

Psychometric Evaluation of an Arabic Version of the Spiritual Involvement and Beliefs Scale in Jordanian Muslim College Nursing Students

Ahmad S. Musa, PhD, RN

Princess Salma Faculty of Nursing, Al al-Bayt University, PO Box: 130040, Mafraq 25113, Jordan

*Email of the corresponding author: Ahmad_cns1@yahoo.com; mahasees@aabu.edu.jo

Abstract

A review of the nursing and health-related literature on spirituality revealed that no valid and reliable research tool exists in Arabic for measuring spiritual beliefs and practices for Arab Muslim population. This study translated the Spiritual Involvement and Beliefs Scale (SIBS) into Arabic and examined the psychometric properties of the Arabic version in a sample of Jordanian Arab Muslim nursing students by examining its factorial validity, convergent-related validity, and internal reliability. A convenience sample of 394 Jordanian nursing college students (all Muslims) were recruited from governmental universities in the northern region of Jordan. The SIBS was translated from English to Arabic using a back-translation method, reviewed by an expert panel for lingual, cultural and spiritual consistency, and was piloted with 15 Jordanian nursing college students. Correlational and factor analysis were used. The internal consistency reliability of the Arabic SIBS was acceptable, with alpha coefficient of 0.76. Evidence of construct validity was supported by significant moderate to high positive correlations between the Arabic SIBS and both religiosity and the spiritual well-being (convergent validity), and by a resultant three-factor structure to the SIBS which was simple, easily interpretable and had a conceptual meaning. The resultant three factors were labeled as “Spiritual Beliefs”, “Spiritual Involvement”, and “Spiritual Involvement and Beliefs Outcomes” subscales. In conclusion, these preliminary findings suggest that the Arabic version of the SIBS can be used as an instrument to measure levels of spiritual beliefs and practices in Arab Muslim populations. In addition, it would appear that spiritual beliefs and practices, spiritual well-being, and religiosity are important dimensions for Jordanian Muslim nursing students which have potential implications for nursing education, practice, and research.

Keywords: Arab Muslims, nursing students, translation, Arabic Spiritual Involvement and Beliefs Scale, psychometric properties

1. Introduction

There is a consensus in the nursing literature that spirituality is an essential dimension of humanity (Narayanasamy & Owens, 2001). Research has consistently shown significant relationships between spirituality and better mental and physical health and medical outcomes (Aldwin, Park, Jeong, & Nath, 2014; Koenig, 2012). In the context of nursing care for Arab Muslim patients, spiritual beliefs and practices are crucial dimensions to the Muslim individual's life and health. The Jordanian Nursing Care Standards (2005) note that nurses' assessment of patients' spiritual needs is a part of the total assessment of the health needs of the latter. Lovering (2012) argued that spiritual values derived from Islamic teachings have an impact on nursing care for Arab Muslim patients related to patients' health meanings. Spiritual beliefs and practices are found by many Muslims to be a source of comfort in coping with their distress (Narayanasamy & Andrews, 2000). Through patience, prayer, meditation, remembrance of Allah (*dhikr*), and relying on God's will many Muslims seek support and help from Allah during stressful situations and suffering (Cheraghi, Payne, & Mahvash, 2005; Rassool, 2000) and can cope with illness, facilitate recovery from disease, and achieve a higher level of health (Errihani et al., 2008; Mardiyono, Songwathana, & Petpichetchian, 2011).

Given the contemporary focus on spirituality for Arab Muslim patients and nurses, developing a culturally relevant Arabic assessment tool measuring spiritual beliefs and practices is particularly timely. The majority of the available spirituality instruments were developed using Western populations and reflect a predominantly Christian tradition. A review of the nursing and health-related literature on spirituality revealed that no valid and reliable research instrument exists in Arabic for measuring spiritual beliefs and practices for Arab Muslim population.

2. Background

Although there has been little agreement about its definition, spirituality is generally considered to be a ‘good thing’ (Hussey, 2009). Tanyi (2002: p. 506) described spirituality as

a personal search for meaning and purpose in life, which may or may not be related to religion. It entails connection to self-chosen and or religious beliefs, values and practices that give meaning to life, thereby inspiring and motivating individuals to achieve their optimal being. This connection brings faith, hope

peace and empowerment. The results are joy, forgiveness of oneself and others, awareness and acceptance of hardship and mortality, a heightened sense of physical and emotional well-being and the ability to transcend beyond the infirmities of existence.

There is a consensus in nursing and health-related literature that spirituality is a broader concept than religiosity, and that religion and spirituality are two distinct, but related concepts (Joshnloo, 2012; Sessanna, Finnell, Underhill, Chang & Peng, 2011). Religiosity was defined by the North American Nursing Diagnosis Association, International (2009, p. 299) as “the ability to increase reliance on religious beliefs and/or participate in rituals of a particular faith tradition.”

