

## **Abstract**

The Depressive Experiences Questionnaire (DEQ) is a self-report measure that assesses self-criticism and dependency, two personality traits that confer vulnerability to depression (Blatt, 2004). Over several decades, different, shortened versions of the DEQ have been constructed to offer an alternative to the complex scoring procedure of the original DEQ. This study explores the factor structure as well as the construct and convergent validity of the DEQ by comparing a clinical and non-clinical sample. We also compared the original DEQ with five shortened versions. There were 621 participants (358 university students and 263 outpatients). Fit indices for models of the original DEQ did not meet minimum fit criteria. Moreover, the only versions with satisfactory fit were the Theoretical Depressive Experiences Questionnaire-21 (TDEQ-21) and the Theoretical Depressive Experiences Questionnaire-12 (TDEQ-12), which also showed acceptable construct and convergent validity. Finally, the diagnostic and clinical applicability of the DEQ is discussed.

In the current debate regarding the assessment of personality and personality disorders, several authors have maintained that psychopathological symptoms cannot be separated from the underlying personality traits (e.g., Westen, Gabbard, & Blagov, 2006). Based on this point of view, within the field of clinical evaluation and research, a deeper understanding of the dimensional aspects of individual psychological functioning is highly important (Westen & Gabbard, 1999). In the early 1970s, Blatt proposed a dynamic structural developmental approach that highlights a dimensional view of personality and its development, including both healthy and pathological dimensions. Based on the assumption of a continuity between normality and psychopathology (Blatt, 1974), Blatt developed the Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976) to measure experiences that are most common in states of depression, assessing three orthogonal factors, which were labeled *Dependency*, *Self-criticism*, and *Efficacy* (Blatt, D'Afflitti, & Quinlan, 1976).

Although the potential relevance of Blatt's model to our understanding of psychological development as well as to risk for psychopathology is recognized (e.g., Luyten & Blatt, 2013; Kopala-Sibley, Mongrain, & Zuroff, 2013; Kopala-Sibley, Zuroff, Hermanto, & Joyal-Desmarais, 2015), there has been ongoing debate regarding the psychometric properties of the DEQ, which has led to six different versions being developed since the original (Coyne & Whiffen, 1995; Desmet et al., 2007; Fuhr & Shean, 1992; Viglione, Lovette, Gottlieb, & Friedberg, 1995). As such, the current study examines the psychometric properties and convergent validity of these different versions both in college students and in psychiatric outpatients.

### **Blatt's Two Configurations Model**

In line with *two-polarities* models (e.g., Beck's Sociotropy-Autonomy model: Beck, 1983; Self-Determination Theory: Deci & Ryan, 2012; attachment approaches: e.g. Mikulincer & Shaver, 2007; Sibley, 2007; contemporary interpersonal models: e.g. Pincus,

2005; Wiggins, 1991), Blatt argued that personality proceeds through a dialectical and continuing interaction between the issues of identity, autonomy, and achievement on the one hand, and interpersonal issues of relatedness, attachment, and intimacy on the other (Luyten & Blatt, 2013). According to Blatt's two-configurations model (2008), mature personality can be considered a synergistic product of two main developmental dimensions that extend throughout an entire lifetime: *interpersonal relatedness*, which involves developing the capacity for mature, intimate, reciprocal, and mutually satisfactory interpersonal relationships, and *self-definition* involving the development of a realistic, integrated, and differentiated identity or sense of self. In this model, the organization of a healthy personality comprises a certain level of integration or balance between interpersonal relatedness and self-definition (see Kopala-Sibley & Zuroff, 2014 and Luyten & Blatt, 2013 for reviews).

According to Blatt (1995), even in normal development, individuals usually place an emphasis on one dimension, creating two basic personality styles. For some, the emphasis is on interpersonal relatedness and is more focused on the desire for harmonious, supportive, and reciprocal relationships. For others, there is an emphasis on self-definition, which is more focused on individuation, achievements, and identity formation.

A severe disruption in this normal developmental dialectic process may result in a rigid, one-sided preoccupation with one of these two dimensions at the expense of the other. In particular, an overemphasis on issues of relatedness is the basis of a pathological personality style that Blatt labeled *dependent/anaclitic*. An overemphasis on issues of self-definition is the basis of a pathological personality style that he labeled *self-critical/introjective* (Blatt & Blass, 1996). Accordingly, this overemphasis implies a subjective sensitivity to specific self-definitional and relational issues. Consistent with Blatt's models, evidence suggests a normative improvement in one's sense of relatedness and self-definition across the lifespan, as evidenced by age-related decreases in both self-criticism and

dependency (Kopala-Sibley et al., 2013).

### **The Depressive Experiences Questionnaire (DEQ)**

The DEQ is one of the most frequently used self-report measures that assesses relatedness and self-definition. Other important measures evaluating dimensions on the DEQ are the Dysfunctional Attitudes Scale (DAS; Weismann & Beck, 1978), the Personal Style Inventory (PSI-II; Robins et al., 1994), and the Sociotropy-Autonomy Scale (SAS; Beck, Epstein, Harrison, & Emery, 1983).

To develop the DEQ, Blatt and colleagues reviewed the clinical literature and composed 150 statements reflecting the subjective experiences widely reported by depressed patients. Subsequently, the judges selected 66 of these statements to represent the range of phenomenological experiences in the original list. The items that had primary loadings on the first two factors reflected anaclitic and introjective orientations and were called “dependency” and “self-criticism” respectively. The third factor contained items that reflected a sense of trust in one’s own resources and was labeled “efficacy” but has not generally been examined in the literature (Blatt et al., 1976).

Subsequently, Blatt, Zohar, Quinlan, Zuroff, and Mongrain (1995) factor analyzed the construct of dependency and identified two facets. The first facet, *dependence*, involves a more immature tendency, including feelings of helplessness, fears, and apprehensions about separation and rejection. The second facet, *relatedness*, is characterized as more mature, and includes items that consider feelings of loss and loneliness in reaction to the disruption of a relationship with a particular individual.

In one analysis of the psychometric properties of various revisions to the DEQ, Desmet et al. (2007) linked the three Beck Depression Inventory (BDI) subscales (somatic, cognitive, and affective) with the two DEQ dimensions by comparing six versions of the DEQ (the original DEQ and five shortened versions) in a sample that consisted of clinical and non-

clinical participants, and found positive relations in the total sample with both self-criticism ( $r$ s from .42 to .67.) and dependency ( $r$ s from .17 to .47).

Different empirical research contributions, including longitudinal (Besser, 2004; Besser, Priel, Flett, & Wiznitzer, 2007; Besser, Vliegen, Luyten, & Blatt, 2008; Oasi, 2015; Yao, Fang, Zhu, & Zuroff, 2009), cross-sectional (e.g., Besser, Flett, & Davis, 2003; Besser & Priel, 2003, 2005; Campos, Besser, & Blatt, 2010;), and experimental studies (e.g., Besser, Guez, & Priel, 2008; Franche & Dobson, 1992), have established that high levels of dependency and/or self-criticism render individuals more vulnerable to depression. This vulnerability effect has also been highlighted by several meta-analysis studies (Blatt, 2004; Nietzel & Harris, 1990). Moreover, multiple studies using exploratory factor analytic methods have supported the psychometric properties of the DEQ, such as adequate internal consistency, test-retest stability, and predictive validity in both clinical and non-clinical samples (see reviews in Blatt, 2004; Desmet et al., 2007, 2009).

