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Turkish Adaptation Study of the Perceived Devaluation Discrimination Scale

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SUMMARY

Objective: The aim of this study is to adapt Perceived Devaluation-Discrimination (PDD) scale for Turkish language and culture.

Method: Participants from clinical and community populations were included in the study. The community sample consisted of 145 healthy individuals from the general community and the clinical sample consisted of 85 individuals with chronic psychiatric disorders. Psychometric properties of the Turkish version of PDD were assessed in the general community and clinical samples. Exploratory factor analysis, confirmatory factor analysis, internal consistency analysis, convergent and discriminant validity analyses were conducted.

Results: As a result of exploratory factor analysis, a two-factor structure for PDD emerged in both the general community and clinical samples. Confirmatory factor analysis also supported the two-factor structure in both samples. These factors were named as *Perceived Discrimination and Negative Evaluation* and *Perceived Acceptance and Non-negative Evaluation subscales.* Cronbach's alpha values for PDD were 0.76 in the general community sample and 0.79 in the clinical sample. Alpha values of PDD subscales ranged between 0.72 and 0.77 in both samples. While convergent and discriminant validity tests provided partial support for construct validity of PDD in the general community sample, the convergent validity tests conducted with the clinical sample provided evidence for validity of PDD.

Conclusion: Based on the results of the present study, it has been demonstrated that the Turkish version of PDD is reliable and valid and can be used with community and clinical samples to measure perceived devaluation and discrimination.

Keywords: Stigma, perceived devaluation, perceived discrimination

INTRODUCTION

Goffman (1963), in his well-known book, introduced the concept of stigma as a "deeply discrediting" attribute which reduces its possessor "from a whole and usual" person to a "tainted, discounted one" (p. 3). Later on, Crocker and her colleagues (1998) defined stigma as "some attribute, or characteristic, that conveys a social identity that is devalued in a particular social context" (p. 505). Over the period of time since 1960s, the subject of stigmatization was studied from psychological and sociological perspectives and many social stigma models were proposed.

Three psychological models of stigma have been proposed. These are *the dimensions of stigma* (Jones et al. 1984 as cited in Pachankis et al. 2018), *social cognitive processes in stigma* (Corrigan 2000), and *the identity-threat model of stigma* (Major and O'Brien 2005). In the first model Jones et al. (1984 as cited in Pachankis et al. 2018) described six dimensions for stigma (peril, concealability, origin, disruptiveness, course and aesthetic qualities). In the second model, social, cognitive, affective, and behavioral aspects of social stigma were analyzed (Corrigan 2000). In the third model, the integrated identity-threat model (Major and O'Brien 2005), it was explained that awareness of the labeled individuals of their collective description in the society would cause higher sensitivity to perceiving stigmatizing clues and variables. Taken together, although psychological conceptualizations provide in-depth descriptions of individual processes they do not address relevant social variables that might contribute

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to stigmatization. This gap creates a necessity to review sociological approaches to stigma.

Link (1987) developed the Modified Labeling Theory (MLT) from a sociological perspective. According to this theory, people in the society internalize the conceptions of what it means to be a person with mental illness through a socialization process. When a person develops mental illness and becomes labeled with an official diagnosis, socially acquired conceptions of mental illness becomes relevant for the individual. At this point, the individual might face negative social and psychological consequences such as lower self-esteem, unemployment, and reduced social network based on the degree of perceived devaluation and discrimination (Link et al. 1989). Link and other scholars tested these hypotheses and reported that labeling may be related to unemployment (Link 1987), reduced social networks (Link et al. 1989), low self-esteem (Wright et al. 2000), depressive symptoms (Link et al. 1997), and decreased quality of life (Rosenfield 1997) among people with mental illness. According to the MLT, the relationship between perceived stigma and other variables should differ across clinical and healthy samples. In support of this hypothesis, it was found that perceived stigma was related to demoralization for individuals with psychiatric diagnoses, but not for healthy individuals (Link 1987).

Several studies were conducted based on psychological and sociological models of stigma. Those studies can be reviewed under two categories. One group of studies focused on the public attitudes towards mental illness and a subsequent attempt at reducing public stigma (e.g., Stuart 2016, Hinshaw and Cicchetti 2000). According to a meta-analysis published in 2012, however, although the public understanding of biological correlates of mental disorders has increased, this did not lead to a decrease in stigmatization and discrimination, nor did it lead to an increase in social acceptance of individuals with mental disorder (Schomerus et al. 2012, Pescosolido 2013).