It has been reported in the literature that spiritual beliefs and practices had positive associations with religiosity among Western (Berkel, Armstrong, & Cokley, 2004; Shores, 2010) and Arab Muslim (Musa, 2015) university student samples. Similarly, spiritual beliefs and practices was found to be associated positively with spiritual well-being in Western samples of adult patients and educators (Hatch, Burg, Naberhaus, & Helmich, 1998) and chronically ill and healthy adolescents and their parents (Rubin, Dodd, Desai, Pollock & Graham-Pole, 2009), and in a sample of Arab Muslim university students (Musa, 2015). No previous studies investigating associations among those variables using a sample of Jordanian Arab Muslim nursing students have been found.

There is consistence in the nursing literature that recognition of an individual’s spirituality should be part of nursing care (Chrash, , Mulich, & Patton, 2011; Ellis & Narayanasamy, 2009). Codes of conduct developed by national and international nursing organizations supported the nurses’ responsibilities to meet patients’ spiritual needs (Dunn, 2010; Paley, 2008). Alongside this, central to the Crescent of Care nursing model, which was developed to guide the care of Arab Muslim patients, is the concept of shared spirituality between the Arab Muslim nurse, patient and family. Nursing care for Muslim patients must consider their belief system and spiritual/religious values (Mardiyono et al., 2011; Halligan, 2006). The Gulf Cooperation Council (GCC) (2001) Code of Professional Conduct for Nursing noted that the psychosocial and spiritual needs of the Arab Muslim patient falls at the center of nurses’ responsibilities (Lovering, 2012). It is therefore important for Arab Muslim nurses to concern themselves with the spiritual beliefs and practices of patients.

In the West, a number of research studies have documented the importance of spirituality to nursing college students. For example, Shores (2010) reported that spiritual beliefs and practices experienced by nursing students can lead to feelings of self-worth, increased confidence levels, better coping mechanisms for anxiety, and feelings of well-being, comfort, strength, and energy. Similarly, it has been found that spiritual health of nursing students is associated with a weaker depression tendency, being less affected by clinical practice stress, and being more likely to engage in healthy behaviors (Hsiao, Chien, Wu, Chiang, & Huang, 2010). Furthermore, Wehmer, Quinn Griffin, White, and Fitzpatrick (2010) found high levels of spiritual beliefs and practices and spiritual well-being among nursing students, which might have potential benefits on developing nursing curricula that embrace the spiritual dimension of individuals and care. In a recent study by Tiew, Creedy, and Chan (2013), nursing students perceived spiritual awareness as an important dimension to address patients’ spiritual needs. It is therefore important for nursing students to concern themselves with their own spiritual beliefs and practices and those of their patients.

2.1 The Spiritual Involvement and Beliefs Scale and its subscales

The Spiritual Involvement and Beliefs Scale (SIBS), the focus of this study, was developed by Hatch et al. (1998) to measure levels of participants’ spiritual beliefs and practices. The SIBS has been widely used to measure the multidimensional nature of individuals’ spiritual life (Doolittle, 2010). It has certain advantages compared to other available spirituality tools. The SIBS is a comprehensive tool designed to measure spiritual beliefs as well as spiritual actions. Moreover, it can be easily understood by people from various cultures and religious traditions (Joshnloo, 2012; Langman & Chung, 2013).

Despite being developed primarily in a Western/Christian context, Hatch et al. (1998) argued that the SIBS is a widely applicable tool for people from various religious/spiritual traditions and cultures. The SIBS uses generic wording to avoid religious and cultural biases. Consequently, the SIBS has been used in various Western samples, including adult patients (Mystakidou et al., 2008), college students (Winterowd, Harrist, Thomason, Worth, & Carlozzi, 2005), well and ill adolescents (Rubin et al., 2009), people with drug and alcohol addiction and community groups (Langman & Chung, 2013), parish-based clergy (Doolittle, 2010). It has also been used among an Iranian Muslim sample of college students (Joshnloo, 2012).

During the development of the SIBS, Hatch et al. (1998) found four common factors using a sample of family practice patients and educators. These four factors were labeled "External/Ritual", "Internal/Fluid", "Existential/Meditative", and "Humility/Personal Application". Items of the External/Ritual factor relate to one’s involvement in spiritual activities/rituals and to one’s belief that there is a power greater than oneself. Items of the Internal/Fluid factor measure aspects concerning one’s experience of internal spiritual beliefs and personal growth. Items of the Existential/Meditative factor measures such existential aspects of spirituality as meditation, and purpose and meaning in life. Items of the Humility/Personal Application factor measure aspects concerning

one's experience of humility and application of spirituality in daily activities.

