

Turkish Validity and Reliability Study of the Intrinsic Spirituality Scale

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ABSTRACT

Objective: This study was conducted to adapt “The Intrinsic Spirituality Scale (ISS)” into Turkish and to find out its validity and reliability.

Material and Methods: This methodological study was carried out with 289 individuals aged 18 and older who were reached online (e-mail, whatsapp, facebook, and instagram) between September 10 and 30, 2020. The questionnaire form prepared via docs.google.com/forms was sent online to individuals (e-mail and whatsapp). The items of the scale are scored between 0 and 10 and the scale has 6 items. Following the translation process of the scale, content and construct validity were assessed. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed for construct validity, while item analyses and internal consistency analysis were performed for reliability.

Results: As a result of the evaluations and analyses conducted, content validity index of the scale was found as 0.99. Total Cronbach's alpha coefficient of the scale was found as 0.90. Item loads were found to be between 0.71 and 0.90 and item-total correlation coefficients were found to be between 0.61 and 0.79. The results of EFA and CFA confirmed the single factor structure of the scale. Good fit indices were found as a result of CFA.

Conclusion: Turkish version of the “ISS” is a valid and reliable measurement tool to evaluate the degree of motivation of the individual by his/her spirituality, which is also defined as his/her relationship with God.

Keywords: Intrinsic Spirituality Scale, nursing, reliability, validity

Introduction

Spirituality is generally defined as the personal encounter of a human being to look for a reason for his own existence, a connection of his intrinsic world with a search in aspects that he considers important for that existence, such as the end of life, death, the meaning of life, or with something sacred or superior, like the concept of God. Spirituality involves the transcendent term in theological sense, in the sense of something that surpasses him.¹ In today's society, consistent with their own beliefs, individuals pursue a journey of spiritual development which has a vital significance in dealing with their growth and life problems.^{2,3} The role of spirituality, which has a critical importance in personality development and gives the individual hopes about the future, is becoming increasingly important in all areas of life.⁴ Spirituality is the individual's effort to realize and accept his/her relationship with the self and other people, his/her place in the universe, and the meaning of life.^{5,6} According to Ozdogan,⁷ spirituality is the source of joy of our life, the light that enables us to know ourselves, the food of our freedom, and the essence that exists in every individual. Based on these definitions, spirituality emerges as a result of the values of human existence, lifelong experiences, and the knowledge acquired.^{2,8,9} Each individual has questions about life and death and answers to these questions. In a sense, people shape their own spirituality with the answers they find about the meaning of life. For this reason, spirituality includes all the elements that make sense to the individual.^{10,11}

Spirituality is the bond of the human with the Creator and therefore it is of divine origin. This is because the individual's essence carries the qualities of the divine and when an individual communicates with the self, that is, with his/her essence, he/she communicates with the divine. Living

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in this way contributes to the inner strength of an individual and to his/her ability to make sense of and cope with all experiences with this strength.^{2,12} It is reported in literature that spirituality has positive effects on diseases and health as it reduces anxiety and provides the individual to show himself/herself at the utmost level and to be hopeful, strong, and peaceful by supporting the individual's positive lifestyle and that it is useful in preventing and treating diseases, reducing pain, developing the quality of life, and coping with problems.^{13,14}

