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# Formulating a structural model of self-compassion based on the spiritual intelligence of the students of medical library and information sciences in Iranian Universities of Medical Sciences

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## Abstract:

**INTRODUCTION:** Effective communication is one of the most important factors in advancing the goals of library services and the identifying factors affecting it and having a single model for such factors are of utmost importance. The aim of this study was to develop a structural model of self-compassion measured based on spiritual intelligence (SQ) as factors affecting communication in medical library and information science students.

**MATERIALS AND METHODS:** This was a correlational study done by structural equation modeling method. A total of 290 undergraduate and graduate students of Medical Library and Information Sciences of Iran's Universities of Medical Sciences were selected by simple random sampling. In this study, the data were collected by the Neff's Self-Compassion Scale and the King's Spiritual Intelligence Self-report Inventory. Self-compassion measured based on SQ was tested by goodness-of-fit indices. Statistical analysis was performed using SmartPLS software.

**RESULTS:** The results showed that there was a significant relationship between SQ and self-compassion. Furthermore, the positive values of predictive indices could confirm the self-compassion measured based on SQ. Composite reliability indicated the high reliability of SQ and self-compassion.

**CONCLUSION:** According to the fitting indices of the model, it can be concluded that the self-compassion model has an acceptable fit on the basis of SQ.

## Keywords:

Iranian Universities of Medical Sciences, self-compassion, spiritual intelligence, students

## Introduction

According to the World Health Organization definition, dimensions of human existence refer to physical, psychological, social, and spiritual dimensions, and spirituality appears to be important for the development of human.<sup>[1]</sup> In recent decades, the concept of

spirituality and its applications worldwide is becoming too important so that the concepts, such as the divinity, religion, and spirituality, are now entered into scientific research and academic discussion in liberal arts.

Gardiner put forward the concept of "spiritual intelligence (SQ)" in his theory of

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multiple intelligences.<sup>[2]</sup> The SQ is defined as the ability to act with wisdom and compassion, which also appears to be important for individual and organizational domains and research activities,<sup>[3]</sup> and the SQ improves an individual's performance, and accordingly, SQ is the ultimate dimension of intelligence.<sup>[4]</sup> There is a significant correlation between the SQ and mental health, associated with happiness.<sup>[5]</sup> A number of studies have been conducted on spirituality, in which researchers have examined Buddhism's statements about self; self-compassion is one of the results of these studies. Self-compassion has also been proposed as one of the most important factors affecting spirituality.<sup>[6]</sup> Self-compassion can be defined as positive self-feelings when life goes badly, and also, it can be seen as an effective factor in fostering emotional flexibility.<sup>[7]</sup> In general, self-compassion is based on positive and negative evaluations along with the kindness, understanding, and acceptance of common humanity.<sup>[8]</sup> It represents a positive emotional stance toward oneself, which can help one to understand existential concepts.<sup>[9]</sup>

Self-compassion can enhance health behaviors through one's own efforts in the process of spiritual growth.<sup>[10]</sup> Moreover, it is positively associated with personality traits, performance and achievements, interpersonal relationships, and mental health.<sup>[11]</sup> Higher levels of these characteristics lead to increased motivation to constructively resolve interpersonal problems or solve one's own problems.<sup>[12]</sup>

All in all, if SQ gives us a lens through which to view the world for getting a better life, it is a lens of self-compassion through which we see ourselves for getting a better life.

In their study, Mathad *et al.* found a significant association between self-compassion and mindfulness.<sup>[13]</sup> Akin and Akin introduced self-compassion as a predictor of spiritual experiences of Turkish University students.<sup>[14]</sup> The results of the study of Benedict-Montgomery demonstrated a significant relationship between self-compassion and spirituality.<sup>[15]</sup> Furthermore, Neff and Costigan in their study examined self-compassion, mental health and happiness, and found a significant relationship between them.<sup>[16]</sup> Gupta showed that there was a significant association between SQ and emotional intelligence with self-efficacy among college students.<sup>[17]</sup> Allen and Leary also found an inverse correlation between self-compassion and stress.<sup>[18]</sup> Moreover, King and DeCicco developed separate models of self-compassion and SQ in 2008 and 2009, respectively.<sup>[19,20]</sup>