This scale was tested in Western samples with the vast majority from a Christian tradition, and no research deployed it with an Arab Muslim population. The lack of culturally appropriate spirituality assessment tool spurred the need to translate a well-researched instrument (the SIBS) from English into Arabic to measure spiritual beliefs and practices suitable for Arab Muslim population. The purpose of this study was twofold: (a) to translate the SIBS into Arabic and adapt it to be suitable for adult Arab Muslim populations, in Jordan and Arab countries generally; and (b) to psychometrically assess the properties of the Arabic SIBS among Jordanian Arab Muslim nursing students by examining its factorial validity, convergent-related validity, and internal reliability.

3. Methods

3.1 Sample and Setting

A convenience sample of 394 Jordanian nursing college students (all Muslims) were recruited from governmental universities in the northern region of Jordan. Inclusion criteria required participants who: were 18 years of age or older; literate and conversant in Arabic; and physically and psychologically able to comprehend and respond to study questions. The age of participants ranged from 18 to 45 years ($M=20.73$, $SD=1.86$). Most participants (60.2%, $n=237$) identified themselves as female, and 39.6% ($n=156$) of them reported a level of income of more than 400 JD per month.

3.2 Procedure

Permission was obtained to use Hatch et al.'s (1998) SIBS and Ellison's (1983) SWBS in this study. Moreover, this study was approved by an Institutional Review Board in a Jordanian governmental university. All college nurse student participants were recruited through classes. All questionnaires were distributed in a classroom setting after previous appointments with the students and their teachers. All participants were informed that participation is voluntary. Information about the purpose and nature of the study, maintaining anonymity and confidentiality, and the rights of participants was provided both orally and in a hardcopy letter. Completion and return of the anonymous questionnaire was taken as consent for the data to be used in this study. Questionnaires required about 20–25 minutes to complete and were returned during the same class session. All questionnaires were distributed in Arabic. The response rate was high (88%, $n=405$ from 460 distributed questionnaires). Data were collected during a three-month period in 2011.

3.4 Measures

The socio-demographic data included information on age, gender and income. Self-reported questionnaires were used to measure spiritual beliefs and practices, spiritual well-being and religiosity.

3.4.1 Religiosity

Religiosity was measured in terms of religious behavior and attitudes (Makros & McCabe, 2003). Religious behavior items consisted of four Likert-type questions asking participants about the frequency of their praying, attending the mosque to pray, reading from the Qur'an, and meditating (*dhikr*). One item ranging from 'Unimportant' to 'Very important' was designed to measure religious attitudes where participants were asked the importance of their faith to them. The total higher scores of the religiosity represents greater religiosity.

3.4.2 Spiritual Well-Being Scale

Spiritual Well-Being Scale (SWBS) developed by Ellison (1983) is a 20-item self-reported instrument specifically designed to measure levels of spiritual well-being. The total scores of this scale range from 20 to 120, with higher scores evincing greater well-being. The SWBS consists of two subscales: the religious well-being subscale (10 items) and existential well-being subscale (10 items). Face validity and construct validity have been demonstrated for this scale (Ellison, 1983). The Arabic version of the SWBS was developed by and reported in Musa and Pevalin (2012). Asymmetrical back-translation methods were used with an expert panel to convert from English to Arabic. It was piloted with Arab Jordanian college students and evidence was reported showing the construct validity and reliability of the Arabic SWBS with a sample of adult Arab Muslim cardiac patients. Moreover, the internal consistency reliability of the Arabic SWBS has been demonstrated with various adult Jordanian Arab samples, with high alpha coefficients ranging from 0.83 to 0.87 (Musa & Pevalin, 2012, 2014). In the present study, the Cronbach's alpha value for the Arabic SWBS was also high (0.81).

3.4.3 The Spiritual Involvement and Beliefs Scale

The SIBS is a 26-item self-reported paper-pencil instrument. The total scores of the SIBS range from 26 to 130, with higher score representing a greater spiritual beliefs and practices. Items rated on a 5-point Likert-type scale. The first 19 items ask participants about their perception concerning the measured aspects of spiritual beliefs with options ranging from 'strongly disagree' (coded 1), to 'strongly agree' (5). The remaining seven items measure the extent to which participants engage in various spiritual activities with five categorical response options, such as 'always', 'usually', 'sometimes', 'rarely', and 'never'. It has been shown that the SIBS has high internal consistency reliability (Cronbach's $\alpha=0.92$) and strong test-retest reliability ($r=0.92$) (Hatch et al.,

1998). In a recent study using Western cancer patients, it was found that the internal consistency reliability of the SIBS was high with alpha coefficients of 0.90 (Mystakidou et al., 2008). Similarly, the internal consistency reliability utilizing Cronbach's alpha of the SIBS among Iranian Muslim college students was also high (0.85) (Joshano, 2012). In addition, face validity and construct validity using convergent validity and factor analysis have been demonstrated for this scale (Hatch et al., 1998). The high significant positive correlation between the SIBS and SWBS ($r = 0.80$) and the resulted a clear four-factor structure provided an evidence of construct validity.

