
PSYCHOMETRICS PROPERTIES OF THE DAILY SPIRITUAL EXPERIENCES SCALE IN A ROMANIAN CLINICAL SAMPLE. A PILOT STUDY

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Abstract

Background: In the last decades, there has been a growing interest in studying the effects of spirituality/religiosity on health. Many studies concluded that spirituality/religiosity has a beneficial effect on mental and physical health. To study these effects, validated instruments for measuring spirituality are needed. A good example of a largely used instrument is the Daily Spiritual Experiences Scale (DSES). The current study sought to examine the psychometric properties of Romanian version of DSES.

Method: Exploratory Factor Analysis and Principal Components Analysis were used to confirm the construct validity of the scale. The internal consistency of the scale was determined using Cronbach's alpha.

Results: 70 patients with a diagnosis of depression and 160 healthy volunteers were included in this cross-sectional study. Cronbach's alpha indicated excellent internal consistency of the scale. Principal Component Analysis indicated a two-component solution in both samples.

Conclusions: Our study confirmed the validity and reliability of the Romanian version of DSES and it encourages its use in future studies of spirituality or studies regarding the influence of spirituality on depression.

Keywords: depression; spirituality; Daily Spiritual Experiences Scale; religiosity; psychometric properties.

The association between religiosity/spirituality and mental health has been studied for a long time. Starting with Durkheim (1951), researchers have found religious practices and beliefs to be protective factors, particularly against mental disorders. Although over the past decades many studies offered evidence that linked

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the benefits of religious practices or spirituality to mental health, additional work is needed. Many studies only focused on a small number of mental disorders (depression, anxiety, suicide risk, bipolar disorder).

Religiosity and spirituality are independent concepts, but are often studied together. Spirituality can manifest itself in the context of a religious system and religiosity involves spiritual experiences (Koenig et al., 2012). Religiosity is defined as the extent to which the individual is engaged in a system of beliefs, practices, or rituals shared by a community and designed to facilitate the approach of the sacred or transcendent. Sullivan (1993) defines spirituality as a unique and individual trait that connects the person with the universe and those around him and does not necessarily include belief in a higher power.

Spirituality/religiosity has been associated with an increased quality of life and has a beneficial impact on both mental and physical health (Lucchetti et al. 2013; Weber & Pargament, 2014). It can improve cognitive function, reduce stress level, anxiety and depression symptoms, lowers alcohol and other substances consumption, thus it buffers off the negative effects of many health conditions (Pargament 2013). Handbook of Religion and Health (Koenig et al., 2001), which comprises a review of more than a thousand studies, showed that most of them found a beneficial influence of religiosity/spirituality on cardiovascular system, immunological function, stress level, anxiety and depression symptoms and is associated with higher levels of well-being, quality of life, greater social support and lower use of healthcare services.

In order to assess spirituality, reliable quantitative instruments are needed. One of the most used instruments in researching spirituality/religiosity is the Daily Spiritual Experiences Scale (DSES) developed by Lynn Underwood and Jeanne Teresi (Underwood & Teresi, 2002). The scale was intended to assess daily frequency of spiritual experiences and the interaction with the transcendent. Items measure spiritual experiences, not religious beliefs or behaviour. DSES is validated in many languages and can also be used in people with different religions or atheists.

Few studies about spirituality and mental health were conducted in Romania and used different scales to assess spirituality. We found only one study that used DSES to evaluate spirituality in trauma therapists (Neymer et al., 2016). This kind of studies in Romania are of great importance, considering the population's high level of religiosity and spirituality.

Wishing to contribute to the expansion of the knowledge in spiritual research, this study aims to evaluate the psychometric properties of the DSES, an internationally recognized instrument to measure the spiritual experiences, in a small clinical sample of depressed patients from a county hospital in Romania and to compare those results to a control group.

Method

Design and participants

The present study is a case-control, cross-sectional study. Data were collected between March 2019 and June 2022.

The cases sample recruited patients with a diagnosis of depression admitted to a county Psychiatry Ward from Transylvania, with ages between 18-70, who were willing to cooperate and sign an informed consent.

For the control group we recruited volunteers using an online survey distributed on social media, due to the COVID-19 pandemic.

Sample size is important for factor analysis and adequate sample size is approximated based on a ratio of participants to variables of at least 10:1 (Yong & Pearce, 2013). Because a larger sample size can decrease the error in data (Yong & Pearce, 2013), at least 160 respondents are required to perform a factor analysis of the DSES (consisting of 16 items).