Although the DEQ demonstrates acceptable psychometrics, and its subscales robustly correlate with depression, the relative predictive utility of self-criticism versus dependency remains unclear. For instance, results have been mixed concerning whether dependency relates to depressive symptoms in clinical samples, over and above the effects of self-criticism (e.g., Luyten et al., 2007). Luyten et al. (2007) also reported a stronger effect of self-criticism on depressive symptoms compared to dependency in a college student sample.

In contrast, however, Yao et al. (2009) found that depressive symptoms, as measured by the Center for Epidemiologic Studies-Depression Scale (CES-D), correlated more with dependency ( $r = .59$ ) than self-criticism ( $r = .26$ ). Several other studies have provided conflicting results as well (see Viglione et al., 1995; Bagby, Parker, Joffe, & Buis, 1994; Santor, Zuroff, & Fielding, 1997; Zuroff, Quinlan, & Blatt, 1990; Welkowitz, Lish, & Bond,

1985). The relative importance of self-criticism versus dependency to depressive symptoms is therefore still unclear.

### **Factor Structure and Orthogonality of Other Versions of the DEQ**

Due to both theoretical and methodological issues, evidence has been inconsistent regarding the structural validity of different versions of the DEQ (Coyne, Thompson, & Whiffen, 2004; Desmet et al., 2007; Viglione, Clemmey, & Camenzuli, 1990; Viglione et al., 1995). Welkowitz, Lish, and Bond (1985), for example, developed a unit-weighted version, called the Revised Depressive Experiences Questionnaire (RevDEQ). The RevDEQ was constructed by selecting 43 items from the 66 items of the original DEQ (20 for dependency, 15 for self-criticism, 8 for efficacy). This resulted in a high correlation between self-criticism and dependency ( $r = .60$ ) (Welkowitz et al., 1985). Bagby, Parker, Joffe, and Buis (1994) also attempted to derive a shortened, unit-weighted revision, named the Reconstructed Depressive Experiences Questionnaire (RecDEQ), by selecting 19 items (10 dependency, 9 self-criticism) from the original scale. Again, however, orthogonality did not emerge between the dependency and self-criticism scales ( $r = .61$  in a depressed sample).

Viglione et al. (1995) constructed the Theoretical Depressive Experiences Questionnaire-21 (TDEQ-21) by selecting 21 items from the Original DEQ (10 dependency and 11 self-criticism items) based on Blatt's theories. The analysis showed that of these 21 items, only 12 loaded satisfactorily ( $> .40$ ), including 5 items for dependency and 7 for self-criticism. The results called the capacity of the items to thoroughly account for the related factors into question. In particular, the scale failed to emphasize the dimensions of "guilt" and "turning upon the self" within the introjective items, both of which characterize high levels of self-criticism as described by Blatt's theory.

Although previous studies found highly correlated factors, other research found the two factors to be uncorrelated. For example, Santor, Zuroff, and Fielding (1997) and Santor,

Zuroff, Mongrain, and Fielding (1997) presented a short version of the DEQ (McGill DEQ) using a unit-weighted measure of dependency and self-criticism, which supported the orthogonality of both subscales. Using a heterogeneous clinical sample and a college student sample, the authors identified 12 communal items, which provided a sufficient degree of orthogonality. They found that at least 30 items are necessary to reach acceptable psychometric properties of the scale, especially in terms of orthogonality; however, when increasing the number of items beyond this threshold, there is no significant improvement in the scale's performance.

Others have further highlighted concerns that dependency and self-criticism are far from being completely independent. Fuhr and Shean (1992), for instance, argued that the presence of mixed configurations (e.g., high dependency and high self-criticism) is much more frequent than it appears in the research presented by Blatt and colleagues. Bagby and colleagues (1994) proposed that the two factors should be considered to be conceptually overlapping; in particular, the authors argued that Blatt's scoring procedure should be used to confirm the orthogonality of the two factors, and that unit-weighting produces intercorrelation coefficients that are large and significant. This result is indicative of the instrument's weakness in terms of assessing two clearly differentiable personality constructs. However, we would note that Desmet et al. (2007) observed moderate to high correlations between the latent factors of dependency and self-criticism for the RecDEQ and high correlations for the RevDEQ, the TDEQ-21, the TDEQ-12, and the McGill DEQ in both samples. From a theoretical point of view, Viglione et al. (1995) conducted a thorough analysis of the contents of five items in the TDEQ-12 dependency and seven in TDEQ-12 the self-criticism. They concluded that these items do not represent all of the aspects of anaclitic and introjective depression described by Blatt.

Considering the different versions of the DEQ and the heterogeneity of the relationships of the factors of the DEQ with depressive symptoms, the current study compared the original version with the other five versions in both clinical and non-clinical samples. In particular, analyses focused on the orthogonality between dependency and self-criticism. The construct and convergent validity of the different versions of the DEQ was also examined by correlating dependency and self-criticism with depressive symptoms and interpersonal problem measures and examining differences in these associations between the clinical and non-clinical samples.

Furthermore, we hypothesized that gender could influence the associations between DEQ factors and psychopathology, such that we tested three main hypotheses. First, it was expected that for both DEQ scales clinical men would have higher scores than non-clinical men; the same differences may be expected for women. Secondly, in both samples, it was predicted that males would show higher self-criticism while females may show higher dependency. Finally, considering the dependency sub-factors of dependence (maladaptive) and relatedness (better adapted), it was hypothesized that the women in our clinical sample would score higher than non-clinical women on dependence, whereas non-clinical women would score higher than clinical women on relatedness. In this regard, no specific hypotheses were made for men.

## **Method**

### **Participants**

There were 653 participants. Of these, 32 (5.79%) had missing data for one or more variables. Given the acceptable number of exclusions, no missing data were replaced. The final group consisted of 621 participants. All participants were Caucasian. No participants received incentives to participate in the survey.



**Non-clinical group.** Two questionnaire administrations were required to obtain the student group. First, the group was biased by gender during the initial recruitment of the 258 participants, as 71% were female and 29% were male. Therefore, an additional 100 male participants were recruited through a second questionnaire administration. The final student group, referred to in this paper as the “non-clinical group” consisted of 358 second-year psychology students from a university located in Southern Italy (57% female, 43% male). Participants’ ages ranged from 19 to 32 years ( $M = 22.34$ ,  $SD = 3.02$ ) with a mean of 14.91 ( $SD = 1.09$ ) years of education completed.