The second group of studies in mental illness stigma adopted the perspective of the patients and elaborated on the concept of internalized stigma (e.g., Drapalski et al. 2013). Internalized stigma is quite common among psychiatric patients (Brohan et al. 2010) and is associated with reduced self esteem, self-efficacy, quality of life, social integration, and hope, and an increase in severity of psychiatric symptoms (Drapalski et al. 2013, Livingston and Boyd 2010). Moreover, internalized stigma disrupts treatment, reduces treatment adherence (Fung et al. 2010, Sirey et al. 2001), and creates an important barrier to treatment (Yanos et al. 2010).

Researchers in Turkey investigated the attitudes towards individuals with mental illness and demonstrated socially restrictive, avoidant, and punitive attitudes towards those with mental illness among general public (Taşkın 2007). Even though public knowledge about the etiology of mental disorders has increased through the years (Taşkın 2007), negative beliefs and attitudes associated with mental illness seem to persist among university students (Ünal et al. 2010) and rural populations (Taşkın et al. 2003). In addition to these, the belief of healthcare workers that individuals with mental disorders are dangerous (Bağ and Ekinci 2005); and the negligence of the emergency service staff when attending the physical complaints of the psychiatry patients (Saillard 2010) have also been reported.

Similar to studies conducted in North America and Europe, initial stigma studies that targeted the general community in Turkey were followed by a second generation of studies that focused on the perspective of the stigmatized individuals. Psychiatric patients reported being stigmatized by family members, healthcare workers, and the society, which lead to negative effects such as difficulties in daily social interactions and treatment non-adherence (Yüksel et al. 2013). Also, internalized stigma was negatively associated with variables such as social functioning, hope, and income (Doğanavşargil-Baysal et al. 2013, Sarıkoç and Öz 2015). As a result, researchers emphasized that it is important to fight mental illness stigma by education public and enriching the curriculum of mental health professionals (Çam and Bilge 2013).

There are two different approaches to developing tools for assessing stigmatization of mental illnesses in Turkey. One of the approaches consisted of translation and adaptation of instruments from other languages. Examples of translated instruments include Internalized Stigma of Mental Illness Scale (Ersoy and Varan 2007, Ritsher et al. 2003), Beliefs Toward Mental Illness Scale (Bilge and Çam 2008, Hirai and Clum 2000), and Community Attitude Towards the Mentally Ill (Bağ and Ekinci 2006, Taylor and Dear 1981). The other approach consisted of developing culturally sensitive tools to measure mental illness stigma in Turkish cultural context. Examples of instruments developed for the Turkish culture include The Self-Stigma Inventory for schizophrenia patients (Yıldız et al. 2018a) and the Self-Stigma Inventory for families of schizophrenia patients (Yıldız et al. 2018b). Although these tools are reliable and valid measures, they do not assess stigma among general public and the internalized stigma of psychiatric patients using the same set of questions. Therefore, researchers who use these tools are unable to compare general public and patient scores using the same instrument.

Currently, there is no instrument in Turkish to compare mental illness stigma of patient and non-patient samples. The Perceived Devaluation-Discrimination (PDD) scale can fill this gap, because it can be used with both psychiatric patients and non-patients to assess both internalized and perceived stigma. According to the results of a meta-analysis the PDD is the most frequently used internalized stigma measure (Livingston and Boyd 2010). Moreover, the PDD can be

used to compare samples with different psychiatric diagnoses and to measures changes in degree of stigma among general community across time (e.g. Schomerus et al. 2006, Zieger et al. 2016, Angermeyer et al. 2014).

In order to reduce social desirability bias, the PDD items ask participants their beliefs about "what most people" think, instead of asking about their own attitudes directly (Link and Cullen 1983). Therefore, adaptation of the PDD to Turkish will also provide researchers with an instrument that minimizes the effect of social desirability. Finally, the PDD has been translated to many languages (e.g.: Swedish Björkman et al. 2007), and it can be used to compare stigma across cultures.