Inclusion criteria:

Patients with a diagnosis of depression (depressive episode, recurrent depressive disorder, bipolar disorder, current depressive episode) according to ICD-10 criteria, aged between 18 to 70, were included in the case group.

The control group included healthy volunteers, aged 18 to 70 years.

Exclusion criteria:

Patients with an age over 70 years, diagnosed with other psychiatric disorders (mental retardation, cognitive impairment, schizophrenia, delirium, delusional disorder, substance use disorder) or neurological disorders (neurodegenerative diseases, brain injury, stroke) or chronic terminal diseases were excluded from the case group.

Volunteers with a history of mental illness recruited in the control group were excluded from this study.

Ethical Considerations

The study was approved by the Iuliu Hatieganu University of Medicine and Pharmacy ethics committee. The objectives of the study were explained to participants before entering the study, and confidentiality was guaranteed. Subjects were assured that there were no risks associated with participation in this study and that they can withdraw from the study at any time. All participants gave their informed consent in order to participate in the study.

Measures

Socio-demographics

Data on age, gender, residence, religion affiliation, education level and marital status were collected using a demographic questionnaire.

Daily Spiritual Experiences Scale (DSES)

We obtained the license to use and Romanian version of the Daily Spiritual Experiences Scale from the author, Lynn Underwood (Underwood & Teresi, 2002). The conceptualization of the scale reflects an overlapping of spirituality and religiousness and contains theistic and non-theistic items. First 15 items of this scale are rated on a six-point Likert type scale, ranging from 1 (“Many times a day”) to 6 (“Never or almost never”) and one item has responses ranging from 1 (“As close as possible”) to 4 (“Not at all”). We used reverse coding of the items, which means higher scores indicate a higher frequency of spiritual experiences. We chose to use only the first 15 items in order to maintain item consistency within inferential statistical analyses and to allow the most logical interpretation of scores, given the different scoring of item 16. In other studies the raw score of item 16 was adjusted but its 4-point Likert scoring was maintained for descriptive statistical reporting (Lace & Handal, 2017).

Statistical analysis

The collected data were analyzed using Statistical Package for the Social Sciences (SPSS) software, version 26, for Windows. Significance level of p was set at less than 0.05. Descriptive analysis was used to summarize categorical (number and frequency counts) and continuous variables (mean and standard deviation).

Kolmogorov–Smirnov test was performed to test data distribution.

Exploratory Factor Analysis (EFA) followed by principal components analysis (PCA) with varimax rotation were used to confirm the construct validity of the scale.

Cronbach's alpha is often used to evaluate the internal consistency of a scale and values of 0.70 or higher are considered acceptable. The internal consistency of DSES was determined using Cronbach's alpha (Lance et al., 2006).

To identify the relationship between individual items of the DSES and the total score, the Pearson correlation coefficient was used to determine the item-to-total score correlations (ITC). An ITC greater than 0.30 is considered acceptable.

Results

In total, 70 patients who met the inclusion criteria were included in the case group. The mean \pm SD age was 51.57 ± 13.88 (range 19-70) years. Half of the participants were men ($n=35$) and 51.4% came from urban area. The majority were orthodox (78.6%) and married (70%). Only 11.4% were Protestants and 10% were Catholics. Table 1 summarizes demographic characteristics of the sample.

Table 1. Socio-demographic characteristics

Characteristics	Case n (%)	Control n (%)
Gender		
Male	35 (50)	71 (44.4)
Female	35 (50)	89 (55.6)
Residence		
Urban	36 (51.4)	127 (79.4)
Rural	34 (48.6)	33 (20.6)
Marital status		
Married	49 (70)	91 (57)
Divorced	7 (10)	25 (15)
Widow	5 (7.1)	6 (4)
Single	9 (12.9)	38 (24)
Education		
Primary	17 (24.3)	6 (3.8)
Secondary	34 (48.6)	27 (16.9)
University	19 (27.1)	127 (79.3)
Religion		
Orthodox	55 (78.6)	120 (75.9)
Catholic	7 (10)	9 (5.7)
Protestant	8 (11.4)	12 (7.6)
Agnosticism	0 (0)	6 (3.8)
Atheism	0 (0)	11 (7.0)

A total of 160 subjects, aged between 22 and 70 years, were included in the control group. The mean \pm SD age of the sample was 48.29 ± 12.806 years. 55.6% of the respondents ($N=89$) were women and 44.4% ($N=71$) were men. The majority were Orthodox (75.9%) and came from urban area (79.4%). A summary of demographic characteristics of the control group can also be found in Table 1.