**Clinical group.** The clinical group consisted of 263 outpatients (52% female, 48% male) aged 20 to 74 years ( $M = 42.93$ ,  $SD = 13.94$ ) recruited from a Mood Disorders (MD) mental health center. According to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000), 37% of participants met criteria for recurrent major depressive disorder. The remaining participants met criteria for dysthymic disorder (35%) or bipolar disorder (28%). Participants were highly educated with an average of 14.67 ( $SD = 4.63$ ) years of education and over 70% had obtained a college degree. More than 79% were employed.

## **Procedure**

The students in psychology courses were asked to participate in a research study as volunteers. Questionnaires were administered by researchers in large undergraduate classes. The clinical group was recruited initially by contacting mental health care centers and asking if they were willing to participate in a research study. Psychiatrists and/or psychologists from the centers who agreed to participate were asked to present an informational letter to their patients. In this letter, it was briefly explained that we were analyzing some daily experiences, and they were asked to participate in the study by filling out a questionnaire. Those who met

inclusion criteria filled out the questionnaires at the center and returned it to us via the mental health workers.

## Measures

***The Depressive Experiences Questionnaire.*** The DEQ is a 66-item self-report questionnaire in which items are scored on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Scores are calculated on three scales: dependency, self-criticism, and efficacy. The Italian version of the DEQ was developed using back-translation. No items were eliminated or significantly adjusted during the translation process

***The Beck Depression Inventory-II.*** The Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996) is a 21-item self-report questionnaire that measures the severity of depressed moods. For each symptom, statements are listed in ascending order from 0 (*non-depressed*) to 3 (*severely depressed*). The psychometric properties of the Italian translation are acceptable and comparable to those of the original BDI-II (Ghisi, Flebus, Montano, Sanavio, & Sica, 2006). In our study, the Cronbach  $\alpha$ s were .81 for the students and .84 for the clinical group.

***The Inventory of Interpersonal Problems-32.*** The Inventory of Interpersonal Problems-32 (IIP-32, Horowitz, Alden, Wiggins, & Pincus, 2000) is a 32-item self-report questionnaire that measures interpersonal problems on a 5-point Likert scale from 0 (*not at all*) to 4 (*extremely*). The IIP-32 provides a total score and eight subscale scores: domineering, vindictive, cold, socially inhibited, non-assertive, overly accommodating, self-sacrificing, and intrusive. In our study, for each subscale, the IIP-32 displayed satisfactory internal consistency. In the non-clinical and clinical group Cronbach alphas were, respectively, .65 and .67 for domineering, .75 and .74 for vindictive, .67 and .77 for cold, .84 and .92 for socially inhibited, .70 and .64 for non-assertive, .66 and .63 for overly accommodating, .70 and .63 for self-sacrificing, and .72 and .61 for intrusive. The two

underlying dimensions were friendly-hostile ( $\alpha = .74$  and  $\alpha = .72$ , for non-clinical and clinical group, respectively) and submissive-domineering ( $\alpha = .72$  and  $.71$ ).

### **Data Analysis**

After verifying the univariate normality of the distributions using the Skewness and Kurtosis indices, the Kurtosis multivariate Mardia coefficient was used to test the multivariate normality between the variables (Mardia, 1970). A confirmatory factor analysis (CFA) was performed via structural equation modeling with latent variables (SEM; Hoyle & Smith, 1994) using AMOS software (Version 18.0.0; Arbuckle, 2009) with maximum-likelihood estimation.

In addition to the overall chi-square  $\chi^2$  test of exact fit, the following fit indices were used to evaluate the proposed models: (a) the root mean square error of approximation (RMSEA), (b) the comparative fit index (CFI), and (c) the non-normed fit index (NNFI). It is commonly accepted that a non-significant p value for the  $\chi^2$  is desirable, while a model in which the CFI and NNFI were greater than .95 and the RMSEA index was lower than .05 were deemed acceptable.

The RMSEA associated PCLOSE (p of close fit) was used to test the null hypothesis that the RMSEA was .05, and the alternative was a one-sided hypothesis ( $\text{RMSEA} > .05$ ). A value of  $p > .05$  indicated a close fit, and values less than .05 indicated poor fit. The 90% confidence interval indicated the precision of the RMSEA estimate. If the lower bound of the interval is equal to or lower than .05, the hypothesis of a good approximate fit cannot be rejected. If the upper level is equal to or greater than .10 the hypothesis of poor approximate fit can not be rejected (Kline, 2011).

Construct and discriminant validity were assessed by calculating the Pearson's linear correlation coefficients between each dimension of DEQ and the BDI-II, age, and IIP-32 total and subscale scores. Since the correlation coefficient is sensitive to group size and may detect

significance even in the presence of a low level of a relationship between the variables, Horst (1963) suggested emphasizing coefficients that are equal to or greater than  $|\ .30 |$ . The difference in scores between the non-clinical group and the clinical group and between males and females were tested using the Student's *t*-test. Secondary ANOVA analyses were conducted after controlling for age and gender in order to adjust for their effects on differences between groups for the DEQ scales.

Finally, we conducted a Receiver Operating Characteristic (ROC) analysis to provide information about the positive predictive value (PPV), negative predictive value (NPV), and overall accuracy in discriminating clinical versus non-clinical subjects based on the two dimensions of the DEQ. The results of the analysis are presented in Supplemental Table 2. ROC curves yield the total area of the graph that is located under the curve (AUC). The larger the area, the greater the difference at each point between the percentage of true-positives and false-alarms. The greater the distance, the better the scale is at discriminating diagnostic status. The point of reference for the evaluation of the curves is an AUC of .5, which would indicate a 50% probability that participants in the clinical group will have a higher score for each dimension of the DEQ compared to those in the non-clinical group. An AUC of 1.0 indicates perfect discrimination between the two groups.

## **Results**

### **Preliminary Analyses**

Preliminary analyses showed no violations of univariate or multivariate normality for the 66 items of the original DEQ scale (Skewness and Kurtosis between -1 and +1). Correlations showed that years of education were not significantly associated with BDI-II ( $r = .07, p = .33$ ) or with the DEQ scale scores ( $r = .14, p = .13$ ). Age was negatively associated ( $p < .05$ ) with the DEQ dependency, self-criticism, and efficacy scales in the non-clinical group ( $r$  ranged from  $-.14$  to  $-.30$ ), whereas there were no significant correlations between age and the same

scales in the clinical group ( $r$  ranged from  $-.01$  to  $.05$ ). Preliminary comparisons between the non-clinical and clinical groups showed that on average the clinical participants were older than the non-clinical participants ( $t_{(619)} = -29.45, p < .01$ ), whereas no significant differences in years of education ( $t_{(619)} = .94, p = .35$ ) or in gender distribution ( $\chi^2 = 1.05 (1), p = .31$ ) were found. There was also no difference in years of education between males and females for each of the two groups ( $t_{(356)} = -1.61, p = .10$ ;  $t_{(261)} = .84, p = .40$ , for the non-clinical and clinical groups, respectively).