3.4.4 Translation and Validation

The translation and validation process was performed for the SIBS using back-translation and translation by committee (Jones, Lee, Philips, Zhang, & Jaceldo, 2001). The 26 items of this scale were translated from English into Arabic by the main author, then blindly back-translated by a bilingual expert holding a PhD in Applied Linguistics (English language). Discrepancies were discussed with the back-translator and minor changes were agreed that maintained the same meaning of items in both versions. For example, the phrase "a power greater than myself" in Items 17 and 19 in the original version was replaced by the word "God", which represents the greater power than oneself within the constructs of the Arab-Islamic framework. The revised Arabic version of the SIBS was further assessed and validated by a bilingual panel including two members with doctoral degrees in Islamic religious studies, two members with PhD degree in nursing, and another member with a PhD in Linguistics (Arabic language). They assembled to ensure the content and semantic equivalence, and to assess the language complexity and readability of the scale to suit the Muslim population.

On the basis of their review, minor corrections were made. For instance, "spiritual activities" and "spiritual beliefs," each of which are presented in more than one item in the SIBS, also lacked an appropriate Arabic word and had to be translated according to the context of the item. Additionally, words and phrases of Items 9, 13, 15, 16 were modified into phrases that ask the participants about their opinion regarding the content of each item in positive terms instead of negative terms as listed in the original instrument to suit the Muslim population. The final Arabic version of the SIBS (see Appendix I) was pretested on a convenience sample of 15 Jordanian nursing college students to ensure clarity, familiarity, and suitability of the used words and phrases.

3.5 Analysis

Descriptive statistics, bivariate analysis, and factor analysis were used to analyze the data using SPSS version 19. Bivariate analysis was used to examine associations between the Arabic version of the SIBS total score and its subscales, SWBS and religiosity and to test for significant differences between groups in the demographic variables. The level of significance for all bivariate tests was set at $p < 0.05$. The psychometric properties of the Arabic SIBS was assessed by evaluating internal consistency and construct validity. The internal consistency was assessed by Cronbach's alpha. A Cronbach's alpha value of at least 0.70 is considered adequate for a newly developed psychosocial instrument (Burns & Grove, 2005; Cortina, 1993). Construct validity was examined in two ways: (1) performing exploratory factor analysis, and (2) convergent validity was assessed by correlating the total Arabic SIBS score with total score of the Arabic SWBS and religiosity.

An exploratory factor analysis was conducted to examine the factor structure of the Arabic version of the SIBS. The factor analysis used principle components extraction with orthogonal rotation (Varimax). Based on the recommendation of at least 10-15 participants per variable ratio of an instrument (rule of thumb) to perform factor analysis (Field, 2005; Munro, 2005), the sample size of 394 in the current study was sufficient to perform this analysis. Multiple criteria methods, including Kaiser, scree test and interpretability criteria, were used to determine the number of factors to be retained. With a sample size greater than 200 participants, the scree test provides a fairly reliable criterion to determine how many factors to retain (Stevens, 1992). A cut-off point of 0.30 was set as a minimum acceptable loading criterion for a sample size of 394 (Stevens, 1992). The naming of factors was based on the relevant items in descending order with respect to the magnitude of their factor loadings (Waltz et al, 2010).

4. Results

By examining the scree test there was a logical breaking point at the fourth factor, suggesting a potential for a three-factor solution. The first three factors together accounted for a relatively large amount of variance (32.38%) between items. The three-factor solution exhibited the "cleanest" factor structure and the best fit to the data matching a conceptual meaning. Therefore, it was decided to extract only three factors. Table 1 presents the three-factor structure matrix of the factor loadings for each item onto each factor. The strongest loadings are shown in bold.

Table 1. Rotated Factor Structure of the Arabic SIBS. Jordanian Nursing Student Sample, N=394.