In the context of above mentioned information, the purpose of the present study was to adapt the PDD to Turkish and test its reliability and validity using a healthy control sample and a clinical sample. The related hypotheses were: Turkish PDD (PDD-TR) will be positively and significantly correlated with the Turkish versions of *(H1)* the Internalized Stigma of Mental Illness (ISMI) scale in the clinical sample; *(H2)* the Beliefs Toward Mental Illness Scale (BMI) in the control sample; *(H3)* the Perceptions of Stigmatization by Others for Seeking Psychological Help (PSOSH) scale in the control sample. The PDD-TR will have a two-factor structure *(H4)* in the control sample and *(H5)* in the clinical sample; and *(H6a)* will positively and significantly correlate with the Turkish version of RSES in the clinical sample. *(H6b)* There will be no correlation between the PDD-TR and the Turkish version of RSES in the control sample. *(H7)* There will be no correlation between the PDD-TR and the Turkish version of the Beck Depression Inventory (BDI) in the control sample.

METHOD

Participants

Data were collected from two different participant samples using convenience sampling method. For the healthy control sample, 150 adult participants were invited to participate in the study. The first author collected data by distributing survey packages to his acquaintances and other volunteers who live in Ankara. The participants returned the survey packages after filling out the surveys in their home or at a convenient place. Only one participant did not return the survey package and 4 participants returned incomplete packages; therefore, 5 participants were excluded from the study. Eighty-five adult psychiatric patients from community mental health centers and schizophrenia associations were included in the study. The participants had to be 18 years old or older and have a chronic psychiatric disorder. Those who were in the acute phase of their illness and those with observable speech and perception problems that could interfere with filling out the surveys were excluded. The diagnoses of the participants were recorded based on participants' self reports and further diagnostic evaluations were not conducted. The clinical sample participants were recruited from the following institutions and associations: Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital Community Mental Health Service, Dr. Nafiz Körez Sincan State Hospital Community Mental Health Service (Ankara), Nazilli State Hospital Community Mental Health Service (Aydın), Ankara Association for Learning and Supporting to Live with Schizophrenia (Ankara Şizofreni ile Yaşamayı Öğrenme ve Destekleme Derneği - AŞDER), and Ankara Schizophrenia Patients and Relatives Solidarity Association (Ankara Şizofreni Hastaları ve Yakınları Dayanışma Derneği -Mavi At).

Instruments

The PDD scale was created to assess individuals' beliefs regarding the degree of devaluation and discrimination that psychiatry patients face (Link 1987, 102). In 2002, Link and his colleagues updated the scale to the four-point Likert-type format with 13 items, which was also used in the current study. The PDD has 6 reverse items and the final score is computed by dividing total score to 13. Higher scores indicate stronger perception of devaluation and discrimination of people with mental illness. Internal consistency coefficients of the the PDD ranged between 0.82 and 0.88 (Link et al. 2004, Kleim et al. 2008). According to the results of exploratory factor analysis, positively and negatively worded items grouped under two separate factors (Interian et al. 2010). The PDD was positively and significantly correlated with Internalized Stigma of Mental Illness scale (Ritsher et al. 2003) and Perceptions of Stigmatization by Others for Seeking Help scale (Vogel et al. 2009). On the basis of these data the English version of the PDD was concluded to be valid and reliable.

In this study ten-item Rosenberg Self-Esteem Scale (RSES) that assesses self-esteem was also used (Rosenberg 1965). The RSES, adapted to the Turkish language by Çuhadaroğlu (1986), is a Guttman type scale with scores varying between 1 and 6; with scores of 5 and 6 representing low self esteem and 0 and 1 representing high self esteem. Validity of this scale was demonstrated by calculating a correlation coefficient of 0.71 between the scores on the scale and the assessments of low, moderate and high self esteem by the interviewer (Çuhadaroğlu 1986). In this study, Turkish language version of the RSES (RSES-TR) was used to test for the discriminant validity of the PDD-TR in the healthy control sample, and for convergent validity of the PDD-TR in the clinical sample. Cronbach's alpha coefficient for the RSES-TR was 0.86 for the control sample and 0.79 for the clinical sample.