### Factor Analysis

Considering the uni- and multivariate normality, the computation method of Maximum Likelihood was chosen. To verify that the factors were orthogonal, a covariance path between the first and the second latent factors was included in the two-factor solutions. Table 1 shows a comparison between the fit indices of the models for both the clinical and the non-clinical groups. One-, two-, and three-factor models were created by having one, two, and three latent factors respectively. In the correlated models, we covaried the two factors.

All fit indices indicated an acceptable or good fit for the orthogonal 2-factor model for the TDEQ-21, the correlated 2-factor model for the TDEQ-21, and the correlated 2-factor model for the TDEQ-12 in both groups, suggesting that the other models yielded unreliable solutions. The orthogonal 2-factor model for the TDEQ-21 showed an acceptable fit in both samples: non-clinical group ( $\chi^2 = 242 (164), p < .001, RMSEA = .049 (90\% CI = .033; .063), p = .53, NNFI = .91$ ; and  $CFI = .92$ ); clinical group ( $\chi^2 = 257 (164), p < .001, RMSEA = .035 (90\% CI = .030; .040), p = .60, NNFI = .92$ ; and  $CFI = .96$ ).

The correlated 2-factor model for the TDEQ-21 showed acceptable fit in the non-clinical group:  $\chi^2 = 221 (163), p < .001, RMSEA = .036 (90\% CI = .030; .042), p = .68, NNFI = .95$ ; and  $CFI = .97$ ; the model showed also acceptable fit in the clinical group:  $\chi^2 = 224 (163), p < .001, RMSEA = .022 (90\% CI = .015; .029), p = .73, NNFI = .95$ ;  $CFI = .98$ .

Similarly, the correlated 2-factors model for the TDEQ-12 showed acceptable fit in both samples (non-clinical group:  $\chi^2 = 93$  (53),  $p < .001$ , RMSEA = .059 (90% CI = .034; .081),  $p = .50$ , NNFI = .91; and CFI = .92; clinical group:  $\chi^2 = 83$  (53),  $p < .001$ , RMSEA = .057 (90% CI = .030; .077),  $p = .12$ , NNFI = .90, and CFI = .94). Table 2 shows the correlations between the two latent factors and the scale scores for the six versions of DEQ evaluated in this study.

The  $\Delta\chi^2$  was calculated to compare the correlated 2-factor model for the TDEQ-21 nested within the orthogonal 2-factor model for the TDEQ-21. For the non-clinical group, we found  $\Delta\chi^2$  to be equal to 21.36 (1) with  $p < .001$  and 33.00 (1) with  $p < .001$  for the clinical group, suggesting that the correlated 2-factor model for the TDEQ-21 was the preferable model. The Akaike information criterion (AIC) and the Bayesian information criterion (BIC) further showed that the former model showed the better fit than the latter; however, considering the overall goodness of fit, both the correlated 2-factors models for the TDEQ-21 and TDEQ-12 could be considered as suitable solutions and were retained in the subsequent analyses (Table 3).

Table 4 shows the factor loadings for the two solutions. Regarding the correlated 2-factor model for the TDEQ-21, the first factor, dependency, consisted of 10 items which explained 17.4% of variance, and a Cronbach's  $\alpha$  of .82. The second factor, self-criticism, consisted of 11 items that explained 14.6% of the variance with a Cronbach's  $\alpha$  of .80. Regarding the correlated 2-factor model for the TDEQ-12, the dependency factor consisted of 5 items which explained 18.8% of variance, and a Cronbach's  $\alpha$  of .77, whereas the self-criticism factor consisted of 7 items which explained 16.9% of variance, and a Cronbach's  $\alpha$  of .78.

### **Group Differences**

Results showed that the clinical group had higher scores than the non-clinical group on the TDEQ-12, TDEQ-21, IIP-32, and BDI-II scales (Table 5). Specifically, differences

between clinical and non-clinical group were found for both TDEQ-12 dependency and self-criticism scales, as well as for both TDEQ-21 scales. Subjects in clinical groups reported higher scores than non-clinical subjects for the overall sample of males and females. Similarly, the clinical group showed higher TDEQ scores than the non-clinical group when male and female groups were separately considered. Accounting for the correlation between age and DEQ scores reported above, we tested differences between groups after controlling for age. Results showed that the clinical status effect remained significant for both TDEQ-12 and TDEQ-21 self-criticism scales ( $F_{(1, 617)} = 16.26, p < .01, \eta^2 = .04$ ; and  $F_{(1, 617)} = 12.17, p < .01, \eta^2 = .03$ , respectively), whereas it was no longer significant for dependency scales ( $F_{(1, 617)} = 3.06, p = .08, \eta^2 = .00$ ; and  $F_{(1, 617)} = 0.64, p < .42, \eta^2 = .00$ , for TDEQ-21 and TDEQ-12 respectively).

### **Concurrent Validity**

Correlations are reported in Supplemental Table 1. The two latent factors of the TDEQ-12 showed a significant correlation coefficient in both groups ( $r = .49, r = .59$ , for non-clinical and clinical group, respectively) as did the two TDEQ-21 scales ( $r = .62, r = .65$ , for non-clinical and clinical group respectively). Furthermore, both the TDEQ-12 and TDEQ-21 dependency scales showed modest correlations with the BDI-II in the non-clinical group (.31 and .25, respectively) and moderate correlations in the clinical group (.40 and .46, respectively). The TDEQ-12 and TDEQ-21 self-criticism scales showed moderate to low correlations with the BDI-II in the non-clinical group (.33 and .28, respectively) and moderate correlations in the clinical group (.50 and .55, respectively).

We also found that both the TDEQ-12 and TDEQ-21 dependency scales were significantly associated with several IIP-32 subscales in the non-clinical group, with some exceptions (Supplemental Table 1). The IIP-32 Cold was not associated with the TDEQ-12 or TDEQ-21 scales, and the IIP-32 Vindictive scale was not associated with the TDEQ-12 or the

TDEQ-21 versions of the self-criticism scale. The IIP-32 Domineering scale was not associated with the TDEQ-12 nor the TDEQ-21 version of the dependency scale. Many of these correlations did not exceed .30.

In the clinical group, both versions of the TDEQ-12 and TDEQ-21 dependency scales showed positive associations with the IIP-32 Overly accommodating ( $r = .27, p < .01; r = .37, p < .01$ , respectively), Non-assertive ( $r = .41, p < .01; r = .51, p < .01$ , respectively), and Self-sacrificing ( $r = .30, p < .01; r = .40, p < .01$ , respectively) scales. Moreover, only the TDEQ-21 dependency scale was associated with the IIP-32 Vindictive scale ( $r = -.24, p < .01$ ). Similarly, both versions of the TDEQ-12 and TDEQ-21 self-criticism scales showed positive associations with the IIP-32 Overly accommodating ( $r = .35, p < .01; r = .32, p < .01$ , respectively), Non-assertive ( $r = .35, p < .01; r = .34, p < .01$ , respectively), Self-sacrificing ( $r = -.27, p < .01; r = -.27, p < .01$ , respectively), and Vindictive ( $r = -.34, p < .01; r = -.39, p < .01$ , respectively) scales.