Factor	Items	Factor 1	Factor 2	Factor 3	
1	19	Spiritual activities help me nearer closer to God	.665	-.023	.125
	10	Participating in spiritual activities helps me forgive other people	.663	.036	.093
	11	My spiritual beliefs continue to develop	.641	.188	.033
	15	Spiritual activities have not helped me develop my identity	.600	.301	.089
	16	Meditation does not help me feel more in touch with my inner spirit	.576	.106	.232
	9	Prayers do not really change what happens	.548	-.018	.219
	14	My spiritual life fulfills me in ways that material belongings do not	.547	.332	-.018
	17	I have a deep relationship with God	.511	.281	-.119
	6	Some experiences can be understood only through one's spiritual beliefs	.495	.183	.166
	8	My life has a purpose	.493	.197	-.082
	23	I examine my actions to see if they reflect my values	.453	.439	-.075
	4	I am thankful for all that has happened to me	.434	-.068	.208
	7	A spiritual force influences the events in my life	.414	.118	.029
	2	I can find meaning in times of hardship	.390	-.160	.191
	1	In the future, science will be able to explain everything	-.206	.110	.187
2	20	When I wrong someone, I make an effort to apologize	.057	.587	-.022
	25	Frequency of mediating during the last week	.181	.521	.225
	26	Frequency of participating in spiritual activities with at least one other person	.089	.456	.012
	21	When I am ashamed of something I have done, I tell someone about it	-.094	.431	-.004
	22	I solve my problems without using spiritual resources	.130	.420	.125
	24	Frequency of praying during the last week	.147	.312	.309
3	3	A person can be fulfilled without following an active spiritual life	.096	.273	.627
	18	I have felt pressured to accept spiritual beliefs that I do not agree with	.282	-.114	.581
	12	I believe there is a power greater than myself	.252	-.093	.554
	13	I probably will not reexamine my spiritual beliefs	.271	-.132	-.428
	5	Spiritual activities have not helped me become closer to other people	.300	.294	.310
Eigenvalue			5.372	1.589	1.457
Percent of Variance Explained			20.660	6.112	5.604
Cumulative Percent			20.660	26.772	32.376

Mean of Communalities= .55

Items in factor 1 (13 of 15) measure aspects concerning one's experiences of outcomes of spiritual beliefs and practices to the individual's spiritual life; therefore this factor was labeled "Spiritual Involvement and Beliefs Outcomes" (SIBO). This factor also contains item 23, which was theoretically consistent with factor 2, where it also had smaller but still substantial loadings (>0.43). Therefore, item 23 was retained in factor 2 for the purposes of statistical analysis in the current study. All items in factor 2 relate to aspects of spiritual practices and so labeled "Spiritual Involvement" (SI). All but one of the items in factor 3 relate to one's perception of spiritual beliefs; therefore this factor was labeled "Spiritual Beliefs" (SB). The exception was item 5, which had the lowest factor loading of 0.31 and theoretically relates to factor 1, where it also had slightly smaller but still substantial loadings (>0.30), so it was included in factor 1 for further analyses.

The mean, standard deviation, and range of the Arabic SIBS, its subscales, SWBS, and religiosity are shown in Table 2. The participants reported relatively high mean levels of SIBS and its subscales, SWBS, and religiosity. The internal consistency reliability using Cronbach's alpha for the Arabic SIBS was acceptable, with alpha coefficient of 0.76.

Table 2. Descriptive statistics of the Arabic SIBS, its subscales (SIBO, SI, and SB), SWBS, and Religiosity. Jordanian Nursing Student sample, N=394.

Scale	No. of items	Range of possible scores	Mean	SD	Min	Max
SIBS	26	26 - 130	103.9	9.4	65	123
SIBO	17	17 - 85	65.0	5.6	41	78
SI	7	7 - 35	22.3	4.3	10	33
SB	4	4 - 20	16.6	2.2	9	20
SWBS	20	20 - 120	94.0	12.0	58.0	119
Religiosity for Male	5	5 - 25	16.4	3.7	5	25
Religiosity for Female	4	4 - 20	14.7	3.4	4	20

SD, standard deviation; SIBS, Spiritual Involvement and Beliefs Scale; SIBO, Spiritual Involvement and Beliefs' Outcomes; SI, Spiritual Involvement; SB, Spiritual Beliefs; SWBS, Spiritual Well-Being Scale.

The Arabic SIBS had a statistically significant high positive correlation with SWBS ($r= 0.53$) and moderate positive correlation with religiosity ($r= 0.42$). There were low to moderate and statistically significant positive correlations between the three subscales of the Arabic SIBS ranging from 0.15 to 0.43, suggesting that there is enough unique variance to confirm that these are related but separate constructs. All correlation coefficient values among the SIBS, its subscales, SWBS and religiosity are shown in Table 3

Table 3. Correlations between the SIBS, its subscales (SIBO, SI, and SB), SWBS, and Religiosity. Jordanian Nursing Student sample, N=394.

	SIBS	SIBO	SI	SB	SWBS
SIBO	0.88**				
SI	0.75**	0.43**			
SB	0.53**	0.38**	0.15**		
SWBS	0.53**	0.54**	0.32**	0.24**	
Religiosity	0.42**	0.29**	0.48**	0.18**	0.33**

** $p<0.01$ (2-tailed); SIBS, Spiritual Involvement and Beliefs Scale; SIBO, Spiritual Involvement and Beliefs' Outcomes; SI, Spiritual Involvement; SB, Spiritual Beliefs; SWBS, Spiritual Well-Being Scale.