Spirituality, which has significant effects on health and disease, is a concept that has just begun to be discussed in the field of nursing.^{9,15} Individuals are a whole with their physical, mental, emotional, socio-cultural, and psychospiritual aspects.¹⁶ For this reason, it is important for nurses to care for individuals with an integrative approach, to evaluate their spiritual aspects as much as their other aspects, and to provide integrative care accordingly.^{16,17} In no period of nursing history has nursing been defined as an occupation that provides only physical care. Florence Nightingale, who created nursing as an occupation, explains this situation as “for health, spiritual needs are elements as important as physical organs which constitute the body, physical situation that we all observe can affect our mind and soul.”¹⁸ However, the concept of spirituality is a very broad and subjective concept. For this reason, it is very difficult to standardize and measure spirituality, which is an important element in nurses' providing integrative care to individuals.^{2,14} It has been put forward that spirituality is not evaluated completely and not included in practice in general while providing integrative care to individuals.^{14,19} There are some scales about spirituality in literature: “Spiritual Well-being Scale” developed by Akturk et al²⁰; “Tendency Scale of Spiritual-Humanistic Values” developed by Gunes²¹; “Spiritual Orientation Scale” developed by Kasapoglu²; “The Spirituality and Spiritual Care Rating Scale” developed by Ergul and Temel.²² However, these scales did not focus on the significance of a spirituality concept, which was away from theistic approach and was discussed with all its aspects, unlike the Intrinsic Spirituality Scale (ISS). In addition, the scale is a suitable measurement instrument to evaluate spirituality among various populations with this aspect it focuses on. It is thought that this scale, unlike other scales in literature, will be a guide in individual and holistic nursing care by determining the extent to which spirituality is used as a coping mechanism and source of motivation for healthy and sick individuals. On the other hand, the scale can help in directing individuals to traditional and complementary medicine practices suitable for them by finding out spirituality orientations of sick and healthy individuals. For this reason, spirituality, which corresponds to the personal development of individuals, their decisions, and their relationship with God in all aspects of their lives,⁵ should be evaluated with a specific measurement tool such as “ISS.”

The “ISS” was developed and validated by Hodge²³ in 2003 to evaluate intrinsic spirituality in individuals. Later, the scale was validated again in 2015 by Hodge et al⁵ on Muslims. The scale was also validated on another population, the caregivers of Alzheimer's patients.²⁴ This scale is a 6-item, highly reliable scale which was developed to evaluate the degree to which spirituality functions as an intrinsic motivational impulse.⁵ While there are various valid and reliable scales in Turkey developed to evaluate the spiritual aspects of individuals, there is no scale to determine the degree to which spirituality functions as an intrinsic motivational impulse.

Today, spiritual dimension, which is much beyond existence, above the physical and psychosocial dimension, is accepted by nurses. Therefore, it is important for nurses to understand how important spirituality is in the lives of individuals they provide care for, to guide and support

the individuals with suitable interventions. Besides, intrinsic spirituality levels of nurses should also be determined and they should be supported accordingly. This is because it will not be possible for a nurse who does not have the required competence in this regard to provide individual and holistic care covering physical, mental, emotional, socio-cultural, and spiritual dimensions to sick and healthy individuals. With the translation of the scale into Turkish, nurses will be provided information about the relationships of sick and healthy individuals with the transcendent underlying their development, decisions, and all aspects of their lives. Nurses who are informed in this regard will help sick and healthy individuals to recognize their inner strength toward spirituality or to further develop their existing power, and will contribute to individuals' adopting a positive lifestyle, improving their quality of life, and coping with this power by making sense of all their experiences.

1. Is the “ISS” a valid scale for Turkish society?
2. Is the “ISS” a reliable scale for Turkish society?

Methods

Study design

The study has a methodological design.

Population and sample of the study

The study was conducted between September 10 and 30, 2020 by using “snowball sampling method,” which is one of the non-random sampling methods. In the snowball sampling method, the process of creating sample starts by reaching one of the individuals on whom the study will be conducted. The researcher tries to reach out to new people by asking the individuals who else they can reach. As a result of the study carried out by the researcher in a chained way, data collection process is completed as soon as data saturation is achieved.²⁵ Data collection forms prepared with GoogleDocs program were sent online (e-mail, whatsapp, facebook, and instagram) to individuals older than 18 who were living in Turkey, and they were asked to fill in the forms and share with people around. Three hundred seventy-eight individuals were reached with this online survey form; 23.55% (89) of these individuals did not agree to participate in the study; 289 (76.45% participation) volunteering individuals who filled in the survey forms were included in the study. It is stated that while determining sample size in scale adaptation studies, the sample size should be at least 5-10 times more than the number of items. There are 6 items on the scale. For this reason, the sample size was foreseen as at least 30 or 60. Therefore, the study was completed with 289 individuals. For test-retest, the survey was sent online to the sample on which EFA was conducted 2 weeks later. A total of 50 individuals who gave a distinctive nickname to the online form in the pre-test and post-test returned this form.