The Perceptions of Stigmatization by Others for Seeking Help scale (PSOSH, Vogel et al. 2009, Sezer and Kezer 2013)

asks respondents to imagine a scenario in which they decide to receive professional psychological help for a problem in their lives. Then, the respondents are asked to rate 21 possible reactions to this decision by the people in their environment. Each reaction is rated on 5-point Likert-type scale. Testing healthy college student participants, a positive correlation was reported between the PDD and the PSOSH (r=0.20, p<0.001, Vogel et al. 2009). The PSOSH was adapted to the Turkish language by Sezer and Kezer (2013), who reported a Cronbach's alpha coefficient of 0.93, test re-test reliability coefficient of 0.80, and concurrent validity coefficient of 0.72 for the PSOSH-TR when tested for correlations with the Stigma Scale for Receiving Psychological Help (Komiya et al. 2000, Topkaya 2011). In the current study, the PSOSH-TR was used to test the convergent validity of the the PDD-TR in the control sample, and a Cronbach's alpha coefficient of 0.92 was calculated.

In the Beliefs Toward Mental Illness Scale (BMI) by Hirai and Clum (2000) participants are asked how much they agree with a set of stigmatizing beliefs. The BMI adapted to the Turkish language by Bilge and Çam (2008), is a 6-point Likert-type scale consisting of 21 items. The Turkish language version (BMI-TR) has 3 subscales on Incurability and Disturbance in Interpersonal Relationships, Dangerous, and Shame that were supported by factor analysis. Cronbach's alpha coefficient for the entire scale was 0.82 and ranged between 0.69 and 0.80 for the subscales (Bilge and Çam 2008). In the current study, the BMI-TR was used to test for convergent validity of the PDD-TR in the control sample and the Cronbach's alpha coefficient for the full scale in this sample was 0.90 and ranged between 0.69 and 0.87 for the subscales.

The Beck Depression Inventory (BDI) is a 21-item survey that measures depression symptoms (Becket al. 1961). Each item is scored between 0 and 3 points and the respondents are asked to choose the statement that describes how they have felt over the past week. The BDI was adapted to the Turkish language by Hisli (1988) who reported the concurrent validity of BDI-TR to be 0.50 as it was analyzed for correlation with the depression subscale of the Minnesota Multiphasic Personality Inventory (MMPI). The BDI-TR was used, in the current study, to test for the discriminant validity of the PDD-TR in the control sample when the Cronbach's alpha coefficient was found to be 0.83. In order to keep a small number of surveys and questions in the clinical sample, the BDI-TR was used only in the control sample.

The Internalized Stigma of Mental Illness Scale (ISMI) by Ritsher et al. (2003) is a 4-point Likert-type scale with 29-items and was adapted to the Turkish language by Ersoy and Varan (2007). The original 5-factor structure of the ISMI was conserved in the ISMI-TR. The Convergent validity of the ISMI-TR was demonstrated through significant positive correlations with the RSES-TR, the BDI-TR, and the Brief Symptom Inventory. In the current study, Cronbach's alpha value of the ISMI-TR was 0.89 and it was used to test the convergent validity of the PDD-TR in the clinical sample.

Procedure

Before adapting the PDD scale to Turkish language, permission was obtained from Link via e-mail. In accordance with the adaptation principles of the International Test Commission (ITC- 2017), the PDD was translated to Turkish language by two independent psychologist translators, then a third independent psychologist translator reconciled the two translations. Subsequently, the third format of the PDD-TR was tested on 3 adults with psychiatric diagnoses and 6 healthy adults without psychiatric disorder. Considering the feedback, the final form of the scale was created. Back translation procedure was not carried out, as it is not a part of the double translation and reconciling requirements of the ITC.

The study was approved by the Human Research Ethics Committee of the Middle East Technical University (2017-SOS-220, January 2, 2018). After obtaining the necessary permissions from the psychiatric institutions contacted and informed consents from the participants, the survey packages were delivered to the participants of the control sample and the clinical sample. The survey package for the control sample consisted of the Demographic Information Form, the PDD-TR, the RSES-TR, the PSOSH-TR, the BMI-TR, and the BDI-TR. The survey package for the clinical sample consisted of the Demographic Information Form, the PDD-TR, the RSES-TR, and the ISMI-TR. All data were collected by means of printed survey forms.