The distribution of the Arabic SIBS total score and its subscales by gender and income variables are presented in Table 4. Of these socio-demographic variables, only gender had a significant difference for the SI subscale, with women reporting statistically significantly higher average scores on the SI subscale than men.

Table 4. Distribution of the Arabic SIBS and its Sub-scales by Demographic Variables. Jordanian Nursing Student sample, N=394.

Demographic variables	Categories	N	SIBS	SIBO	SI	SB
Gender	Men	157	102.9	64.8 (6.0)	21.6** (4.5)	16.5 (2.2)
	Women	237	104.5 (10.3) (8.7)	65.0 (5.3)	22.8 (4.1)	16.7 (2.1)
Income	< 199JD	59	104.1 (9.5)	64.4 (5.4)	22.2 (4.4)	16.5 (2.3)
	200-299JD	91	103.9 (8.9)	64.8 (5.8)	22.7 (4.1)	16.5 (2.1)
	300-399JD	88	103.5 (9.6)	64.7 (5.7)	22.2 (4.5)	16.6 (2.3)
	≥ 400 JD	156	104.0 (9.5)	65.0 (5.5)	22.3 (4.3)	16.7 (2.2)

Note: JD, Jordanian Dinars (1US\$=0.71JD); **one-way ANOVA F-test $p<0.01$; standard deviations in brackets

5. Discussion

This study translated the SIBS into Arabic and examined the psychometric properties of the Arabic version in a sample of Jordanian Arab Muslim nursing college students. The translated Arabic version of the SIBS was reviewed and adapted by an expert panel to suit the Arab Muslim population. The findings of this study provided solid support that the translated Arabic SIBS is a reliable and valid instrument among Jordanian Arab Muslim nursing students. The socio-demographic distributions of the Arabic SIBS total score and its subscale scores showed a significant variation only by gender (SI subscale).

This study represents the first attempt to develop and psychometrically test the Arabic version of the SIBS that measures levels of spiritual beliefs and practices for Jordanian Muslim nursing college students. The SIBS was carefully translated and revised by a group of expert panel using simple and common literal Arabic terms, which may allow for its use with other Arab Muslim people. Further research studies in other Arab countries are needed to support this hypothesis. This is the first study that reported average values of spiritual beliefs and practices and religiosity for Jordanian Muslim college nurses students.

Results of this study provided evidence of the reliability and validity of the Arabic SIBS. The internal consistency reliability using Cronbach's alpha for the overall Arabic SIBS revealed that this scale has good reliability, suggesting the homogeneity of the scales' items in measuring the construct of spiritual beliefs and practices. Moreover, correlations between the overall SIBS and its subscales (SIBO, SI, and SB subscales) indicated that the overall SIBS can measure the spiritual beliefs and practices as a multidimensional global phenomenon, and the resultant SIBO, SI, and SB subscales measure distinct and unique but interrelated constructs. Further research concerning the factor structure of the SIBS is warranted using various samples of different religions, cultures, and/or ethnicities, samples of Jordanian Muslim patients and nurses, and samples of Arab Muslim population from other Arab countries.

This study provided preliminary evidence of construct validity for the Arabic SIBS using convergent validity and exploratory factor analysis. Significant moderate to high positive correlations in the expected directions were found between the Arabic SIBS and both religiosity and the SWBS, supporting the convergent validity for the Arabic SIBS. These findings are consistent with the findings of previous studies, which found a significant positive correlation of spiritual beliefs and practices with religiosity (Berkel et al., 2004; Musa, 2015; Shores, 2010) and spiritual well-being (Hatch et al., 1998; Musa, 2015; Rubin et al., 2009) in various Western and Arab Muslim student cohorts, and healthy and patient samples.

Rassool (2000) argued that in Islam there is no spirituality without religious beliefs and practices, because religion provides the path for a satisfied spiritual life. Similarly, Narayanasamy and Andrews (2000) reported that many Muslims find spiritual beliefs and practices as a source of comfort to achieve a better spiritual health. In addition, these findings supported the notion that religion and spirituality are two distinct, but related concepts (Joshnloo, 2012; Sessanna et al., 2011).

The findings of the factor analysis provide further support for the construct validity of the SIBS. The resultant three-factor structure of the Arabic SIBS, represented by “Spiritual Beliefs”, “Spiritual Involvement”, and “Spiritual Involvement and Beliefs Outcomes” factors showed a relatively clear and stable factor structure with a minimum level of factorial complexity. The relationship between items of “Spiritual Beliefs” and “Spiritual Involvement” factors, and items of “Spiritual Involvement and Beliefs Outcomes” factor has its roots in Islamic teachings, such as the Qur’anic verses translated as: “Those who believe and whose hearts have rest in the remembrance of Allah, Verily, in the remembrance of Allah do hearts find rest” (Qur’an 13: 28); and “Oh you who believe, enter into peace, all of you” (2: 208). These verses stress the notion that Muslims who follow the teachings and values prescribed by God will experience a feeling of peace and well-being.

