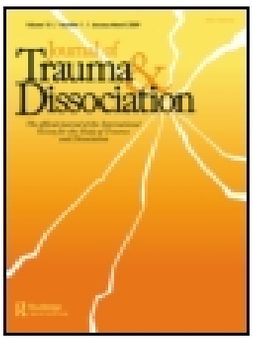

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Validity and reliability of a Persian version of the Dissociative Experiences Scale II (DES-II) on Iranian patients diagnosed with schizophrenia and mood disorders

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ABSTRACT

Dissociative Experiences Scale (DES) is a valid self-reported tool to evaluate both non-pathological and pathological dissociative experiences. This study aims at evaluating the psychometric properties of a Persian version of the DES-II on both non-clinical samples and patients with schizophrenia and mood disorders. The back-translated DES-II was administered to 370 individuals being divided into three groups (270 healthy subjects, 50 patients with mood disorders, and 50 patients with schizophrenia) recruited from Shahid Beheshti Hospital of Kerman Medical University. The results showed a good reliability (Cronbach's alpha = 0.95), a very high item-total correlation, and a good internal consistency of 0.892 measured by split half. Moreover, the Persian version of the DES-II questionnaire demonstrated convergent validity of the scale. Analyses of the DES-II subscales revealed significant differences for amnesic experiences, absorption/imaginative involvement, and depersonalization/derealization among healthy individuals, and patients with mood disorders as well as schizophrenia. We also found significant differences among only schizophrenia group but not mood disorders group in comparison with healthy individuals (p value = .0001, and 0.70, respectively), and between patients with schizophrenia and patients with mood disorders (p value = .03) using DES-T. As a conclusion, the Persian version of the DES-II is an appropriate, reliable, and valid tool to screen dissociative experiences and discriminate subcomponents of dissociative disorders in the Iranian population.

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Dissociation; validity; reliability; DES; psychometric; schizophrenia; mood disorders

Introduction

Dissociative experiences are a wide array of behaviors and experiences, imposing individuals to feel being disrupted and/or detached from reality, and both physical and emotional experiences. Dissociation can be experienced as a feeling of losing integration of consciousness, emotion, memory, perception, behavior, motor

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control, body representation, and identity (American Psychiatric Association, 2013; Lyssenko et al., 2018; Seligman & Kirmayer, 2008). Although dissociative experiences are of paramount clinical importance in many psychiatric illnesses, they are not always a psychopathological finding and can also be considered as a relatively common experience in the general population (Lyssenko et al., 2018; Maaranen et al., 2008; Mazzotti et al., 2016).

According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), four possible dissociative diagnoses including dissociative amnesia, dissociative identity disorder, depersonalization/derealization disorder, and other specified dissociative disorder are considered (American Psychiatric Association, 2013). On the other hand, there are several reported studies indicating that dissociative experiences are somehow involved in the psychopathology of many psychiatric disorders including schizophrenia (O'Driscoll, Laing, & Mason, 2014), affective disorders (Mula et al., 2009), eating disorders (La Mela, Maglietta, Castellini, Amoroso, & Lucarelli, 2010), borderline personality disorder (Sar et al., 2003), conversion disorder (Şar, Akyüz, Kundakçı, Kızıltan, & Doğan, 2004), and obsessive-compulsive disorder (Watson, Wu, & Cutshall, 2004). It has been suggested that some forms of dissociative experiences like absorption/imagination can also occur in general population, while derealization/depersonalization and dissociative amnesia are mostly pathological (Holmes et al., 2005; Mazzotti et al., 2016; Nijenhuis & van der Hart, 2011; Spiegel et al., 2011).

Dissociative Experiences Scale (DES) is a 28-item self-assessment questionnaire designed in 1986 to screen dissociative experiences in both clinical and non-clinical samples using an eleven-point visual analog scale ranging from 0% to 100% (Bernstein & Putnam, 1986; Mazzotti et al., 2016). DES-II, the second version of the DES, consists of the same questions but a different response scale than DES, which made the scoring easier (N. G. Waller & Ross, 1997; N. Waller, Putnam, & Carlson, 1996). In addition, DES-Taxon (DES-T) was then developed in order to distinguish the continuous abnormal pathological class of dissociation from normal non-pathological one (Leavitt, 1999).