Data collection tools

The data were collected online by the researchers by using “personal information form” and the “ISS.”

Personal information form

The form was prepared by the researchers which include 6 questions to find out the socio-demographic features (age, gender, level of education, occupation, and economic status) of the participants.

The intrinsic spirituality scale

The scale was developed in 2003 by Hodge.²³ The scale was validated in 2015 by Hodge et al⁵ to measure intrinsic spirituality in Muslims. The scale measures individuals' degree of being motivated by their spirituality defined as their relationship with God. In other words, the ISS evaluates whether all aspects of individuals' lives are guided or motivated by God. The scale had 6 items and each item was formed by using sentence completion methodology.²⁶ In this approach, the individuals are given

a phrase (e.g., In terms of the questions I have about life, my spirituality answers...) and also a response key which they use to complete the phrase. The response key ranges from 0 to 10, where 0 shows the absence of the entity being assessed and 10 shows theorized maximum (e.g., 0: no questions, 10: absolutely all my questions). The scale total score is determined by adding up the scores taken from the items and dividing these by the number of items. The minimum possible score from the scale is 0, while the maximum possible score is 10. High score from the scale shows high intrinsic spirituality. The scale has a single factor. There are no reversely coded items in the scale. Cronbach's alpha (α) coefficient of the scale was found as 0.96 in 2003²³ and as 0.93⁵ in 2015.

Data assessment

In the analysis of the study findings, statistical software program Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) 17.0 and LISREL 8.8 package program were used. In the analysis of the data, the information in the personal information form of the individuals included in the study was evaluated with numbers and percentage. For validity study, expert opinions were taken and Barlett tests, Kaiser–Meyer–Olkin Index (KMO), exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and principal component analysis were performed to find out content and construct validity. In reliability study, internal consistency and homogeneity were found by using Cronbach's α coefficient, Pearson correlation analysis, and item-total correlation.

Ethical considerations

Written permission was taken from the developer of the scale about the Turkish adaptation of ISS used in the study. The study was conducted in line with Helsinki Declaration of Human Rights. Approval was obtained from the Ethics Committee of Istanbul Sabahattin Zaim University (dated 04.09.2020,2020/08 numbered).

Psychometric Assessment of the Scale

Validity

Language validity: Differences in concepts and expressions in different languages cause changes during the translation process of a scale into a different language. While adapting a scale into a different language, the items should be examined carefully, necessary changes should be made to enable users of the target language to make sense of the translated items, and standardization should be provided in order to minimize the differences.²⁷ While translating the ISS into Turkish, the aforementioned issues were considered. The original version of the scale was translated from English to Turkish by 2 instructors working at the Ondokuz Mayıs University School of Foreign Languages. The scale, which was translated into Turkish, was revised by the researchers and converted into a single form. Following this, the items were translated back into English by an expert who knew both languages well and who was familiar with both cultures.²⁷ Original form and Turkish form were compared to see any existing changes in the meaning. The translations which expressed each item best were selected to be examined by 7 experts.

Content validity: In order to find out whether language and culture were equivalent and for showing content validity of the items, Content Validity Index (CVI) was used.²⁷ For each item, the experts chose among the options "4=completely suitable," "3=very suitable," "2=suitable but the items need small changes," and "1=not suitable" and scored each of the items between 1 and 4. Davis technique was used for the calculation of CVI, which was 0.98. Content validity's being >0.80 shows that the items are adequate. Thus, the scale was found to have statistically significant content validity²⁷ and no items were deleted.

