sample size was too small. Although, this is common practice until the instrument is used on clinical sample. Given that promising results from the non-clinical as well as from the clinical sample, we can definitely assume that this measure will be valuable for a clinical use, which is the main purpose of the study. The second limitation is related to the nature of the instrument itself and the other measures used, which are solely self-report questionnaires. Although self-report questionnaires are among the most widely used assessment strategies in clinical psychology, and diagnoses are generated primarily from self-report, it would

be important to test the validity of the G-CDS with other measures of information processing. Furthermore, additional empirical data is needed to evaluate the clinical utility of the G-CDS for patients with different groups of mental problems. Nevertheless, the psychometric properties of G-CDS appear more than promising.

Notwithstanding these restrictions, the current study presents evidence in support of the psychometric properties of the Georgian version of the CDS. It also provides further corroboration of the clinical research of cognitive distortions by yielding data from a region that is highly under-represented in modern psychological literature. In sum, it is hoped that the successful Georgian adaptation of the CDS will allow for a more diverse clinical investigations of cognitive errors, which is so important for clinicians working with people with mental disorders. Therefore, because of respectable clinical and research potential, the G-CDS may certainly be used for future practical as well as for clinical research purposes.

REFERENCES

- Abbott, M. J., & Rapee, R. M. (2004). Post-event rumination and negative self-appraisal in social phobia before and after treatment. *Journal of Abnormal Psychology, 113*(1), 136–144. <https://doi.org/10.1037/0021-843x.113.1.136>
- Abela, J. R., Payne, A. V., & Moussaly, N. (2003). Cognitive vulnerability to depression in individuals with borderline personality disorder. *Journal of Personality Disorders, 17*, 319–329. <https://doi.org/10.1521/pepi.17.4.319.23968>
- Abuladze, N., & Martskvishvili, K. (2016). No words for emotion: Emotional creativity and alexithymia in art. *Problems of Psychology in the 21st Century, 10*(2), 62–68.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author. <https://doi.org/10.1176/appi.books.9780890425596>
- Amir, N., Foa, E. B., & Coles, M. E. (1998). Automatic activation and strategic avoidance of threat-relevant information in social phobia. *Journal of Abnormal Psychology, 107*(2), 285–290. <https://doi.org/10.1037//0021-843x.107.2.285>
- Anderson, J. L., Sellbom, M., & Salekin, R. T. (2018). Utility of the Personality Inventory for DSM-5–Brief Form (PID-5-BF) in the measurement of maladaptive personality and psychopathology. *Assessment, 25*(5), 596–607. <https://doi.org/10.1177/1073191116676889>
- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment, 10*, 176–181. <https://doi.org/10.1037/1040-3590.10.2.176>
- Bach, B., Sellbom, M., & Simonsen, E. (2018). Personality Inventory for DSM-5 (PID-5) in clinical versus nonclinical individuals: Generalizability of psychometric features. *Assessment, 25*(7), 815–825. <https://doi.org/10.1177/1073191117709070>
- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale-I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research, 38*, 23–32. [https://doi.org/10.1016/0022-3999\(94\)90005-1](https://doi.org/10.1016/0022-3999(94)90005-1)
- Barriga, A. Q., Landau, J. R., Stinson, B. L., Liau, A. K., & Gibbs, J. C. (2000). Cognitive distortion and problem behaviors in adolescents. *Criminal Justice and Behavior, 27*(1), 36–56. <https://doi.org/10.1177/0093854800027001003>
- Bastiaens, T., Claes, L., Smits, D., De Clercq, B., De Fruyt, F., Rossi, G., Vanwalleghem, D., Vermote, R., Lowyck, B., Claes, S., & De Hert, M. (2016). The Construct Validity of the Dutch Personality Inventory for DSM-5 Personality Disorders (PID-5) in a clinical sample. *Assessment, 23*(1), 42–51. <https://doi.org/10.1177/1073191115575069>
- Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. Harper & Row.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. International Universities Press.