In regard to the conceptual meaning of the resultant three-factor structure, it would appear that Arab Muslim nursing students' perception of spiritual beliefs and practices contribute to a feeling of positive outcome to their spiritual life in terms of such aspects as life fulfillment, finding meaning and purpose in life, being close to God, feeling of forgiveness, identity growth, and life direction. This distribution of the Arabic SIBS items was different from what was originally found by the scale developers using a Western sample. It would appear that possible reason for this variable structure to the SIBS is using samples from different religions and cultures. It has been documented in the literature that different religions and cultural norms may shape responses to the spiritual life of individuals differently (Bhui, King, Dein, & O’Connor, 2008; Campesino, Belyea, & Schwartz, 2009). This study suggests further investigation into the cultural, religious and social processes that shape responses to the items in the Arabic SIBS.

The high average levels of the spiritual beliefs and practices, spiritual well-being, and religiosity in the present study are consistent with other studies which found high average levels of spiritual beliefs and practices and spiritual well-being in samples of Western nursing college students (Shores, 2010; Wehmer et al., 2010), a high average level of spiritual well-being in a sample of Arab Muslim nursing college students (Musa & Pevalin, 2012), and high average levels of religiosity in Western samples of various college students (Patel, Ramgoon, & Paruk, 2009; Williamson & Sandage, 2009). In general, it would appear that spiritual beliefs and practices, spiritual well-being and religiosity are important dimensions for Jordanian Muslim nursing college students. Future studies are warranted to examine associations between these dimensions of spirituality and various measures of health, well-being, and academic achievements using samples of Jordanian Muslim nursing college students.

Several implications can be drawn from findings of this study for nursing education, practice and research. The findings of this study can be incorporated into the nursing education curriculum in Jordan. For instance, in the theoretical side a chapter focused on spirituality and nursing care for patients can be added to the Fundamental Course, one of the basic courses for nursing students nationwide during the first academic year. On the clinical side, clinical instructors can encourage nursing students to use the Arabic SIBS to guide students to assess spiritual beliefs and practices of their own and of their patients at the training clinical settings. Preparing nursing students in dealing with the individual's spiritual dimension and integrating spirituality into educational nursing programs is consistently encouraged in the literature (Giske & Cone, 2012; Wu, Liao, & Yeh, 2012).

In nursing practice, the Arabic SIBS, whose validity and reliability were examined in this study, can provide nurses, nursing managers and nursing educators with information about aspects of assessing spiritual beliefs and practices where nurses should receive training to become competent in assessing the spiritual dimensions of their patients and themselves. Jordanian Muslim nurses can use this scale with confidence to assess levels of spiritual beliefs and practices of their patients and to guide them in meeting spiritual needs of their patients. In addition, the Arabic SIBS can be used by nurse researchers to investigate levels of spiritual beliefs and practices among various samples of nurses and patients. Moreover, they can use this scale to investigate associations of spiritual beliefs and practices with other measures of health and well-being, including physical, psychological, and social dimensions, particularly in clinical and academic institutional settings and to particular groups of hospitalized Arab Muslim patients. Moreover, a benefit of having an Arabic version of a widely used scale like the SIBS is that it allows for comparing spiritual beliefs and practices across different cultural and religious groups.

Some limitations to this study should be noted. Although the sample was reasonably large (n=394), the Arabic version of the SIBS was tested on a convenience and homogeneous participants represented a group of nursing students who were studying at universities in northeastern Jordan; future research is recommended to test its generalizability using a more representative sample including all regions in Jordan, Arab Muslim nursing students from different Arab countries, other ethnicities, and faiths outside the Muslim tradition within the

Islamic culture (e.g. Arab Christians). Although the Arabic version of the SIBS in this study exhibited adequate reliability and validity, it is recommended to continue examining its reliability and validity, using other alternative tests such as test-retest reliability and discriminant validity.

In conclusion, the developed Arabic version of the SIBS exhibited adequate evidence of internal consistency reliability and construct validity among Jordanian Arab Muslim nursing students. The resultant three-factor solution of the SIBS were psychometrically sound in terms of obtaining a simple factor structure, easily interpretable and had a conceptual meaning. These findings demonstrate that this scale has the potential to be used outside the Western culture and Christian tradition in a meaningful way with the proviso that the translation adequately reflects the practices, beliefs, traditions and culture of the intended participants, in this case Arab Islamic culture. In addition, it would appear that spiritual beliefs and practices, spiritual well-being, and religiosity are important dimensions for Jordanian Muslim nursing students themselves, which have potential implications for nursing education, practice and research. Furthermore, this study supports the notion that religion and spirituality are two distinct but related concepts.