Given the high correlation between the dependency scale and the BDI-II in the clinical group and following recommendations in prior literature (e.g., Luyten & Blatt, 2013), this association was analysed by splitting the TDEQ-21 dependency scale into the two subfactors of dependence and relatedness that represent maladaptive or more adaptive components, respectively. The dependence subscale was calculated as the mean of 7 items (#2, #19, #22, #23, #28, #46, and #52) out of the 10 items of DEQ-21 dependency, whereas the relatedness subscale was calculated as the mean of 3 items (#20, #50, and #55). Both subscales showed sufficient internal consistency (Cronbach's  $\alpha$  equal to .71 and .68, respectively) and high intercorrelation in non-clinical ( $r = .63, p < .01$ ) and in clinical ( $r = .65, p < .01$ ) group. Results showed a stronger association between the BDI-II and dependence ( $r = .57$ ) than between the BDI-II and relatedness ( $r = .38$ ) ( $z = 2.82, p < .01$ ) in the clinical group. For the TDEQ-12,



this analysis was not conducted given the small number of items for each of the two subfactors.

### **Gender Differences**

To discern the magnitude of gender effects on DEQ scores, a factorial design was carried out by including gender, clinical status and their interaction as independent variables and TDEQ scores as dependent variables. Regarding the TDEQ-12 we found significant main effects of both gender and clinical status on dependency ( $F_{(1, 617)} = 17.34, p < .01, \eta^2 = .04$  and  $F_{(1, 617)} = 22.34, p < .01, \eta^2 = .05$ , respectively) and on self-criticism (and  $F_{(1, 617)} = 7.14, p < .01, \eta^2 = .02$ ;  $F_{(1, 617)} = 41.51, p < .01, \eta^2 = .05$ , respectively). The interaction of clinical status x gender was found to be significant for both TDEQ-12 dependency ( $F_{(1, 617)} = 22.8, p < .01, \eta^2 = .05$ ) and self-criticism ( $F_{(1, 617)} = 15.11, p < .01, \eta^2 = .04$ ). Similarly, results for the TDEQ-21 showed that both clinical status and gender had a significant main effect on dependency ( $F_{(1, 617)} = 22.39, p < .01, \eta^2 = .05$ ;  $F_{(1, 617)} = 11.55, p < .01, \eta^2 = .05$ , respectively), whereas only clinical status had a significant effect on self-criticism ( $F_{(1, 617)} = 58.16, p < .01, \eta^2 = .13$ ). The interaction of clinical status x gender was also significant for both TDEQ-21 dependency ( $F_{(1, 617)} = 21.41, p < .01, \eta^2 = .05$ ) and self-criticism ( $F_{(1, 617)} = 19.84, p < .01, \eta^2 = .04$ ).

The comparisons among groups were made using the Student's t-test (see Table 5); all differences for both males and females were significant ( $p < .001$ ). Regarding the first hypothesis, we found that males' TDEQ-12 and TDEQ-21 scores on both the dependency and self-criticism scales were higher in the clinical than in the non-clinical group. The females' TDEQ-12 and TDEQ-21 scores on both scales were higher in the clinical than in the non-clinical group. Regarding the second hypothesis, consistent with prior literature, in the non-clinical group, males showed higher scores than females on both the TDEQ-12 and the TDEQ-21 self-criticism scale ( $t_{(356)} = 7.20$ , and  $t_{(356)} = 5.46, p < .001$ , respectively). In

contrast, females were higher on the dependency scale only on the TDEQ-12 ( $t_{(356)} = -6.28, p < .001$ ). In the clinical group, dependency scores were higher for females on both scales ( $t_{(261)} = -8.09$ , and  $t_{(261)} = -14.62, p < .001$ , for TDEQ-12 and TDEQ-21 respectively), while males showed higher self-criticism only on the TDEQ-12 ( $t_{(261)} = 7.28, p < .001$ ).

Finally, the differences between the clinical and the non-clinical group for the two dependency subfactors were analyzed (Blatt et al., 1995). Results showed that clinical women ( $M = 4.68, SD = 1.1$ ) showed higher scores on average than the non-clinical women ( $M = 4.23, SD = 1.2$ ) on dependence ( $t_{(338)} = 3.49, p = .01$ ). The clinical women showed lower scores ( $M = 4.36, SD = 1.5$ ) on average than the non-clinical women on relatedness ( $M = 4.70, SD = 1.5$ ), and the difference was significant ( $t_{(338)} = 2.08, p = .04$ ).

### **ROC Analysis**

ROC analyses showed a moderate predictive utility of self-criticism and dependency (Supplemental Table 2), with an AUC of .753 for the dependency scale and .736 for the self-criticism scale (all  $ps < 0.001$ ). According to the classification by Swets (1996), the PVP was modest for both the dependency scale and the self-criticism scale, not exceeding .66 with reference to the elevated symptoms of depression.

## **Discussion**

The first aim of our study was to explore the factor structure of the various versions of the DEQ, paying particular attention to the issue of orthogonality. Results showed that the original version of Blatt's DEQ did not fit the data. Among the five other models considered, those that fit the data best were the orthogonal 2-factor model for the TDEQ-21, the correlated 2-factor model for TDEQ-21, and the correlated 2-factor model for TDEQ-12. Ultimately, the two most suitable models were the correlated 2-factor model for TDEQ-21 and the correlated 2-factor model for TDEQ-12.

The psychometric proprieties of these two promising DEQ versions were then examined. Regarding the correlated 2-factor model for TDEQ-12, we observed moderate correlations between the latent factors of dependency and self-criticism for both groups. The internal consistencies of the two subscales were satisfactory. The correlations of both subscales with the BDI-II were moderate in the non-clinical group and moderately high in the clinical group; this demonstrated a good convergent validity with depressive tendencies. The correlated 2-factor model for TDEQ-12 also showed a good ability to differentiate between the clinical and the non-clinical group as well as between males and females. In line with Blatt's predictions, dependency was significantly greater in females in both groups, and self-criticism was significantly higher in males in both groups.

Regarding the correlated 2-factor model for TDEQ-21, we observed high correlations between the latent factors of dependency and self-criticism in both groups. The internal consistency of the two subscales was again satisfactory. The correlations of the two factors with the BDI-II were moderately high in the clinical group and moderate in the non-clinical group, thus showing good convergent validity with depressive symptoms. The correlated 2-factor model for TDEQ-21 also differentiated between the clinical group and the non-clinical group. Finally, partially in agreement with Blatt's predictions, dependency was higher in women (only in the clinical group), while self-criticism was greater in males (only in the non-clinical group).

Our results show some similarities between the two versions of the DEQ regarding the correlations between the factors, their internal consistencies, and their convergence with other scales; however, the correlated 2-factor model for TDEQ-12 appears to be slightly superior in its ability to discriminate between the clinical group and the non-clinical group. According to Viglione et al. (1995), in light of the small number of items that comprise the two versions, the two dimensions appeared to grasp only some of the features of Blatt's original

formulations. Therefore, the two versions did not seem to incorporate the features that Blatt has enumerated in his factor descriptions, particularly in terms of self-criticism. Viglione and colleagues also argued that the experience of depression may not completely align with Blatt's original conceptualization of the factors. In fact, a careful analysis of the five selected dependent items and self-critical items leads to the conclusion that these items do not cover all aspects of anaclitic and introjective depression, as formulated by Blatt. Further, the more specific and simplistic way of characterizing depressive experiences Viglione and colleagues used may be more accurate than the complex and elaborate descriptions offered by Blatt. So, we could conclude that the TDEQ is not an adequate distillation of the original DEQ.