- Beck, A. T., Butler, A. C., Brown, G. K., Dahlsgaard, K. K., Newman, C. F., & Beck, J. S. (2001). Dysfunctional beliefs discriminate personality disorders. *Behaviour Research and Therapy*, 39(10), 1213–1225. [https://doi.org/10.1016/s0005-7967\(00\)00099-1](https://doi.org/10.1016/s0005-7967(00)00099-1)
- Beck, A. T., Freeman, A., & Davis, D. D. (2004). *Cognitive therapy of personality disorders* (2nd ed.). Guilford Press.
- Beck, J. S. (1995). *Cognitive therapy: Basics and beyond*. Guilford Press.
- Besta, T., Barczak, A., Lewandowska-Walter, A., & Dozois, D. (2014). Polish version of the Cognitive Distortions Scale (CDS): Preliminary validation and personality correlates. *Current Issues in Personality Psychology*, 2(3), 177–183. <https://doi.org/10.5114/cipp.2014.46234>
- Bo, S., Bach, B., Mortensen, E. L., & Simonsen, E. (2016). Reliability and hierarchical structure of DSM-5 pathological traits in a Danish mixed sample. *Journal of Personality Disorders*, 30, 112–129. https://doi.org/10.1521/pedi_2015_29_187
- Briere, J. (2001). *The Cognitive Distortion Scale*. Psychological Assessment Resources, Inc.
- Brown, T. A., Chorpita, B. F., Korotitsch, W., & Barlow, D. H. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. *Behaviour Research and Therapy*, 35, 79–89. [https://doi.org/10.1016/S0005-7967\(96\)00068-X](https://doi.org/10.1016/S0005-7967(96)00068-X)
- Burns, D. D. (1980). *Feeling good: The new mood therapy*. Signet.
- Burns, D. D. (1999). *Feeling good: The new mood therapy*. Avon Books.
- Casey, L. M., Oei, T. P., Newcombe, P. A., & Kenardy, J. (2004). The role of catastrophic misinterpretation of bodily sensations and panic self-efficacy in predicting panic severity. *Journal of Anxiety Disorders*, 18(3), 325–340. [https://doi.org/10.1016/s0887-6185\(02\)00257-8](https://doi.org/10.1016/s0887-6185(02)00257-8)
- Chabrol, H., van Leeuwen, N., Rodgers, R. F., & Gibbs, J. C. (2011). Relations between self-serving cognitive distortions, psychopathic traits, and antisocial behavior in a non-clinical sample of adolescents. *Personality and Individual Differences*, 51(8), 887–892. <https://doi.org/10.1016/j.paid.2011.07.008>
- Clara, I. P., Cox, B. J., & Enns, M. W. (2001). Confirmatory factor analysis of the depression-anxiety-stress scales in depressed and anxious patients. *Journal of Psychopathology and Behavioral Assessment*, 23, 61–67. <https://doi.org/10.1023/A:1011095624717>
- Clark, D. A., Beck, A. T., & Alford, B. A. (1999). *Scientific foundations of cognitive theory and therapy of depression*. John Wiley & Sons.
- Clark, D. M. (1988). A cognitive model of panic attacks. In S. Rachman & J. D. Maser (Eds.), *Panic: Psychological perspectives* (pp. 71–89). Lawrence Erlbaum Associates, Inc.
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. Heimberg, M. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment and treatment* (pp. 69–93). Guilford Press.