After ensuring the accuracy of data entry, missing data were detected using descriptive statistics and frequencies for every variable and the missing data were replaced with the series means. However, replacement was not done for missing data caused by missing pages in survey package. A series of one-way ANOVAs and correlation analyses were conducted to check for possible relations between the demographic variables and the scales used. Cronbach's alpha coefficients were calculated to test internal consistency reliability of the PDD-TR. In the control sample, correlations between the PDD-TR, the BMI-TR and the PSOSH-TR scales were analyzed to test for convergent validity. For discriminant validity analysis of the control sample data, correlations between the PDD-TR, the RSES-TR and the BDI-TR were analyzed. In the clinical sample, convergent validity was checked with the correlations between the PDD-TR, the RSES-TR and the ISMI-TR. Exploratory and confirmatory factor analyses were conducted to evaluate construct validity. Exploratory factor analysis was conducted using Oblimin rotation with principle axis factoring. All analyses except confirmatory factor analysis were conducted using the Statistical Package for Social Sciences (SPSS) version

20.0 for Windows. The confirmatory factor analysis was carried out using the EQS version 6.1 for Windows.

RESULTS

The control sample ages ranged between 18 and 86 with a mean of 44.90 (±14.74). The majority of participants (64.83%) were university graduates (Table 1). The ages of the clinical sample participants ranged between 22 and 71 with a mean of 41.36 (±10.71). The majority of the participants in this sample consisted of males (78.82%) and individuals with schizophrenia (69.41%, Table 1).

The ANOVA and correlation analyses on the data of the control sample showed that the married participants (M =0.73 ±0.76) reported significantly higher self-esteem (and lower RSES-TR scores) than single participants (M=1.25 ±1.51). Also, age correlated significantly with the PDD-TR in both the control (r=-0.22, p<0.01) and the clinical samples (r=0.24, p<0.05), but in different directions. Based on these findings, marital status and age were controlled for correlation analyses of the control sample, while only age was controlled for the correlation analyses of the clinical sample. Finally, in the clinical sample, correlations were not found between the PDD-TR scores and time since the initial diagnosis date, and between the PDD-TR scores and time since last hospitalization date.

In the control sample, the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy result was 0.73, and the result of the Bartlett's test of sphericity was significant χ^2 (78)=444.30, p<0.001, suggesting factorability of the PDD-TR items. The analysis yielded a four-factor structure with eigenvalues of 3.54, 1.98, 1.19 and 1.01. The four-factor structure accounted for 59.46% of total variance. In a previous study, Interian et al. (2010) analyzed the factor structure of the PDD in a clinical

Table 1. Demographic Information

	Control Sample				Clinical Sample			
	M	**SD**	**N**	**%**	**M**	**SD**	**N**	**%**
Age	44.90	14.74	143		41.36	10.71	85	
Household population	3.04	1.14	143					
Household income (TL/month)	5570.36	2598.96	138					
Gender								
Male			69	48.25			67	78.82
Female			74	51.75			18	21.18
Marital Status								
Single			51	35.66			64	75.29
Married			92	64.34			21	24.71
Education Status								
Primary school			1	0.69			14	16.47
Middle school			2	1.38			16	18.82
High school			33	22.76			41	48.24
Bachelor's			94	64.83			14	16.47
Master's			13	8.97				
Doctorate			2	1.38				
Worked (within last year)								
Yes			92	65.25			14	16.47
No			13	9.22			53	62.35
Retired			36	25.53			16	18.82
Previous Hospitalization								
Yes							74	87.06
No							11	12.94
Diagnosis								
Schizophrenia							59	69.41
Schizoaffective Disorder							5	5.88
Bipolar Affective Disorder							11	12.94
Chronic Psychotic Disorder (Undefined)							6	7.06
Diagnosis not known							4	4.71