Perhaps the most intriguing result, that deserves careful consideration, is the intercorrelation between the factors, which is especially high in the correlated 2-factor model for TDEQ-21 and therefore not in line with the studies conducted by Blatt and colleagues; however, these results appear to be consistent with other studies in which intercorrelations were equal to or even higher than those obtained in this work (Coyne & Whiffen, 1995; Desmet et al., 2007; Welkowitz et al., 1985). In brief, although this study provides further evidence that non-orthogonal models are preferable, we did not intend to ignore the claim by Zuroff, Mongrain, and Santor (2004), according to which a value of intercorrelation  $>.60$  creates both theoretical and pragmatic problems; instead, we intended to make some considerations in line with other authors that may help to explain this result.

Moreover, we found that dependency and self-criticism showed low intercorrelations using both the original and the McGill scoring methods; however, the estimates of associations between the latent factors of dependency and self-criticism were much higher in both versions. From a methodological point of view, it is possible that not all items reflected truly independent constructs, that the orthogonality is the product of the rotation procedure that Blatt and his colleagues applied in their original student sample (Desmet et al., 2007), or

that the artifact was created by the procedures for the selection of the samples, which sometimes excluded subjects with high scores in both factors (Coyne & Whiffen, 1995).

Furthermore, past findings suggest that the McGill subscales, which identified items that best preserve the psychometric properties of the DEQ, are generally more similar to the original factor-derived DEQ scales than other existing revisions of the DEQ. In fact, rather than relying on factor analytic techniques to select candidate items, scales were developed with techniques designed specifically to assess the degree to which revisions preserve the properties of the original scales (Santor, Zuroff, & Fielding, 1997). This may explain why, in the current study, orthogonality was generally preserved in both the original and McGill scales, but not in the other scales.

Santor, Zuroff, and Fielding (1997) identified 12 items responsible for the degree of orthogonality between measures of dependency and self-criticism. After removing these items from the revised scales, the correlation between dependency and self-criticism increased to levels obtained with other measures (see Bagby et al., 1994; Welkowitz et al., 1985). The content of these items is generally consistent with definitions of self-definition and relatedness, and they can be viewed as locating individuals more or less within a self-definition or relatedness domain. It is noteworthy that TDEQ-12 and TDEQ-21 maintain only one item of the above 12 cited, which likely results in a loss of orthogonality.

From a theoretical point of view, we emphasize what is claimed by Blatt and colleagues regarding the existence of a portion of the population, normal and clinical, which have characteristics both of high dependency and high self-criticism (the so-called mixed types); this prediction is consistent with the two-configurations model, according to which the two dimensions are conceived as working in a synergistic way both in normal and pathological development (Shahar, Gallagher, Blatt, Kuperminc, & Leadbeater, 2004). Also, the absence of a difference between the clinical group and the non-clinical group, observed in

our research with respect to the magnitude of the intercorrelation, is a possible explanation for what was claimed by Zuroff, Mongrain, and Santor (2004) in which an alternative method of scoring to those of Blatt's and Santor's results in an increase of the intercorrelation coefficients. Overall, we argue that our results, in agreement with other studies, confirm the doubts regarding a clear orthogonality of the two factors.

Of particular relevance to the current study, evidence has supported the factorial validity of the Depressive Experiences Questionnaire in many countries, such as in Asian samples (Yao et al., 2009). In their Chinese sample, using exploratory factor analyses, Yao and colleagues found that self-criticism accounted for a greater portion of the variance than did dependency compared to the original sample, although dependency was only the third factor. Therefore, the Authors argued that the variance explained by each factor might vary across cultures.

A very important related issue is the relationship between factor orthogonality and culture. Although we did not find any directly related research, some cross-cultural studies (with Chinese and American samples) found that correlations between dependency and self-criticism were not significant in a Chinese sample ( $r_s < .20$  for males and females; Yao et al., 2009), using all the 66 items and the original scoring system. Instead, correlations significantly passed .4 in adolescent samples and using the DEQ for adolescents (DEQ-A; Cohen et al., 2013:  $r = .42$ ; Starrs et al., 2010:  $r = .50$ ), despite the original or McGill scoring system being used. Since the DEQ-A versions used in these studies had a reduced (and worded for adolescents) number of items (= 20), it is possible that the absence of items responsible for the degree of orthogonality, beyond the cultural aspects, could be responsible for the increased rate of intercorrelation.

Another possible explanation for the high intercorrelation is the role of self-definition in cultures that focus on interdependence (relatedness). In cross-cultural research, self-

definition has often been conceived of as focal to Western cultures of independence where self is separate from others and should be preserved at all cost from the influence of others (Markus & Kitayama, 1994; Hamedani, Markus, & Fu, 2013). Conversely, self-definition is less emphasized in non-Western cultures which prioritize sensitivity to others over personal goals (see Kagitcibasi, 2007, for a review). It is therefore possible that in a cultural context such as Southern Italy (where the study took place), increased levels of self-definition could currently co-occur with high levels of relatedness (culturally typical in such a context), thereby explaining a lower degree of orthogonality. Specifically, it must be highlighted that for historical and economic reasons, in comparison with Northern Italy (geographically closer to Europe and with a stronger industrial tradition), Southern Italy maintains a remarkably collectivistic culture, which originates in farming traditions and in the geographic proximity to the Arab culture of north Africa. At the same time, people living in Southern Italy experience self-definitional pressure typical of Western individualistic society, although this is perhaps less marked than in other more industrialized areas of Italy.

With regard to age, findings in the non-clinical group were consistent with a recent study, focusing on two community samples (Kopala-Sibley et al., 2013), in which both factors significantly decreased in older subjects; nevertheless, this correlation was not significant in our clinical group. This finding is consistent with the possibility that those most at risk for depression are those for whom self-criticism and dependency do not decrease with age.

Finally, from a statistical point of view, given the high interconnectedness between the factors, further research is necessary to test different solutions. For example, second-order models in which the two subscales load onto a high-order factor, or bifactor models in which the DEQ items load onto the two subscales and at the same time onto a general factor may yield novel conceptualizations of the interrelationships between dependency and self-criticism. If these models showed a fit to the data that is equal to or better than the models

tested here, this would shed new light on the DEQ literature and the Blattian theory (as well as the theories of personality more generally).