Construct validity: Factor analysis is a commonly used method for testing construct validity. It evaluates whether it is possible to group

scale items under different dimensions. Exploratory factor analysis and CFA are 2 types of factor analysis. Exploratory factor analysis shows the number of sub-dimensions the items in the measurement tool can be grouped in, and CFA tests whether this construct is confirmed.^{28,29} Prior to construct validity analysis, KMO and Bartlett's test are used to measure sample adequacy.²⁸ KMO level <0.50 is stated to be unacceptable, while a value between 0.80 and 0.90 is stated to be good, and >0.90 is stated to be very good.³⁰

The scale's factor analysis was tested via principal component analysis and Varimax rotation, both of which are commonly used for factor analysis statistical techniques.

It is accepted that items should have >0.30 factor loads and items with <0.30 factor load should be deleted.²⁸ Exploratory factor analysis was followed with CFA to support the findings of the sub-dimensions. χ^2 /SD ratio of ≤ 5 , root mean square error of approximation (RMSEA) value of ≤ 0.07 , goodness of fit index (GFI), comparative fit index (CFI), and IFI values higher than 0.90 are considered as the lower limits of the model's data fit index.³¹

Reliability

The use of Cronbach's α internal consistency coefficient is recommended to test scale items' internal consistency and homogeneity. High Cronbach's α reliability coefficients indicate the consistency of the items and show that they test the elements of the same features.^{29,32} Cronbach's α reliability ≥ 0.70 is reported to show that the measurement tool is suitable for usage.^{29,32}

In order to test the item scores and total scale scores, item-total correlation coefficients were found. Coefficients ≥ 0.30 were taken in item selection.³³

Test–retest is explained as getting consistent results in repeated measurements of a scale. In order to test this consistency, correlation analysis is used to evaluate the results found in both applications. It is thought that the closer the correlation coefficient is to 1, the better test–retest level is.^{34,35} For test–retest analysis, the scale was reapplied 2 weeks later to 50 individuals.

Results

When the demographic features of the participants were examined, mean age of the participants was found as 24.20 ± 7.20 . It was found that 70.6% of the participants were female, 87.2% were university and above graduates, 66% were students, and 49.1% had income equal to expense (Table 1).

Validity

Kaiser–Meyer–Olkin Index value was found as 0.90 in the study and χ^2 value was calculated as 1149.82, according to the results of Barlett's Test of Sphericity analysis. Test results were found significant at $P = .000$ (Table 2). Sample size was found to be sufficient and suitable to conduct factor analysis,³¹ and Varimax rotation technique was used for factor analysis. Exploratory factor analysis showed that factor load values of ISS were between 0.71 and 0.90 and explained 69.42% of the total variance (Table 3). Thus, single sub-dimensional ISS was obtained.

As it can be seen in Table 4, CFA fit index values of ISS were found as $\chi^2 = 19.03$, $df = 8$ ($P < .05$), $\chi^2/df = 2.37$, RMSEA = 0.069, CFI = 0.99, root mean square residual = 0.016, standardized root mean square residual = 0.025, GFI = 0.98, adjusted goodness of fit index = 0.94, and NFI = 0.99 and model fit was found as acceptable.³¹ Figure 1 shows CFA path diagram of ISS with CFA model.

Table 1. Demographic Features of the Participants

	n	%
Gender		
Female	204	70.6
Male	85	29.4
Marital status		
Married	60	20.8
Single	229	79.2
Level of education		
Primary	6	1.1
High school	31	10.7
University and above	252	87.2
Occupation		
Housewife	12	4.2
Retired	1	0.3
Officer	42	14.5
Self-employed	4	1.4
Student	191	66.1
Other	39	13.5
Income status		
Income<expense	97	33.6
Income=expense	14	49.1
Income>expense	50	17.3
Mean age (mean \pm SD)	24.20 \pm 7.20	

Table 2. Results of the Kaiser–Meyer–Olkin measure of Sampling Adequacy and Bartlett’s Test of Sphericity

Test	Results	P
Kaiser–Meyer–Olkin measure of sampling adequacy	0.90	<.001
Bartlett’s test		
Approx. chi-square	1149.82	
df	15	
Sig.	0.00	

As a result of the EFA and CFA analysis, Turkish form of single dimension ISS was found to be confirmed without any changes in the original scale form. All findings obtained show that the scale has high validity in Turkish culture.