DES versions have been translated into different languages and their psychometric properties have been investigated and then proved to be reliable and valid for being utilized in clinical and non-clinical samples for screening and diagnosis of dissociative experiences (De Pasquale, Sciacca, & Hichy, 2016; Espírito Santo & Abreu, 2009; Körlin, Edman, & Nybäck, 2007; Lipsanen, Saarijärvi, & Lauerma, 2003; Oh, Kim, & Kim, 2015; Schimmenti, 2016; Spitzer et al., 1998; Zoroglu, Sar, Tuzun, Tutkun, & Savas, 2002).

To our best of knowledge, there is only one translated version of the DES to Persian with a focus on post-traumatic stress disorder (PTSD) (Kianpoor et al., 2016). Moreover, screening of mental illnesses associated with dissociative experiences with the aid of such instruments is not yet a common practice in Iran, and therefore, highlights an unmet need for a valid and reliable Persian

version of the DES. This study aims to provide a validation of the scales in Persian clinical and non-clinical samples focusing on patients diagnosed with schizophrenia and mood disorders, as well as finding possible specific variations among patients with mood disorders and schizophrenia to extend the screening ability of this questionnaire.

Methods

Participants and procedure

This descriptive study was conducted at Shahid Beheshti Hospital, a university-affiliated psychiatric hospital, in Kerman, Iran. The study population was assigned to both clinical and non-clinical samples and consisted of 270 healthy individuals chosen from students and personnel of Kerman University of Medical Sciences by random sampling.

Medical students as well as personnel (including nurses, security guards, secretaries, etc.) working on men's ward II and women's ward I on Mondays and Thursdays, between 9 AM to 2 PM, were asked to fulfill the questionnaire. Besides, those who have their work schedule on Saturdays and Wednesdays in Men's ward I and III, and women's ward II between 9 AM to 2 PM were asked to fill the questionnaire if they were willing to. The procedure lasted 6 weeks to have adequate questions fulfilled. Also by convenience sampling, 50 first onset patients with schizophrenia who exhibited their first acute episode of the illness were entered into the study. Patients demonstrating negative symptoms or neurocognitive disorders, as well as those who had been chronically diagnosed with schizophrenia were excluded from the study. Other 50 patients allocated in the group of mood disorders were sampled among those diagnosed with either bipolar disorders or major depressive disorder with or without psychotic feature based on the criteria of the DSM-5, and the study was performed when patients got remitted. All participants were allowed to enter the study if they were literate enough to read and write and did not have a history of neurocognitive disorders or addiction to either cannabis or psychostimulants. The goal, objectives, and procedure of the research were clearly explained to eligible participants, and a written informed consent was obtained. The current study was in accordance with the ethics protocol and guidelines of the ethics committee of Kerman University of Medical Sciences and was inaugurated after receiving the ethical code from the institution.

DES-II

In the current study, we used the back-translated version of the DES-II developed by Kianpoor et al. (Kianpoor et al., 2016).

DES-II is a 28-item self-administered questionnaire that can be used as a screening tool for both normal and pathological dissociative experiences. All participants were asked to mark their description of dissociative experiences ranging from 0% to 100% assigned for never and at least once a week, respectively. Those participants who left the questionnaire incomplete were excluded from the study.

To investigate subcomponents of dissociation, items 3, 4, 5, 6, 8, 9, 10, 24, 25, and 26 were allocated for amnesic experiences, items 1, 2, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 23 for absorption/imagination involvement, and questions 7, 11, 12, 13, 19, 27, 28 for depersonalization/derealization, respectively. In our study, based on previous findings, a three-factor structure with focus on absorption (1, 2, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26), compartmentalization (3, 4, 5, 6, 8, 9), and detachment (7, 11, 12, 13, 27, 28) was used (Mazzotti et al., 2016; Pec, Bob, & Raboch, 2014).

Measures and statistical analyses

All data were analyzed by using SPSS version 16.0 for Windows. Demographic characteristics were not distributed normally, and thus, were analyzed non-parametrically. Reliability, internal reliability, and construct validity were assessed. The questionnaire's reliability as well as the reliability of each three subscales was examined by utilizing split-half coefficient and Cronbach's alpha coefficient. The questionnaire's validity was also determined by Spearman's rho. To determine the possible relation between each of demographic variables and each question with an overall score, Spearman's rank order correlation was performed. Moreover, Kruskal–Wallis test was used to compare the scores of each subcomponent and Mann–Whitney was applied to examine the effects of sex on the total score obtained. *P* value of less than 0.05 was considered statistically significant.