Concerning convergent validity, the high correlations between the two factors of the DEQ and the BDI-II are in line with the results obtained in other studies (e.g., Campos, Besser, & Blatt, 2013; Luyten et al., 2007; Yao et al., 2009). Furthermore, in line with these same studies, correlations with depressive symptoms were higher in the clinical group than in the non-clinical group. In particular, by distinguishing the two subfactors of dependency, we obtained stronger correlations between dependence and BDI-II than between relatedness and BDI-II. These results are in line with a distinction between two facets that assess interpersonal relatedness at different developmental levels and correlate differentially with measures of depression.

With respect to gender differences, results are in line with the literature in the case of the correlated 2-factor model for TDEQ-12 since dependency was higher in females, while self-criticism was higher in males both in the clinical group and in the non-clinical group (for a review, see Campos et al., 2013). In the correlated 2-factor model for the TDEQ-21, there were no significant differences between males and females regarding dependency in the non-clinical group or self-criticism in the clinical group. For both scales, a significant gender by clinical status interaction emerged.

More generally, Blatt (2008) explains this gendered pattern of results with the fact that women and men present differences in personality development. Specifically, women are argued to place more emphasis on issues related to interpersonal relatedness, especially in terms of giving and receiving care, affection, and love, while men place more emphasis on self-definition, especially in terms of individualistic self-assertion. It must be also noticed that we did not find associations between men with high levels of dependency, or women with high levels of self-criticism, and increased risk for depression. In contrast with previous



studies that found no gender difference in dependency (Bornstein & Masling, 2005) or self-criticism (Blatt, 2004), or that provided strong evidence for the gender incongruity hypothesis (Luyten et al., 2007), our results show higher dependency in clinical women than in clinical men, and higher self-criticism in clinical men than in clinical women (just for TDEQ-12). These results therefore do not support the gender-incongruity theory. Possible explanations of these results should take into account the role of cultural, socio-economic and educational factors. In particular, it is possible that the high level of women's education in our sample and, as previously noted, the typical collectivistic culture of Southern Italy may play a role in explaining discrepancies with previous study.

In conclusion, results show that some versions of the DEQ fail to exhibit the supposed dimensionality that, based on Blatt's theories, constitutes the background to the operationalization of the two dimensions.

These problematic aspects do not necessarily undermine the usability of the tool. For example, the measure can be used to assess depressive vulnerability from the point of view of the quality of interpersonal relationships and experiences in life may of those diagnosed with depression rather from a symptomatological point of view (Blatt, 2008). This proposal is in agreement with other dimensional diagnostic tools, as opposed to instruments that assess the presence/absence of symptoms, because it assesses the psychological functioning of an individual rather than a clear-cut polarization. In this sense, the DEQ should be used with the aim of identifying trends, hypersensitivity, or real vulnerability with respect to specific topics of the introjective or anaclitic area rather than for creating rigid and independent profiles.

Finally, these results could stimulate a re-conceptualization of Blattian theory. On one hand, Blatt considered the dimensions of relatedness and self-definition to lie along a continuum. On the other, the DEQ, which was designed to assess these dimensions, was meant to measure them in a categorical sense (i.e. orthogonal). Instead, the two dimensions

should be considered as deeply interrelated and not clearly distinguishable.

This study also has several limitations. First, all measures were self-report, which may have inflated associations due to shared method variance. A second limitation involves the homogeneity of the non-clinical group (all undergraduate-level psychology students). A community sample would have increased the variability and strengthened the applicability of the results to the general population. This also raises the issue of whether college students may be an inappropriate comparison group against a clinical population, given age and other differences between these groups. While not necessarily a limitation, another issue is that the clinical group was exclusively made up of patients diagnosed with mood disorders. In other studies, it was noted that the results vary if a mixture of patients with various psychiatric disorders are considered. Moreover, it should be noted that our clinical group showed scores of moderate depression based on the BDI-II. Finally, this study is limited by the fact that it is a cross-sectional study; further longitudinal studies are needed to consider the clinical variables studied to investigate more definite causal relationships between them.

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Table 1. Comparison between DEQ models through related indices of fit

Model	Non-clinical group							Clinical group						
	$\chi^2$	<i>df</i>	NN FI	C FI	RMS EA	Low 90% CI	High 90% CI	$\chi^2$	<i>df</i>	NN FI	C FI	RMS EA	Low 90% CI	High 90% CI
Original DEQ														
Three-Factor	4321 .34	20 05	.65	.6 2	.112* *	.107	.117	4411. 43	20 05	.64	.6 0	.113* *	.108	.118
Two-Factor	2003 .17	97 2	.72	.7 0	.093* *	.087	.109	1928 .24	97 2	.70	.5 8	.104* *	.097	.111
One-Factor	5560 .94	20 79	.32	.4 3	.078* *	.076	.081	8168 .88	20 79	.16	.1 90	.150* *	.147	.154
Two-Factor + C	1765 .04	97 1	.75	.7 3	.073* *	.070	.79	1717 .42	97 1	.68	.6 8	.135* *	.131	.140
Revised DEQ														
Three-Factor	1782 .46	85 3	.71	.6 6	.073* *	.068	.078	1667 .32	85 3	.73	.7 0	.075* *	.070	.080
Two-Factor	1325 .37	55 7	.73	.7 0	.076* *	.069	.082	1001 .13	55 7	.77	.7 0	.072* *	.068	.077
One-Factor	1282 .83	55 7	.68	.6 4	.083* *	.077	.085	1198. 57	55 7	.68	.6 3	.080* *	.069	.082
Two-Factor + C	1174. 15	55 6	.71	.7 2	.073* *	.068	.078	940. 30	55 6	.82	.7 6	.078* *	.072	.084
Reconstructed DEQ														
Two-Factor	390. 05	14 7	.74	.7 2	.093* *	.081	.105	308. 57	14 7	.88	.8 2	.074* *	.070	.078
One-Factor	402. 29	15 1	.71	.6 9	.095* *	.083	.107	342. 07	15 1	.75	.7 4	.081* *	.075	.086
Two-Factor + C	315. 16	14 6	.84	.8 2	.077* *	.070	.084	284. 21	14 6	.90	.8 8	.080* *	.074	.086
Theoretical DEQ 21														
Two-Factor	242. 17	16 4	.91	.9 2	.049* *	.033	.063	257. 53	16 4	.92	.9 6	.035* *	.030	.040
One-Factor	354. 32	16 4	.76	.7 8	.077* *	.065	.085	292. 08	16 4	.84	.8 3	.060* *	.058	.072
Two-Factor + C	221. 04	16 3	.95	.9 7	.036* *	.030	.042	224. 67	16 3	.95	.9 8	.022* *	.015	.029

Theoretical  
DEQ 12

Two-Factor	102. 32	54	.79	.8 7	.098* *	.067	.128	92.3 4	54	.83	.9 0	.090* *	.059	.119
One-Factor	218. 66	54	.77	.8 2	.128* *	.110	.146	224. 61	54	.75	.7 5	.131* *	.115	.152
Two-Factor + C	93.5 3	53	.91	.9 2	.059* *	.034	.081	83.2 9	53	.90	.9 4	.057* *	.030	.077

## McGill DEQ

Opp. Load.	5401 .42	20 17	.59	.5 5	.098* *	.088	.108	5554 .43	20 17	.64	.5 0	.092* *	.083	.101
No Opp. Load.	1932 .67	10 02	.72	.7 2	.082* *	.077	.085	1932 .27	10 02	.77	.7 0	.080* *	.074	.086

*Note.* *N* Non-clinical group = 358; *N* Clinical group = 263; Three-Factor = Model with dependency, self-criticism and efficacy factors; Two-Factor = Model with dependency and self-criticism factors; +C = Correlated factors; Opp. Load. = Model with dependency and self-criticism factors in which the items that load on both factors are supposed to have Opposite Loadings; No Opp. Load. = Model with dependency and self-criticism in which the items that load on both factors are not supposed to have Opposite Loadings; NNFI = non-normed fit index; CFI = comparative fit index; RMSA = root mean square error of approximation; CI = confidence interval. All models are controlled by “sex” variable; \* = *p* ns; \*\* = *p* < .01.