Reliability

In the analyses performed for finding the reliability of the scale, the scale was reapplied 2 weeks later to 50 individuals of the sample. Exploratory factor analysis was conducted and pre-test and post-test correlation was found as 0.91. This value showed that the scale had high external reliability and a stable structure.³⁵

In addition, Cronbach’s α internal consistency coefficient was tested to find out the internal reliability of the scale and this value was measured as 0.91 for the total scale (Table 3). This value shows that the 6-item scale

has high internal consistency.^{30,32} Item-total correlation coefficients of all items were >0.30 (0.61-0.79).

Discussion

Spirituality is the human’s bond with the Creator and therefore it is of divine origin, and it contributes to individuals’ getting internally stronger and with this strength to make sense of and cope with all experiences.^{2,12} Spirituality, which has significant effects on health and illness is a new concept in the field of nursing.^{9,15} Individuals are a whole with their physical, mental, emotional, sociocultural, and psychospiritual dimensions.¹⁶ Therefore, it is important for nurses to care for individuals with a holistic approach, to evaluate their spiritual dimension as much as the other dimensions, and to provide holistic care aimed at this.^{16,17} Thus, assessment tools are required to examine the effects of spirituality, which corresponds to the relationship with the transcendent, in all aspects of individuals’ personal development, decisions, and all aspects of their lives by nurses.⁵ This study was planned for the Turkish validity and reliability of the “ISS” in adults. In this section, the findings of ISS, which consisted of 6 items and a single dimension, were discussed.

In this study, the construct validity of Turkish version of ISS was tested with EFA and CFA. With the EFA conducted to examine the construct validity of ISS, a single factor structure was obtained which explained 69.4% of the total variance. In the original study of the scale conducted by Hodge et al.⁵ total variance explained was found as 69.4%. In line with these results, it was found that ISS consisted of a single sub-dimension, as in the original scale, and that factor structure was sufficient. In this study, it was found that factor loads of all items ranged between 0.71 and 0.90. In the original study of the scale by Hodge et al.⁵ factor loads of all items were found to range between 0.76 and 0.93. In the literature, it is stated that the acceptable value of factor loads can be as low as 0.30.^{28,33} Fit indices of the model obtained as a result of the CFA conducted were examined and it was found that the minimum chi-square value was statistically significant and fit index values were within the desired range.³¹ Confirmatory factor analysis was conducted to confirm the EFA of the scale confirmed that the scale had a single factor structure. It can be said that Turkish version of the ISS supports the structure of the original scale.

In this study, total Cronbach’s α coefficient was found as 0.91. In the original study by Hodge et al.⁵ it was found as 0.93. In the literature, it is stated that in case of Cronbach’s scale reliability being 0.70 and higher, the measurement tool is sufficient for use, while it has high reliability when it is 0.80 and higher.^{32,35} These results show that ISS has high internal consistency and high reliability in adults.

In the study, item-total correlations were found to be between 0.61 and 0.79. In the literature, the acceptable value for item selection is stated to be ≥ 0.30 . An item is considered as efficient and sufficient to measure the targeted behavior in case of having a high correlation coefficient.^{32,33} The result obtained shows that the reliability is high.