Results

Demographic analyses

A total of 370 questionnaires were collected which were divided into three specific groups. Table 1 presents the demographic characteristics of the sample. In this study, 213 (57.5%) of participants were female and 157 (42.5%) of them were male. Average mean of age was 30.39 ± 7.33 years for the control group, 32.02 ± 7.87 years for the group of patients diagnosed with mood disorders, and 32.24 ± 7.59 years of age for patients with schizophrenia. No significant differences were observed among different groups for age, gender, and marital status (p value of 0.07, 0.3, 0.085, respectively). However, the education level was significantly different among the study groups (p value = .001). In addition, none of the

Table 1. Demographic characteristics of participant subjects diagnosed with either mood disorder or schizophrenia and healthy individuals.

		Healthy subjects	Patients with mood disorders	Patients with Schizophrenia	Total
Gender	**Male**	(31.85%) 86	(70%) 35	(72%) 36	157
	Female	(68.15%) 184	(30%) 15	(28%) 14	213
Marital Status	**Single**	(41.11%) 111	(36%) 18	(44%) 22	151
	Married	(55.55%) 150	(52%) 26	(36%) 18	194
	Divorced	(2.22%) 6	(12%) 6	(18%) 9	21
	Widow/Widower	(1.12%) 3	(0%) 0	(2%) 1	4
Education Level	**Elementary school**	(0%) 0	(0%) 0	(6%) 3	3
	High school	(0.74%) 2	(38%) 19	(46%) 23	44
	Diploma	(18.52%) 50	(38%) 19	(26%) 13	82
	University awarded degrees	(80.74%) 218	(24%) 12	(22%) 11	241

demographic variables showed any correlation with the total score of the questionnaire (Table 2).

Reliability

Evaluation of reliability of the Persian version of the DES-II questionnaire in the Iranian population revealed a Cronbach's alpha coefficient of 0.94 (amnesia 0.882, absorption and imaginative 0.885, depersonalization/derealization 0.809) and showed a very high item-total correlation. Cronbach's alpha coefficient ranged from 0.938 to 0.941 when an individual question was removed. Furthermore, measured internal consistency by split-half was 0.892, both together indicating good reliability.

DES-II, schizophrenia, and mood disorders

In the healthy group, overall score of the DES-II questionnaire was 12.6 ± 1.3, whereas in patients diagnosed with a mood disorder was 18.2 ± 1.3, and for

Table 2. Correlation of demographic variables and total score of Persian version of the DES-II.

	DES-Total	
	Correlation coefficient	P-value
Age	0.07	0.179
Gender	0.04	0.511
Marital status	0.099	0.106
Education level	−0.031	0.617

patients with schizophrenia 20.43 ± 1.3, which was statistically significant (p value = .0001). Post hoc analyses revealed a p value of 0.0055 and 0.002 for comparison between healthy individuals and subjects with mood disorders, and healthy subjects with patients with schizophrenia, respectively, which demonstrated a significant increase in the total score of patients with mood disorders and schizophrenia. However, no significant differences were seen between mood disorders and schizophrenia groups with respect to the total average score. Moreover, there was no significant difference between two different genders.

Among healthy subjects, 10.37% of individuals scored above 30 on the DES-II, while 14% and 16% of patients with schizophrenia and mood disorders scored above 30, respectively.

Analyses of the DES-II subscales showed significant differences for amnesic experiences, absorption/imaginative involvement, and depersonalization/derealization (p value = .00001, 0.001, 0.00001, respectively). Post hoc analyses of subcomponents exhibited significant differences between both mood disorders and schizophrenia groups compared to healthy individuals (p value of 0.018 and 0.035, respectively) for amnesia, but failed to show statically significant differences between mood disorders and schizophrenia groups in comparison with healthy individuals for absorption/imagination (p value of 0.71 and 0.11, respectively). In contrast, derealization/depersonalization subcomponent differed significantly among both mood disorders and schizophrenia groups in comparison to healthy individuals (p value of 0.0001 for both groups), but patients suffering from mood disorders compared to patients with schizophrenia showed no statistically significant difference (p value = .1).

Investigations on questions with clinical importance, known as DES-T or Taxon, exhibited an average of 9.8 ± 12.3 DES-T score for the control group, 14.2 ± 13.7 for mood disorders group, and 20.9 ± 15.8 for schizophrenia group implying a significant increase in the DES-T score in both disorders compared to healthy controls (p value = .001). Post hoc analyses indicated significant differences among only schizophrenia group but not mood disorders group in comparison with healthy individuals (p value = .0001 and 0.70, respectively), and between patients with schizophrenia and patients with mood disorders (p value = .03) as well.