- Constans, J. I., Penn, D. L., Ihen, G. H., & Hope, D. A. (1999). Interpretive biases for ambiguous stimuli in social anxiety. *Behaviour Research and Therapy*, 37(7), 643–651. [https://doi.org/10.1016/s0005-7967\(98\)00180-6](https://doi.org/10.1016/s0005-7967(98)00180-6)
- Covin, R., Dozois, D. J. A., Ogniewicz, A., & Seeds, P. M. (2011). Measuring cognitive errors: Initial development of the Cognitive Distortions Scale (CDS). *International Journal of Cognitive Therapy*, 4(3), 297–322. <https://doi.org/10.1521/ijct.2011.4.3.297>
- Crawford, J. R., & Henry, J. D. (2003). The Depression Anxiety Stress Scales (DASS): Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology*, 42, 111–121. <https://doi.org/10.1348/014466503321903544>
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large, non-clinical sample. *British Journal of Clinical Psychology*, 43, 245–265. <https://doi.org/10.1348/0144665031752934>
- Derogatis, L. R., & Unger, R. (2010). Symptom Checklist90–revised. In I. B. Weiner & W. E. Craighead (Eds.), *The Corsini encyclopedia of psychology* (pp. 1743–1744). John Wiley & Sons. <https://doi.org/10.1002/9780470479216.corpsy0970>

- Díaz-Batanero, C., Ramírez-López, J., Domínguez-Salas, S., Fernández-Calderón, F., & Lozano, Ó. M. (2019). Personality Inventory for DSM-5-Short Form (PID-5-SF): Reliability, factorial structure, and relationship with functional impairment in dual diagnosis patients. *Assessment, 26*(5), 853–866. <https://doi.org/10.1177/1073191117739980>
- Dobson, K. S., & Breiter, H. J. (1983). Cognitive assessment of depression: Reliability and validity of three measures. *Journal of Abnormal Psychology, 92*, 107–109. <https://doi.org/10.1037/0021-843X.92.1.107>
- Dozois, D. J. A., & Beck, A. T. (2008). Cognitive schemas, beliefs and assumptions. In K. S. Dobson & D. J. A. Dozois (Eds.), *Risk factors in depression* (pp. 121–143). Elsevier/Academic Press. <https://doi.org/10.1016/B978-0-08-045078-0.00006-X>
- Fang, S., & Chung, M. C. (2019). The impact of past trauma on psychological distress among Chinese students: The roles of cognitive distortion and alexithymia. *Psychiatry Research, 271*, 136–143. <https://doi.org/10.1016/j.psychres.2018.11.032>
- Farabaugh, A., Mischoulon, D., Schwartz, F., Pender, M., Fava, M., & Alpert, J. (2007). Dysfunctional attitudes and personality disorder comorbidity during long-term treatment of MDD. *Depression and Anxiety, 24*, 433–439. <https://doi.org/10.1002/da.20174>
- Few, L. R., Miller, J. D., Rothbaum, A. O., Meller, S., Maples, J., Terry, D. P., Collins, B., & MacKillop, J. (2013). Examination of the Section III DSM-5 diagnostic system for personality disorders in an outpatient clinical sample. *Journal of Abnormal Psychology, 122*(4), 1057–1069. <https://doi.org/10.1037/a0034878>
- Freeman, A., & Oster, C. (1999). Cognitive behavior therapy. In M. Herson & A. S. Bellack (Eds.), *Handbook of interventions for adult disorders* (pp. 108–138). Wiley and sons.
- Gutiérrez, F., Aluja, A., Peri, J. M., Calvo, N., Ferrer, M., Baillés, E., Gutiérrez-Zotes, J. A., Gárriz, M., Caseras, X., Markon, K. E., & Krueger, R. F. (2016). Psychometric properties of the Spanish PID-5 in a clinical and a community sample. *Assessment, 24*(3), 326–336. <https://doi.org/10.1177/1073191115606518>
- Henrich, J., Heine, S., & Norenzayan, A. (2010). *The weirdest people in the world?* (RatSWD Working Paper No. 139). <https://doi.org/10.2139/ssrn.1601785>
- Hollon, S. D., & Kendall, P. C. (1980). Cognitive self-statements in depression: Development of an automatic thoughts questionnaire. *Cognitive Therapy and Research, 4*(4), 383–395. <https://doi.org/10.1007/bf01178214>
- Hollon, S. D., Kendall, P. C., & Lumry, A. (1986). Specificity of depressotypic cognitions in clinical depression. *Journal of Abnormal Psychology, 95*, 52–59. <https://doi.org/10.1037/0021-843X.95.1.52>
- Hong, R. Y., & Tan, Y. L. (2020). DSM-5 personality traits and cognitive risks for depression, anxiety, and obsessive-compulsive symptoms. *Personality and Individual Differences, 169*, 110041. <https://doi.org/10.1016/j.paid.2020.110041>
- Kamushadze, T. (2016). *The role of cognitive errors and pathological personality traits in vaginismus* [Unpublished master's thesis, Tbilisi State University].