sample and reported a two-factor structure consisting of negatively and positively worded items grouped under different factors. Taking into account the results reported by Interian et al. (2010) and the inflection point in the scree plot, it was decided to reduce the number of factors to 2. Therefore, the analysis was repeated with 2 forced factors. The new structure explained 42.48% of the variance. Similarly, in the clinical sample, the result of the KMO test of sampling adequacy was 0.74 and Bartlett's test of sphericity was significant (χ^2 (78)=308.60, $p<$ 0.001), which support factorability of the PDD-TR items. The four-factor structure with eigenvalues of 3.77, 2.20, 1.23, and 1.01. accounted for 63% of the total variance. However, as in the previous studies (e.g. Interian et al. 2010) and based on the inflection point of the scree plot it was decided to keep the two-factor structure. When factor analysis was repeated with the two-factor structure, 45.88% of the variance was explained. Based on this structure, the positively-worded items (items 1, 2, 3, 4, 8, and 10) and the negatively-worded items (items 5, 6, 7, 9, 11, 12, and 13) of the PDD-TR were loaded under separate factors (Table 2). The names expressed for the subscales in the study by Interian et al. (2010) were used for the PDD-TR subscales. The positively worded factor was named *Perceived Acceptance and Non-negative Evaluation* (ANNE) and the negatively worded item was named *Perceived Discrimination and Negative Evaluation* (DNE). For the current analysis, these names were adopted for factor 1 and factor 2, respectively.

The confirmatory factory analyses conducted on both samples supported the two-factor structure. In the control sample, error covariances were added between items 2 and 3, 2 and 8, 6 and 11, and 9 and 12 In the clinical sample, an error covariance was added between items 2 and 8. Each modification was conducted separately and after each modification, the model improved significantly. In the control sample the data-model fit was well *(Satorra-Bentler* χ^2 (60)=70.80, p>0.05, CFI=0.96, RMSEA=0.04, *CI* [0.00, 0.07]), and in the clinical sample the data-model fit was acceptable *(Satorra-Bentler* χ^2 (63)=75.96, p>0.05, *CFI*=0.93, *RMSEA*=0.05, *CI* [0.00, 0.09]). Although both EFA and CFA analyses supported the two-factor structure of the PDD-TR, given that these factors were based on wording of the items and not underlying theoretical concepts, the subsequently made analyses were conducted with the total the PDD-TR scores and not the scores of the subscales.

Internal consistency values of the PDD-TR were tested using Cronbach's alpha coefficients; and the values for the control and the clinical samples were 0.76 and 079, respectively. In the control sample the Cronbach's alpha coefficient for the DNE

Table 2. Factor Structure of the PDD-TR in Control Sample (n=144) and Clinical Sample (n=85)

	Factor	
PDD Items	**Perceived Discrimination and Negative Evaluation**	**Perceived Acceptance and Non-negative Evaluation**
11. Most young women would be reluctant to date a man who has been hospitalized for a serious mental illness.	.72 (GCS) .68 (CS)	
13. Most people think that a person who has been hospitalized for serious mental illness is dangerous and unpredictable.	.63 (GCS) .72 (CS)	
12. Once they know a person was in a psychiatric hospital. most people will take his or her opinions less seriously.	.60 (GCS) .45 (CS)	
9. Most employers will pass over the application of a person who has been hospitalized for mental illness in favor of another applicant.	.59 (GCS) .49 (CS)	
7. Most people think less of a person who has been in a psychiatric hospital.	.55 (GCS) .59 (CS)	
6. Most people will not hire a person who has been hospitalized for serious mental illness to take care of their children. even if he or she had been well for some time.	.41 (GCS) .53 (CS)	
5. Most people believe that entering a psychiatric hospital is a sign of personal failure.	.35 (GCS) .48 (CS)	
3. Most people believe that a person who has been hospitalized for serious mental illness is just as trustworthy as the average citizen.		.72 (GCS) -.81 (CS)
2. Most people believe that a person who has been in a psychiatric hospital is just as intelligent as the average person.		.68 (GCS) -.64 (CS)
4. Most people would accept a person who has made a full recovery from serious mental illness as a teacher of young children in a public school.		.57 (GCS) -.55 (CS)
1. Most people would accept a person who once had a serious mental illness as a close friend.		.52 (GCS) -.62 (CS)
10. Most people in my community would treat a person who has been hospitalized for mental illness just as they would treat anyone.		.40 (GCS) -.49 (CS)
8. Most employers will hire a person who has been hospitalized for mental illness if he or she is qualified for the job.		.38 (GCS) -.50 (CS)