Cronbach's Alpha was 0.917 in the case group and 0.964 in the control group (Table 2).

Table 2. Reliability Statistics

	Cronbach's Alpha	Number of Items
Cases group	0.917	15
Control group	0.964	15

The PCA in the case group , with the criteria of eigenvalue greater than 1, resulted in a two factor solution explaining 63.076 % of the total variance. The eigenvalue of the first factor was 7.375 and of the second factor 2.087. The variances explained by the factors were, respectively, 49.164 % and 13.912 %. The factorial loadings of the items in the respective factors were all greater than 0.40. Of the 15 items, 8 had higher loadings in the first factor, with values ranging between 0.70 and 0.877. The second factor was composed of seven items with loadings from 0.576 to 0.80.

Table 3. Descriptive analysis and reliability of the Daily Spiritual Experience Scale items in the case group

Items of DSES	N	Mean	Standard deviation	Corrected item-total correlation	Cronbach's alpha if item deleted
1. God's presence	70	4.29	1.342	0.666	0.91
2. Connection to all life	70	3.87	1.382	0.496	0.916
3. Joy when connecting	70	4.14	1.407	0.737	0.908
4. Strength in R/S	70	4.46	1.369	0.784	0.906
5. Comfort in R/S	70	4.44	1.358	0.77	0.907
6. Deep inner peace	70	3.16	1.421	0.646	0.911
7. God for help	70	4.77	1.241	0.67	0.91
8. Guided by God	70	4.31	1.357	0.809	0.906
9. Love through others	70	4	1.383	0.783	0.906
10. Love directly	70	3.5	1.482	0.636	0.911
11. Touched by beauty	70	3.66	1.443	0.475	0.917
12. Thankful for blessings	70	4.54	1.151	0.667	0.911
13. Selfless caring	70	3.71	1.353	0.255	0.923
14. Accept others	70	3.7	1.255	0.369	0.919
15. Desires to be in union	70	4.77	1.157	0.628	0.912

The PCA in the control group , with the criteria of eigenvalue greater than 1, also resulted in a two factor solution explaining 74.611 % of the total variance. The variance explained by the first factor was 67.224 % and of the second factor was 7.263 %. The eigenvalue of the first factor was 10.084 . The second factor had an eigenvalue of 1.090 . The factorial loadings of the items in the respective factors were all greater than 0.40. The first 12 items and item 15 loaded on the first factor, with values ranging between 0.653 and 0.919. Items 13 and 14 loaded on the second factor.

Descriptive analysis of the DSES items in the case group is presented in Table 3. The item with a lower mean compared to other items was item 6 (“I feel deep inner peace or harmony”). All items, except for item 13 (0.255), had ITC’s of

0.30 or greater, ranged from 0.3 to 0.809, demonstrating satisfactory correlation with the total score of the scale.

In the control group, all items had ITC's of 0.30 or greater (ranged from 0.400 to 0.912), which demonstrates again a satisfactory correlation with the total score of the scale.

Table 4. Descriptive analysis and reliability of the DSES items in the control group

Items of DSES	N	Mean	SD	Corrected item-total correlation	Cronbach's alpha if item deleted
1. God's presence	160	4.1	1.781	0.87	0.96
2. Connection to all life	160	4.04	1.178	0.656	0.964
3. Joy when connecting	160	3.34	1.554	0.854	0.961
4. Strength in R/S	160	3.92	1.784	0.907	0.959
5. Comfort in R/S	160	3.95	1.769	0.898	0.96
6. Deep inner peace	160	4.29	1.394	0.705	0.963
7. God for help	160	3.98	1.843	0.862	0.96
8. Guided by God	160	3.88	1.808	0.912	0.959
9. Love through others	160	3.96	1.78	0.888	0.96
10. Love directly	160	3.67	1.835	0.821	0.961
11. Touched by beauty	160	4.24	1.655	0.746	0.963
12. Thankful for blessings	160	4.6	1.595	0.779	0.962
13. Selfless caring	160	4.33	1.326	0.552	0.966
14. Accept others	160	4.45	1.292	0.4	0.968
15. Desires to be in union	160	4.07	1.802	0.875	0.96

Discussions

The purpose of this study was to confirm as to whether DSES is a reliable and comprehensive scale for measuring daily spiritual experiences in both general population and depressed patients. To our knowledge, this is the first known study to evaluate the psychometric properties of DSES in Romanian population.