Table 3. Mean Scores, Item-Total Score Correlation Coefficients, Factor Loads, Alpha Coefficients, and Explained Variance ISS Variance

Item Load	Factor Load	Mean (SD)	Corrected Item-Total Correlations	Cronbach’s α (If Item was Deleted)
1	0.90	7.09 (2.37)	0.61	0.91
2	0.88	7.66. (2.48)	0.85	0.87
3	0.86	7.57 (2.40)	0.74	0.89
4	0.83	7.24 (2.81)	0.68	0.90
5	0.77	7.69 (2.47)	0.81	0.88
6	0.71	7.63 (2.65)	0.79	0.88
% Variance Explained				Total = 69.47
Cronbach’s α				Total = 0.91

Table 4. Confirmatory Factor Analysis Results

Fit Criteria	Found	Appropriate	Acceptable
χ^2/df	2.37	<2	<5
RMSEA	0.069	<0.05	<0.08
CFI	0.99	>0.95	>0.90
RMR	0.016	<0.05	<0.08
SRMR	0.025	<0.05	<0.08
GFI	0.98	>0.95	>0.90
AGFI	0.94	>0.95	>0.90
NFI	0.99	>0.95	>0.90

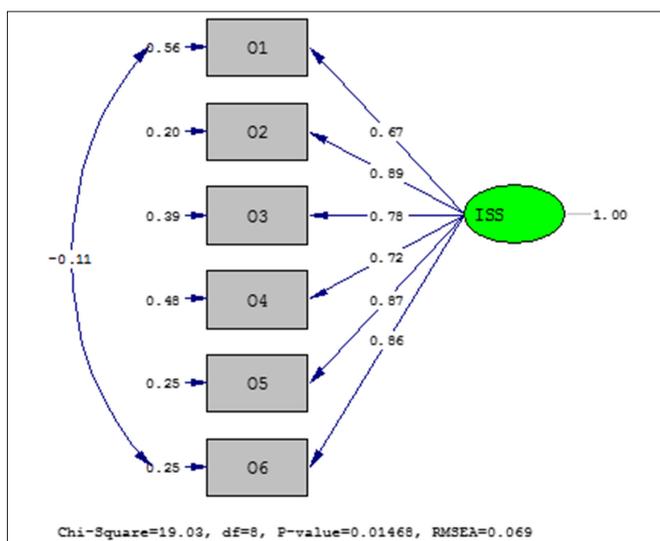
RMSEA, root mean square error of approximation; CFI, comparative fit index; RMR, root mean square residual; SRMR, standardized root mean square residual; NFI, normed fit index; GFI, goodness of fit index; AGFI, adjusted goodness of fit index.

Intrinsic Spirituality Scale was reapplied 2 weeks later to 50 individuals who filled in the scales for test–retest analysis. Intrinsic Spirituality Scale showed positive and high statistically significant association ($P < .001$). As a result, the scale has high consistency over time and can give reliable results when applied more than once.

According to the results of the study, it was concluded that the ISS can be used as a valid and reliable scale in determining to what extent healthy and sick individuals use spirituality as a coping mechanism and source of motivation in Turkey. Using ISS in clinics as a data collection tool will enable us to find out how many patients use spirituality and also help in applying spirituality to care. This way, it will be possible to support the spiritual dimension of individuals based on a holistic care approach in nursing. For this purpose, collaboration should be established with hospitals to generalize the use of the scales by nurses.

Conclusion

The results of the present study and the analysis results of the original scale were consistent with each other. Single-factor structure was confirmed via EFA and CFA results. Cronbach's α internal consistency coefficient, item-total correlation, and test–retest analysis of the scale were found to have a higher correlation. These results show that ISS is a valid and reliable tool to measure the extent of individuals being motivated by their spirituality defined as their relationship with God.

**Figure 1.** PATH diagram regarding the factor structure of the scale.

Ethics Committee Approval: The study was conducted in line with Helsinki Declaration of Human Rights. Approval (2020/08 numbered) was taken from the Ethics Committee of XXX for the study.

Informed Consent: Written permission was taken from the developer of the scale about the Turkish adaptation of ISS used in the study.

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