- Knapp, P., & Beck, A. T. (2008). Fundamentos, modelos conceituais, aplicações e pesquisa da terapia cognitiva [Cognitive therapy: Foundations, conceptual models, applications and research]. *Revista brasileira de psiquiatria, 30*(Suppl. 2), s54–s64. <https://doi.org/10.1590/s1516-44462008000600002>
- Kobiashvili, I. (2016). *Psychometric investigation of the Georgian translation of the automatic thoughts questionnaire* [Unpublished master's thesis, Tbilisi State University].
- Koolen, S., Poorthuis, A., & van Aken, M. A. G. (2012). Cognitive distortions and self-regulatory personality traits associated with proactive and reactive aggression in early adolescence. *Cognitive Therapy and Research, 36*(6), 776–787. <https://doi.org/10.1007/s10608-011-9407-6>
- Kostoglou, S. L., & Pidgeon, A. M. (2016). The cognitive distortions questionnaire: Psychometric validation for an Australian population. *Australian Journal of Psychology, 68*(2), 123–129. <https://doi.org/10.1111/ajpy.12101>
- Krantz, S. E., & Hammen, C. L. (1979). Assessment of cognitive bias in depression. *Journal of Abnormal Psychology, 88*, 611–619. <https://doi.org/10.1037/0021-843X.88.6.611>
- Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological Medicine, 42*(9), 1879–1890. <https://doi.org/10.1017/S0033291711002674>

- Krueger, R. F., Hopwood, C. J., Wright, A. G. C., & Markon, K. E. (2014). DSM-5 and the path toward empirically based and clinically useful conceptualization of personality and psychopathology. *Clinical Psychology: Science and Practice*, 21(3), 245–261. <https://doi.org/10.1111/cpsp.12073>
- Kuru, E., Safak, Y., Özdemir, İ, Tulacı, R. G., Özdel, K., Özkula, N. G., & Örsel, S. (2017). Cognitive distortions in patients with social anxiety disorder: Comparison of a clinical group and healthy controls. *The European Journal of Psychiatry*, 32(2), 97–104. <https://doi.org/10.1016/j.ejpsy.2017.08.004>
- Lefebvre, M. F. (1981). Cognitive distortion and cognitive errors in depressed psychiatric and low back pain patients. *Journal of Consulting and Clinical Psychology*, 49, 517–525. <https://doi.org/10.1037/0022-006X.49.4.517>
- Lovibond, P. F., & Lovibond, S. H. (1995a). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy*, 33, 335–343. [https://doi.org/10.1016/0005-7967\(94\)00075-U](https://doi.org/10.1016/0005-7967(94)00075-U)
- Lovibond, S. H., & Lovibond, P. F. (1995b). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Psychology Foundation. <https://doi.org/10.1037/t39835-000>
- Martskvishvili, K. (2015). *The psychometric investigation of the Georgian version depression, anxiety, stress, and scales*. Unpublished raw data. Tbilisi State university.
- Martskvishvili, K. (2019). *The negative and affective schedule: The Georgian translation based on PANAS-x*. Unpublished raw data. Tbilisi State university.
- Martskvishvili, K. (2020). *The psychometric properties of the Georgian version of the Toronto Alexithymia Scale (TAS-20-G)*. Manuscript in preparation. Tbilisi State University.