Note. GCS: General community sample. CS: clinical sample

Table 3. Correlations Between the PDD-TR and Other Scales in Control Sample

Scales	PDD	PDD-DNE	PDD-ANNE	BMI	BMI-IDIR	BMI-D	BMI-S	RSES	PSOSH	BDI
PDD	-									
PDD–DNE	.83***	-								
PDD-ANNE	.76***	.28***	-							
BMI	.30***	.27***	.20*	-						
BMI-IDIR	.31***	.30***	.20*	.94***	-					
BMI–D	.25**	.22**	.18*	.86***	.65***	-				
BMI–S	.19**	.11	.21*	.55***	.42***	.44***	-			
RSES	.04	.12	-.06	.03	.05	-.04	-.05	-		
PSOSH	.12	.08	.12	.23**	.27**	.11	.14	.17	-	
BDI	.24**	.17*	.22*	.11	.12	.06	.07	.47***	.20*	-

Note 1. *p<.05 (2-tailed), ** p<.01 (2-tailed), *** p<.001 (2-tailed).
Note 2. Age and marital status were controlled.
Not 3. PDD: Perceived Devaluation-Discrimination Scale; PDD-DNE: PDD Perceived Discrimination and Negative Evaluation Subscale; PDD-ANNE: PDD Perceived Acceptance and Non-negative Evaluation Subscale; BMI: Beliefs Toward Mental Illness Scale; BMI-IDIR: BMI Incurability and Disturbance in Interpersonal Relationships Subscale; BMI-D: BMI Dangerous Subscale; BMI-S: BMI Shame Subscale; RSES: Rosenberg Self-Esteem Scale; PSOSH: Perceptions of Stigmatization by Others for Seeking Help Scale; BDI: Beck Depression Inventory.

and the ANNE factors were 0.74 and 0.72, respectively. In the clinical sample, the Cronbach's alpha coefficients for the DNE and the ANNE factors were 0.76 and 0.77, respectively.

Convergent validity tests conducted in the clinical sample showed a strong positive correlation between the PDD-TR and the ISMI-TR (r=0.51, p<0.001), and a moderate positive correlation between the PDD-TR and the RSES-TR (r=0.34, p<0.01). Accordingly, higher PDD-TR scores are associated with higher internalized stigma and lower self-esteem. These results support all hypotheses regarding the clinical sample data of the current study.

On the other hand, the results obtained from the control sample supported hypotheses H2 and H6b, but not the H3 and H7. As expected, a moderate positive correlation was found between the PDD-TR and the BMI-TR (r=0.30, p<0.001), Thus, in the control sample, the PDD-TR results positively associated with beliefs about mental illness. Again, as expected, a significant correlation was not found between the PDD-TR and the RSES-TR in the control sample, confirming the hypothesis H6b. These findings supported the convergent and discriminant validity of the PDD-TR in the control sample. However, contrary to the expectations, no significant correlation was found between the PDD-TR and the PSOSH-TR (r=0.12, p>0.05), showing that there is not an association between the PDD-TR and stigma perception for seeking help. Consequently, H3 was rejected. Again, in contrast to the expectations (H7), a significant correlation was found between the PDD-TR and the BDI-TR (r=0.24, p<0.01). In other words, even though an association between the PDD-TR and depression was not expected in the control sample, a statistically significant correlation was actually demonstrated. As a result, convergent and discriminant validity of the PDD-TR was only partially supported in the control sample.

Table 4. Correlations Between the PDD-TR and Other Scales in Clinical Sample

Scales	PDD	PDD-DNE	PDD-ANNE	RSES	ISMI	ISMI-A	ISMI-SE	ISMI-DE	ISMI-SW	ISMI-SR
PDD	-									
PDD-DNE	.82***	-								
PDD-ANNE	.80***	.30**	-							
RSES	.34**	.20	.35***	-						
ISMI	.51***	.57***	.25*	.40***	-					
ISMI –A	.58***	.64***	.28*	.42***	.87***	-				
ISMI –SE	.23*	.34**	.03	.17	.75***	.59***	-			
ISMI –DE	.41***	.54***	.12	.24*	.83***	.64***	.59***	-		
ISMI –SW	.37***	.49***	.11	.34**	.86***	.67***	.58***	.70***	-	
ISMI –SR	.30**	.02	.47***	.28*	.36***	.24*	.01	.13	.15	-