Validity

Content-related validity and face validity of the questionnaire were performed by Kianpoor et al. before the implementation of the study (Kianpoor et al., 2016). In our study, construct validity of the questionnaire was measured. Obtained total scores of the DES-II as well as each question's score were positively correlated and presented construct validity that has been depicted in Table 3.

Table 3. Validity of Persian version of the DES-II questionnaire.

Question	Spearman's correlation coefficient	P-value	Question	Spearman's correlation coefficient	P-value
1	0.532	<0.001	**15**	0.615	<0.001
2	0.642	<0.001	**16**	0.628	<0.001
3	0.643	<0.001	**17**	0.671	<0.001
4	0.520	<0.001	**18**	0.676	<0.001
5	0.495	<0.001	**19**	0.572	<0.001
6	0.541	<0.001	**20**	0.610	<0.001
7	0.562	<0.001	**21**	0.565	<0.001
8	0.594	<0.001	**22**	0.542	<0.001
9	0.578	<0.001	**23**	0.538	<0.001
10	0.604	<0.001	**24**	0.654	<0.001
11	0.427	<0.001	**25**	0.657	<0.001
12	0.537	<0.001	**26**	0.515	<0.001
13	0.482	<0.001	**27**	0.632	<0.001
14	0.658	<0.001	**28**	0.556	<0.001

Discussion

The results of the current study demonstrate that the DES-II is an appropriate, reliable, and valid tool to not only screen dissociative experiences but also discriminate subcomponents of dissociative disorders including amnesia, absorption/imagination, and derealization/depersonalization from other psychiatric disorders in the Iranian population.

There are a great body of evidence that have shown the overlap between symptoms of dissociation and schizophrenia (Laddis & Dell, 2012; Renard et al., 2017). On one hand, studies are indicative that some dissociative symptoms are present in schizophrenia spectrum disorders, and on the other hand, negative/positive symptoms typically reported in patients with schizophrenia, though demonstrating quantitative differences, might be seen in patients with dissociative disorders (Renard et al., 2017).

Although symptoms of dissociation are less reported in schizophrenia, and affective disorders when compared to dissociative disorders, personality disorder, and PTSD, the resemblances of psychotic symptoms with dissociative experiences have allocated a considerable amount of attention and several studies have intensively been done to distinguish the overlapping positive symptoms of schizophrenia with dissociation phenomena and vice versa when symptoms are described by patients (Lyssenko et al., 2018).

Our obtained results delineate that the overall average score of patients diagnosed with schizophrenia is higher than patients suffering from mood disorders and healthy subjects, which has been reproduced in almost every performed analyses of the study. Moreover, in our study, demographic variables such as age and gender did not differ significantly in three study groups, while the education level of healthy subjects was significantly higher than the patients group due to the selection of healthy individuals from students and personnel of an academia.

There is a previous report for the use of valid and reliable DES and peritraumatic distress inventory Persian version to identify individuals at high risk of PTSD (Kianpoor et al., 2016), and ours is the second one to develop a valid and reliable Persian version of the DES-II on healthy subjects and patients with mood disorders and schizophrenia.

Obtained Cronbach's alpha of the current study displays a good reliability of this Persian version, the same as its Swedish, English, Portuguese, French, and Italian counterparts (Espírito Santo & Abreu, 2009; Holtgraves & Stockdale, 1997; Körlin et al., 2007; Larøi, Billieux, Defeldre, Ceschi, & Van der Linden, 2013; Schimmenti, 2016).

In our study, in addition to healthy individuals and patients diagnosed with schizophrenia, patients suffering from mood disorders were also involved.

Our results are in line with the findings of a recent published meta-analysis on the association of dissociation and psychiatric illnesses, reporting a mean score of 17.8 for schizophrenia and 14.8 to 15.3 for mood disorders as the least scored psychiatric disorder by the DES (Lyssenko et al., 2018). Here, higher obtained scores of the DES-T in patients with schizophrenia compared to other groups may add evidence for the overlap between some symptoms of schizophrenia and dissociation, which is less prominently seen in mood disorders. However, the clinical utility of such results should be rigorously sought.

It is of paramount importance to mention that our results are indicative that although the average total score of patients with mood disorders does not significantly differ from schizophrenia group, DES-T related average score in patients suffering from schizophrenia is significantly higher in patients with mood disorders. Although other similar studies have not emphasized on Taxon questions, all versions have declared the discriminative ability of separating dissociative experiences from other psychopathological disturbances.