Table 2.

*Correlations between the dependency and self-criticism Latent factors and Scores of the six versions of the DEQ*

	OrigDEQ	RevDEQ	RecDEQ	McGill DEQ	TDEQ-21	TDEQ-12
Latent factors						
Non-clinical	.66	.61	.51	.72	.65	.68
Clinical	.75	.75	.68	.83	.70	.72
Scores						
Non-clinical	.08	.55	.57	.06	.62	.49
Clinical	.08	.58	.59	-.04	.65	.59

*Note.* OrigDEQ = original DEQ with 66 items; RevDEQ = Revised DEQ; RecDEQ = Reconstructed DEQ; McGill DEQ = McGill version of the DEQ; TDEQ-21= Theoretical DEQ with 21 items; TDEQ-12 = Theoretical DEQ with 12 items.

Table 3.

*Comparison between the three DEQ models through AIC, BIC and ECVI*

Model	Non-clinical group					Clinical group				
	AI C	BI C	EIC V	Low 90% CI	High 90% CI	AI C	BI C	EIC V	Low 90% CI	High 90% CI
Theoretical DEQ 21										
Two-Factor	48 1	72 4	1.75	1.57	1.96	86 9	10 61	6.68	6.06	7.36
Two-Factor + C	36 4	61 0	1.33	1.20	1.49	79 8	99 4	6.14	5.56	6.78
Theoretical DEQ 12										
Two-Factor + C	18 8	27 8	0.69	0.57	.83	25 3	32 5	1.95	1.63	2.31

*Note.* *N* Non-clinical group = 358; *N* Clinical group = 263; Three-Factor = Model with dependency, self-criticism and efficacy factors; Two-Factor = Model with dependency and self-criticism factor; +C = Correlated factors; Opp. Load. = Model with dependency and self-criticism factors in which the items that load on both factors are supposed to have Opposite Loadings; No Opp. Load. = Model with dependency and self-criticism in which the items that load on both factors are not supposed to have Opposite Loadings; AIC = akaike information criterion; BIC = bayesian information criterion; ECVI = expected cross-validation index; CI = confidence interval. All models are controlled by “sex” variable.

Table 4.

*CFA of Theoretical DEQ 21 and Theoretical DEQ 12 with covariance between factors*

	TDEQ 21 2F+C				TDEQ 12 2F+C			
	Non-clinical group		Clinical group		Non-clinical group		Clinical group	
	Dependence	Self-criticism	Dependency	Self-criticism	Dependence	Self-criticism	Dependence	Self-criticism
Item_2	.50		.47		.54		.60	
Item_19	.64		.54		.54		.50	
Item_20	.59		.62		-		-	
Item_22	.48		.50		-		-	
Item_23	.48		.48		.62		.59	
Item_28	.55		.52		-		-	
Item_46	.60		.64		-		-	
Item_50	.42		.40		.59		.66	
Item_52	.62		.58		-		-	
Item_55	.80		.78		.68		.72	
Item_4		.70		.76		-		-
Item_7		.32		.42		.72		.70
Item_13		.59		.63		.55		.71
Item_30		.68		.60		.63		.73
Item_36		.74		.72		.61		.73
Item_41		.63		.64		-		-
Item_43		.67		.76		-		-
Item_51		.59		.59		-		-
Item_53		.31		.32		.56		.49
Item_64		.52		.52		.32		.60
Item_66		.32		.32		.31		.34



*Note.* CFA = confirmatory factor analysis; TDEQ-21= Theoretical DEQ with 21 items; TDEQ-12 = Theoretical DEQ with 12 items; 2F+C = Two correlated factors; Number of item refers to the original DEQ. All factor loadings are significant at  $p < .01$ .

Table 5.

Comparisons between mean scores of both clinical and non-clinical group and between males and females.

	Non-clinical group							Clinical group							Non-clinical vs Clinical group		
	Overall		Males		Females		M vs F <i>t</i> <sub>(356)</sub>	Overall		Males		Females		M vs F <i>t</i> <sub>(261)</sub>	Overall <i>t</i> <sub>(618)</sub>	Males <i>t</i> <sub>(278)</sub>	Females <i>t</i> <sub>(338)</sub>
	<i>M</i>	<i>S<sub>D</sub></i>	<i>M</i>	<i>S<sub>D</sub></i>	<i>M</i>	<i>S<sub>D</sub></i>		<i>M</i>	<i>S<sub>D</sub></i>	<i>M</i>	<i>S<sub>D</sub></i>	<i>M</i>	<i>S<sub>D</sub></i>				
TDEQ-12 dependency	3.6	1.0	3.2	1.1	3.9	1.0	-6.28*	4.4	1.0	3.9	.9	4.9	.9	-8.09*	9.84*	5.86*	9.40*
TDEQ-12 self-criticism	3.8	1.0	4.2	1.0	3.4	.9	7.20*	4.7	1.0	5.2	1.0	4.3	.9	7.28*	11.07*	7.88*	9.03*
TDEQ-21 dependency	3.9	.6	3.8	.6	3.9	.6	-1.56	4.6	.6	4.2	.5	5.1	.5	-14.62*	14.35*	5.98*	19.28*
TDEQ-21 self-criticism	3.7	.8	4.1	.8	3.6	.9	5.46*	4.9	.7	5.0	.7	4.9	.7	1.15	19.44*	8.15*	13.12*
BDI-II	10.4	7.9	9.5	7.7	12.2	7.8	-3.22*	21.1	13.6	20.2	11.2	22.2	14.4	-1.27	12.30*	9.53*	8.43*
IIP-32 total	73	14.7	73	15.1	71	14.6	-1.30	88	14.9	89	14.0	87	14.3	1.15	12.49*	9.14*	10.33*

*Note.* Non-clinical group  $N = 358$  (154 males, 204 females); Clinical group  $N = 263$  (127 males, 136 females); TDEQ-21 = Theoretical DEQ with 21 items; TDEQ-12 = Theoretical DEQ with 12 items; BDI-II = Beck Depression Inventory-II; IIP-32 = Inventory of Interpersonal Problems-32; M = males; F = females; \* =  $p < .001$ .