Note 1. * p<.05 (2-tailed), ** p<.01 (2-tailed), *** p<.001 (2-tailed).
Note 2. Age was controlled.
Note 3. PDD: Perceived Devaluation-Discrimination Scale; PDD-DNE: PDD Perceived Discrimination and Negative Evaluation Subscale; PDD-ANNE: PDD Perceived Acceptance and Non-negative Evaluation Subscale; RSES: Rosenberg Self-Esteem Scale; ISMI: Internalized Stigma of Mental Illness Scale; ISMI-A: ISMI Alienation Subscale; ISMI-SE: ISMI Stereotype Endorsement Subscale; ISMI-DE: ISMI Discrimination Experience Subscale; ISMI-SW: ISMI Social Withdrawal Subscale; ISMI-SR: ISMI Stigma Resistance Subscale.

DISCUSSION

The purpose of the present study was to adapt the Perceived Devaluation Discrimination (PDD) scale to the Turkish language and to test its psychometric properties in clinical and control samples. Statistical analyses demonstrated that the internal consistency coefficient of the PDD-TR was above the accepted cut-off point of 0.70 for the PDD in the literature, thus proving that the PDD-TR is a reliable measurement tool to be used in clinical and healthy samples representing the general community. Exploratory factor analysis yielded a two-factor structure for the PDD-TR with the acceptable statistical values mentioned in the literature (Matsunaga 2010). This finding supported the construct validity of the PDD-TR in both samples.

When the convergent and discriminant validities of the PDD-TR were evaluated, strong evidence was found for the convergent validity of the PDD-TR in the clinical sample. In the control sample, on the other hand, only partial support was found for the convergent and discriminant validities of the PDD-TR. While the correlation between the PDD-TR and the BMI-TR supported the convergent validity on beliefs about mental illness, lack of association between the PDD-TR and stigma perception for seeking help in close social environment failed to support convergent validity in the control sample. Also, the lack of association between the PDD-TR and self-esteem supported discriminant validity, the correlation between the PDD-TR and the BDI-TR failed to support discriminant validity in the control sample.

The correlation found between the PDD-TR and the BDI-TR in the control sample requires an explanation, because the MLT does not predict a relation between the PDD and negative psychological outcomes in the general population. In a previous study, Link (1987) mentioned a lack of association between the PDD and the demoralization scale (Dohrenwend et al. 1980) which measures depressive symptoms among members of the general population. However, a review that was published later on demonstrated that demoralization is a condition distinct from depression (Tecuta et al. 2015). Therefore, the relationship between the PDD-TR and the BDI-TR in the control sample does not completely contradict Link's (1987) finding. This correlation might reflect the negative cognitive biases associated with depressive mood and a subsequent bias towards negative responses in the PDD (Gotlib and Joorman 2010).

Another surprising finding in this study was the lack of correlation between the PDD-TR and the PSOSH-TR in the control sample. This finding might be related to the control sample characteristics. Vogel et al. (2009) previously reported a positive significant relationship between the PDD and the PSOSH among university students. In the present study, however, the control sample with a mean age of 44.90 years differed from the age group of university students. Moreover, participants in the control sample were invited to participate through convenience sampling method and most of the participants were the researcher's own acquaintances. Therefore, the control sample of this study may not represent the general healthy populations, and the results obtained form the control sample may have low generalizability.

In conclusion, the reliability and validity analyses of the PDD-TR demonstrated strong evidence in the clinical sample and strong evidence for reliability and partial evidence for validity in the control sample. The current study has several limitations. Presence of a large number of university graduates in the control sample and the predominance of male patients with psychotic/schizophrenic spectrum disorders in the clinical sample have created partially homogenous characteristics in the two participating samples. This difference and the possible social desirability bias might have masked the true strength of the associations demonstrated by the analyses. In future studies, controlling for social desirability bias is recommended. Moreover, test-retest reliability of the PDD-TR was not analyzed in the current study and the self-reported psychiatric diagnoses of the participants in the clinical sample were accepted. It is further recommended that in future research the test-retest reliability should be included and the psychiatric diagnoses of the patients should be confirmed.

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