- Martskvishvili, K., Arutinovi, L., Mestvirishvili, M., & Lortkipanidze, K. (2014). Living in a different world: Emotion-related self-perceptions in mental disorders. *Personality and Individual Differences*, 60(Suppl.), S34. <https://doi.org/10.1016/j.paid.2013.07.076>
- McCrae, R. R., & Costa, P. T., Jr. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd ed.). Guilford Press. <https://doi.org/10.4324/9780203428412>
- Najavits, L. M., Gotthardt, S., Weiss, R. D., & Epstein, M. (2004). Cognitive distortions in the dual diagnosis of PTSD and substance use disorder. *Cognitive Therapy and Research*, 28(2), 159–172. <https://doi.org/10.1023/b:cotr.0000021537.18501.66>
- O’Leary, K. M., Cowdry, R. W., Gardner, D. L., Leibenluft, E., Lucas, P. B., & de-Jong-Meyer, R. (1991). Dysfunctional attitudes in borderline personality disorder. *Journal of Personality Disorders*, 5, 233–242. <https://doi.org/10.1521/pedi.1991.5.3.233>
- Özdel, K., Taymur, I., Guriz, S. O., Tulacı, R. G., Kuru, E., & Turkcapar, M. H. (2014). Measuring cognitive errors using the Cognitive Distortions Scale (CDS): Psychometric properties in clinical and non-clinical samples. *PLoS ONE*, 9(8), e105956. <https://doi.org/10.1371/journal.pone.0105956>
- Pace, U., D’Urso, G., & Zappulla, C. (2019). Hating among adolescents: Common contributions of cognitive distortions and maladaptive personality traits. *Current Psychology*, 40, 3326–3331. <https://doi.org/10.1007/s12144-019-00278-x>
- Page, A. C., Hooke, G. R., & Morrison, D. L. (2007). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in depressed clinical samples. *British Journal of Clinical Psychology*, 46, 283–297. <https://doi.org/10.1348/014466506X158996>
- Parker, J. D., Taylor, G. J., & Bagby, R. M. (2003). The 20-item Toronto alexithymia scale. *Journal of Psychosomatic Research*, 55(3), 269–275. [https://doi.org/10.1016/S0022-3999\(02\)00578-0](https://doi.org/10.1016/S0022-3999(02)00578-0)
- Quirk, S. W., Christiansen, N. D., Wagner, S. H., & McNulty, J. L. (2003). On the usefulness of measures of normal personality for clinical assessment: Evidence of the incremental validity of the revised NEO Personality Inventory. *Psychological Assessment*, 15(3), 311–325. <https://doi.org/10.1037/1040-3590.15.3.311>
- Rnic, K., Dozois, D. J., & Martin, R. A. (2016). Cognitive distortions, humor styles, and depression. *Europe’s Journal of Psychology*, 12(3), 348–362. <https://doi.org/10.5964/ejop.v12i3.1118>
- Rose, D. T., Abramson, L. Y., Hodulik, C. J., Halberstadt, L., & Leff, G. (1994). Heterogeneity of cognitive style among depressed inpatients. *Journal of Abnormal Psychology*, 103, 419–429. <https://doi.org/10.1037/0021-843X.103.3.419>

- Rosenfield, B. M. (2004). *Relationship between cognitive distortions and psychological disorders across diagnostic axes [Doctoral dissertation]*. <https://digitalcommons.pcom.edu/>
- Roskam, I., Galdiolo, S., Hansenne, M., Massoudi, K., Rossier, J., Gicquel, L., & Rolland, J.-P. (2015). The psychometric properties of the French version of the Personality Inventory for DSM-5. *PLoS ONE*, *10*(7), e0133413. <https://doi.org/10.1371/journal.pone.0133413>
- Samuel, D. B., & Widiger, T. A. (2008). A meta-analytic review of the relationships between the five-factor model and DSM-IV-TR personality disorders: a facet level analysis. *Clinical Psychology Review*, *28*(8), 1326–1342. <https://doi.org/10.1016/j.cpr.2008.07.002>
- Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review*, *23*(8), 1055–1085. <https://doi.org/10.1016/j.cpr.2002.09.001>
- Sifneos, P. E. (1973). The prevalence of 'alexithymic' characteristics in psychosomatic patients. *Psychotherapy and Psychosomatics*, *22*(2), 255–262. <https://doi.org/10.1159/000286529>
- Simon, R. W. (2002). Revisiting the relationships among gender, marital status, and mental health. *American Journal of Sociology*, *107*(4), 1065–1096. <https://doi.org/10.1086/339225>
- Smith, J. M., Grandin, L. D., Alloy, L. B., & Abramson, L. Y. (2006). Cognitive vulnerability to depression and Axis II personality dysfunction. *Cognitive Therapy and Research*, *30*, 609–621. <https://doi.org/10.1007/s10608-006-9038-5>