Range of mean score of the Romanian DSES items was similar with the original English version of DSES (Underwood & Teresi, 2002), and other studies (Rakošec et al., 2015; Kalkstein et al., 2009).

In their study, Underwood and Teresi (Underwood & Teresi, 2002) reported adequate distributions. In our study, Kolmogorov–Smirnov test showed normal distribution of the items.

The reliability of the DSES in both groups was confirmed by the high Cronbach's alpha value (0.917, respectively 0.964). The result of our study is comparable to those reported in other studies, in which the alpha coefficient was above 0.90 (Kalkstein & Tower, 2009; Ellison & Fan, 2008; Ng et al., 2009; Mayoral et al., 2010; McCauley et al., 2008; Saffari et al., 2017; Soósová & Mauer, 2021). Cronbach's alpha did not increase if particular items were removed from the scale, except for items 13 ("I feel a selfless caring for others.") and 14 ("I accept others

even when they do things I think are wrong”). This aspect was observed in both groups. The increase is not significant, which indicates good internal consistency of the DSES.

The DSES was designed as a unidimensional instrument but, in this study, exploratory factor analysis with varimax rotation generated a two-factor solution with eigenvalues greater than 1 in both groups. This result is different from those found in the majority of other studies. A two factor structure is reported in the original study of Underwood (Underwood & Teresi, 2002), in the Chinese validation study (Ng et al., 2009) and in a North American study (Kalkstein & Tower, 2009). These studies reported one dominant factor composed of 14 items and a second factor composed of two items (item 13, selfless caring for others and item 14, acceptance of others). A two-factor solution indicates the scale has two dimensions, called the “God” or “theistic” and the “non-theistic” or “self-transcendence” domains (Ellison & Fan, 2008; Kalkstein & Tower, 2009). However, the developer of the scale has reported that a single-factor solution is more common and that dividing the scale into two dimensions is not necessary or recommended (Underwood & Teresi, 2002). The two-factor solution found in this study can be explained by the cultural and religion affiliation differences between our sample and the samples from other studies.

In the initial validation study of DSES, although items 13 and 14 appeared to load onto a second factor, the authors chose to maintain them aggregated to the first factor, thus considering the scale as an unidimensional instrument. As in previous studies, items 13 and 14 also loaded in the second factor, an aspect found in both the control and case group. Items 13 (“I feel a selfless caring for others.”) and 14 (“I accept others even when they do things that I think are wrong.”) refer to the construct of “compassionate love”, which includes the concepts of mercy and compassion (Underwood, 2006). A possible explanation as to why items 13 and 14 loaded separately onto another factor is that their underlying construct refers to interpersonal relationships, which are very important spiritual values in Orthodox Christianity (Georgadze et al., 2017). These items can be used separately in future studies to evaluate spiritually grounded motivations and selfless attitudes.

The findings of our study indicate that the DSES is a valid and reliable measure in both general population and clinically depressed patients and it can be used in future research regarding the influence of spirituality on depression.

This study has its limitations. The convenience sampling used for the control group is associated with a predominance of subjects with higher education, in comparison with the case group. The use of convenience recruitment may lead to limited generalizability of the results to the general population of Romanian Christians. Religious practices and spiritual experiences specific to Orthodox people can be accurately evaluated by the Romanian version of the scale, this phenomenon being reflected in this study.

Conclusions

The results of this study confirm the validity and reliability of the Romanian DSES and promote the use of the DSES in future studies.

Although the exact mechanisms are still not entirely clear, spiritual values and experiences are increasingly recognized as important factors which promotes mental health. The Romanian DSES provides opportunity for enriching the knowledge about the spirituality in Romanian population in different aspects of life, and supports its use in future spirituality research. The specificity of Romanian spirituality is also preserved by the Romanian translation of the scale.

Future studies should determine whether our preliminary results can be replicated in other samples of Romanian patients or in general population. It would be recommended to test psychometric properties of the DSES in larger samples with diverse religious affiliation.

Conflict of interest

The authors have no conflict of interest to disclose.

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