Consistent with a number of empirical studies exhibiting stronger association of depersonalization/derealization subcomponent of dissociative phenomena in patients with schizophrenia (Lyssenko et al., 2018; O'Driscoll et al., 2014), we showed that amnesia and depersonalization/derealization aspect of dissociation were more affected in patients with schizophrenia and mood disorders.

Similar to our study, Oh et al. (Oh et al., 2015) have shown a good internal consistency with a Cronbach's alpha of 0.95 in the Korean version of the DES in patients with schizophrenia. They also demonstrated a correlation between the DES total score and depression, PTSD, and childhood trauma (Oh et al., 2015). In addition, a Swedish version of the DES performed on 600 subjects selected by a random sampling, displayed a high internal consistency (Cronbach's alpha = 0.87) and indicated that higher scores of the DES were associated with severe symptoms and interpersonal problems (Körlin et al., 2007).

Another study conducted by Santo et al. (Espírito Santo & Abreu, 2009) reported 65% sensitivity and specificity of 86% and 100% to characterize

dissociative symptomatic disorders from other psychological disorders and healthy groups, respectively, for a Portuguese version of the DES with good internal consistency (Cronbach's alpha = 0.87) (Espírito Santo & Abreu, 2009). In parallel, the same as our findings, a Finish version of the DES-II demonstrated a positive correlation between the questionnaire's total score and each individual question.

It is of note to mention that there was a reported weak correlation of the average score of the DES-II questionnaire with anxiety and a modest to stronger one with depression (Condon & Lynn, 2014). Some other studies also aimed at measuring psychometric properties of the translated DES versions and their findings were in line with ours, altogether, supporting the translated DES versions as reliable and valid instruments for discriminating dissociative experiences (De Pasquale et al., 2016; Larøi et al., 2013; Schimmenti, 2016; Spitzer et al., 1998; Zoroglu et al., 2002).

Finally, it is worth mentioning that Djinnati and Zar spirit possession are two addressed culture-bound syndromes, which may share some common symptoms with dissociation and have been reported in Baluchestan and south-east of Iran (Bakhshani, Hosseinbore, & Kianpoor, 2013; Mianji & Semnani, 2015). Djinnati syndrome is known as episodic experiences of hallucination, impaired memory and conscientious, mutism or incoherent speech, restlessness, crying or laughing, as well as the presence of an entity called "Djinn". The episodes usually last between 30 min to 2 h and are mostly observed in females with a prevalence of 0.5% of the population (Bakhshani et al., 2013). Zar spirit possession is also followed by altered conscientious, amnesia, mutism, laughing or crying or singing (Mianji & Semnani, 2015). Most of the affected individuals have reported experiencing their onset of symptoms after a past traumatic event that can possibly point toward social crises, childhood abuse, and low socioeconomic statuses (Bakhshani et al., 2013; Ghasemi, Kianpoor, Shahabizadeh, & Yousefi Tabas, 2014). As individuals with Djinnati obtained a total DES score of 39.38, while non-Djinnati group got a total score of 20.96, it could be highly linked with dissociative experiences (Ghasemi et al., 2014).

Since a great number of admitted inpatients of Shahid Beheshti Hospital of Kerman are Baluches, and patients are often not diagnosed with a culture-bound syndrome as their primary diagnosis due to the lack of specific DSM-5 criteria (their symptoms mostly lie within the major psychiatric disorder they are presenting based on the DSM-5, and therefore, are often covered by a particular diagnostic category), it is worth analyzing to see whether the DES scores have been affected by culture-bound syndrome or not, which our study lacks.

Conclusion

Relying on good psychometric measures, reliability, and validity of this Persian version of the DES-II questionnaire, it can be used for both screening and

discrimination of dissociative experiences within or from other psychiatric disorders in the Iranian population, both in clinics and research. Besides, our findings demonstrate that by use of the DES-T, a more pronounced difference between mood disorders and schizophrenia can be observed. Choosing control samples that better resemble the population, and investigating reliability and validity of the Persian version of the DES-II in both outpatient and inpatient individuals which our study lacks, as well as re-testing its psychometric properties in both acute and chronic courses of the diseases may help extend the study for future research. The core population of our study was patients with schizophrenia and mood disorders, and some of them were Baluches, and might have received a comorbid diagnosis with culture-bound syndromes that in the current study has not been investigated. Thus, it is highly advised to investigate the experiences of dissociation in a cultural context as well, to better draw solid conclusions. Finally, mood disorders can be separately scrutinized based on individual items of the DES and DES-T and compared with schizophrenia.

Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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