- Stopa, L., & Clark, D. M. (2000). Social phobia and interpretation of social events. *Behaviour Research and Therapy*, *38*(3), 273–283. [https://doi.org/10.1016/s0005-7967\(99\)00043-1](https://doi.org/10.1016/s0005-7967(99)00043-1)
- Strohmeier, C. W., Rosenfield, B., DiTomasso, R. A., & Ramsay, J. R. (2016). Assessment of the relationship between self-reported cognitive distortions and adult ADHD, anxiety, depression, and hopelessness. *Psychiatry Research*, *238*, 153–158. <https://doi.org/10.1016/j.psychres.2016.02.034>
- Taylor, G. J., & Bagby, R. M. (2012). The alexithymia personality dimension. In T. A. Widiger (Ed.), *Oxford library of psychology. The Oxford handbook of personality disorders* (pp. 648–673). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199735013.013.0030>
- Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (1997). *Disorders of affect regulation. Alexithymia in medical and psychiatric illness*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511526831>
- Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (2003). The 20-item Toronto Alexithymia Scale. Reliability and factorial validity in different languages and cultures. *Journal of Psychosomatic Research*, *55*, 277–283. [https://doi.org/10.1016/S0022-3999\(02\)00601-3](https://doi.org/10.1016/S0022-3999(02)00601-3)
- Tecuta, L., Tomba, E., Lupetti, A., & DiGiuseppe, R. (2019). Irrational beliefs, cognitive distortions, and depressive symptomatology in a college-age sample: A mediational analysis. *Journal of Cognitive Psychotherapy*, *33*(2), 116–127. <https://doi.org/10.1891/0889-8391.33.2.116>
- Törneke, N., Luciano, C., & Valdivia, S. (2008). Rule-governed behavior and psychological problems. *International Journal of Psychology and Psychological Therapy*, *8*(2), 141–156.
- Tucker, R. P., Lengel, G. J., Smith, C. E., Capron, D. W., Mullins-Sweatt, S. N., & Wingate, L. R. (2016). Maladaptive Five Factor Model personality traits associated with Borderline Personality Disorder indirectly affect susceptibility to suicide ideation through increased anxiety sensitivity cognitive concerns. *Psychiatry Research*, *246*, 432–437. <https://doi.org/10.1016/j.psychres.2016.08.051>
- Van Rijsbergen, G. D., Kok, G. D., Elgersma, H. J., Hollon, S. D., & Bockting, C. L. H. (2015). Personality and cognitive vulnerability in remitted recurrently depressed patients. *Journal of Affective Disorders*, *173*, 97–104. <https://doi.org/10.1016/j.jad.2014.10.042>
- Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the positive and negative affect schedule-expanded form*. The University Iowa. <http://dx.doi.org/10.13072/midss.438>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. <http://dx.doi.org/10.1037/0022-3514.54.6.1063>

- Weems, C. F., Berman, S. L., Silverman, W. K., & Saavedra, L. M. (2001). Cognitive errors in youth with anxiety disorders: The linkages between negative cognitive errors and anxious symptoms. *Cognitive Therapy and Research*, 25, 559–575. <https://doi.org/10.1023/A:1005505531527>
- Weissman, A. N., & Beck, A. T. (1978, April). *Development and validation of the Dysfunctional Attitude Scale: A preliminary investigation*. Paper presented at the annual meeting of the American Educational Research Association, Toronto, Ontario, Canada.
- Widiger, T. A., & Smith, G. T. (2008). Personality and psychopathology. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 743–769). The Guilford Press.
- Yurica, C. (2002). *Inventory of cognitive distortions: Validation of a psychometric test for the measurement of cognitive distortion*, [Unpublished doctoral dissertation, Philadelphia College of Osteopathic Medicine].
- Zimmermann, J., Altenstein, D., Krieger, T., Holtforth, M. G., Pretsch, J., Alexopoulos, J., Spitzer, C., Benecke, C., Krueger, R. F., Markon, K. E., & Leising, D. (2014). The structure and correlates of self-reported DSM-5 maladaptive personality traits: Findings from two German-speaking samples. *Journal of Personality Disorders*, 28(4), 518–540. https://doi.org/10.1521/pedi_2014_28_130
- Zuckerman, M. (1999). *Vulnerability to psychopathology: A biosocial model*. American Psychological Association. <https://doi.org/10.1037/10316-000>

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