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APPENDIX I. The Arabic SCIPS with its direct English translation

Item	Arabic	Direct English translation
1	في المستقبل ، سيكون العلم قادراً على تفسير كل شيء.	In the future, science will be able to explain everything
2	اشعر بعيره في المحن.	I can find meaning in times of hardship
3	يمكن للإنسان أن يكون قانعا من غير أن يعيش حياة دينيه (روحانية).	A person can be fulfilled without following an active spiritual life
4	احمد الله على كل شيء يحدث لي.	I am thankful for all that has happened to me
5	لا اشعر بان العباده تقربني من الآخرين.	Spiritual activities have not helped me become closer to other people
6	تجعلني عقيدتي افهم بصوره أفضل ما يحدث معي في المواقف المختلفه	Some experiences can be understood only through one's spiritual beliefs
7	إمائي يؤثر في مجريات الأحداث التي أعيشها.	A spiritual force influences the events in my life
8	هناك غاية عظيمه في حياتي.	My life has a purpose
9	هناك فائدة في الصلاة والدعاء في تغير الأمور التي تحدث.	Prayers do not really change what happens
10	يساعدني القيام بالشعائر الدينية (الروحانية) على التسامح مع الآخرين.	Participating in spiritual activities helps me forgive other people
11	تحفزني معتقداتي الدينية (الروحانية) باستمرار في حياتي.	My spiritual beliefs continue to develop
12	أؤمن بان قدرة الله (سبحانه وتعالى) تفوق قدرة البشر	I believe there is a power greater than myself
13	لصحة ما اعتقد به, لست مستعدا لإعادة النظر في معتقداتي الدينية.	I probably will not reexamine my spiritual beliefs
14	تمنحني حياتي الدينية قناعة لم أجدها في الجانب المادي من حياتي.	My spiritual life fulfills me in ways that material belongings do not
15	يساعد القيام بالشعائر الدينية (الروحانية) في تطوير ذاتي وشخصيتي	Spiritual activities have not helped me develop my identity
16	يشعرنني التأمل والتفكير في خلق الله بتواصل أعمق مع ذاتي	Meditation does not help me feel more in touch with my inner spirit
17	تربطني علاقة متينة مع الله (سبحانه وتعالى)	I have a deep relationship with God
18	شعرت بأنني أجبرت على قبول معتقدات دينية لست موافقاً عليها.	I have felt pressured to accept spiritual beliefs that I do not agree with
19	يساعدني القيام بالشعائر الدينية (الروحانية) على التقرب من الله (سبحانه وتعالى)	Spiritual activities help me nearer closer to God
20	عندما أخطئ في حق شخص ما ابذل قصار جهدي كي أعترف منه.	When I wrong someone, I make an effort to apologize
21	عندما أشعر بالعار من شيء اقترفته،أبوح عنه لشخص آخر	When I am ashamed of something I have done, I tell someone about it
22	لا الجأ إلى الدين في معالجة أي مشكلة أو محنة تواجهني في حياتي .	I solve my problems without using spiritual resources
23	أقيم أفعالي من خلال المعيار الديني (الروحاني).	I examine my actions to see if they reflect my values
24	خلال الأسبوع الماضي أقمت الصلاة (اختر واحده فقط) (ولا مره, مره بالأسبوع, مرتين أو أكثر بالأسبوع, مره إلى مرتين باليوم, خمسة مرات باليوم)	During the last week, I prayed (check one) (0 times; 1 time a week; 2 or more times a week; 1-2 times a day; 5 times a day)
25	خلال الأسبوع الماضي تأملت مليا في خلق الله (اختر واحده فقط) (ولا مره, مره بالأسبوع, مرتين أو أكثر بالأسبوع, مره إلى خمس مرات باليوم, ست أو أكثر باليوم)	During the last week, I mediated ----- (check one) (0 times; 1 time a week; 2 or more times a week; 1-5 times a day; 6 times or more a day)
26	خلال الشهر الماضي كم مرة شاركت بنشاطات روحانيه مع (شخص أو أكثر ؟ (اختر واحده فقط) (ولا مره, 1- 5 مره, 6- 10 مره, 11- 15 مره, أكثر من 15مره)	Last Month, I participate in spiritual activities with at least one other person----- (check one) (0 times; 1-5 times; 6-10 times; 11-15 times; More than15 times)

Note. The original English language Spiritual Involvement and Beliefs Scale is in the *Journal of Family Practice*, 1998, 46(6), p. 485-486. Translation courtesy of Ahmad S. Musa. Direct inquiries to Dr. Musa at: Ahmad_cns1@yahoo.com.

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