The communication plays an important role in library and information science, especially as clinical library and information science is implemented, and

students are in direct contact with the medical team, so it is becoming increasingly important to meet the information needs of physicians. Therefore, the necessity of medical library and information science students' empowerment and mastery over communication topics is becoming ever more evident. According to studies conducted, self-compassion and SQ are factors affecting communication, and studying these variables is important for medical library and information science students. The conceptual model measuring the variables is one of the most important factors that can influence the results of any research. To our knowledge, the model has not yet been applied to examine self-compassion together with SQ. Given that the models of SQ and self-compassion have been less examined and less separately, and on the other hand, communication plays an important role in library and information science, thus it seems necessary to examine the models of SQ and self-compassion among library and information science students. Therefore, this study attempted to answer the following research question: Does the goodness of fit (GoF) of structural model of self-compassion measured based on SQ of library and information science students of Iran University of Medical Sciences seem appropriate? Accordingly, the aim of this study was to develop a structural model of self-compassion measured based on SQ.

## Materials and Methods

This was a predictive correlation study. The study population comprised 290 undergraduate and graduate students of Medical Library and Information Sciences of Iran's Universities of Medical Sciences. The sample size required to estimate the population parameter was determined as ten people for each question,<sup>[21]</sup> thus the sample size was 260 people who were selected by simple random sampling. A list of undergraduate and graduate students of Medical Library and Information Sciences was obtained by referring to Iran's Universities of Medical Sciences and 260 university students were selected using the random number table. With the help of three other coworkers who received training required to perform the questionnaires, we referred to the student samples and provided them with the necessary explanations, and then questionnaires were distributed to them.

In this study, the data were collected by the Neff's Self-compassion Scale (SCS) and the Spiritual Intelligence Self-report Inventory (SISRI-24). To conduct a confirmatory factor analysis for validation and obtain the validity of the questionnaire, three types of validity evaluations including the face, convergent, and divergent validity assessments were applied. Face validity was evaluated and confirmed by

experts. Convergent validity was measured by average variance extracted (AVE), and discriminant validity was measured by calculating the square root of AVE with the correlation between the variables. The AVE value of 0.4 is acceptable.<sup>[21]</sup> Composite reliability (CR) and Cronbach's alpha coefficient were used for the reliability of the questionnaire.

The SCS is a 26-item self-report questionnaire that comprises three subscales: (1) self-kindness (five items: 5, 12, 19, 23, 26) versus self-judgment (five items: 1, 8, 11, 16, 21), (2) a sense of common humanity (four items: 3, 7, 10, 15) versus isolation (four items: 4, 13, 18, 25), and (3) mindfulness (four items: 9, 14, 17, 22) versus overidentification (four items: 2, 6, 20, 24). Each item was scored on a five-point Likert scale, ranging from 1 (never) to 5 (always). In the present study, the overidentification, isolation, and self-judgment subscales were removed when conducting a confirmatory factor analysis. Scores ranged from 1 to 65. For the first time, Momeni (2013) used Neff's SCS in Iran and reported a high reliability and validity for this scale. The overall reliability through Cronbach's alpha for the SCS was 0.7. In addition, test-retest reliability for a 2-week interval was 0.89; convergent and discriminant validity of the SCS were relatively high. The SISRI is a 24-item self-report scale that consists of four subscales: (1) critical existential thinking (7 items: 1, 3, 5, 9, 13, 17, 21), (2) personal meaning production (5 items: 7, 11, 15, 19, 23), (3) conscious state expansion (7 items: 2, 6, 10, 14, 18, 20, 22), and transcendental consciousness (5 items: 4, 8, 12, 16, 24). Each item was scored on a Likert scale, ranging from the response of (0) not at all true of me to (4) completely true of me. Scores ranged from 0 to 96. For the first time, Zarin Abadi (2011) applied the King's SQ scale used in Iran and reported a high reliability and validity for this scale. The overall reliability through Cronbach's alpha for SISRI-24 was 0.91. Both face and content validity of the SISRI-24 were confirmed.

In this study, after collecting questionnaires and entering data into SPSS Statistics 24 (IBN Inc., in New York, USA), the data were analyzed using structural equation modeling (SEM) and partial least squares SEM using Smart PLS (SmartPLS GmbH Inc., in Hamburg, Germany).

## Results

A total of 260 university students (60 males and 200 females) aged from 18 to 27 years were included in the study. Of the 260 participants, 51 were married and 209 were single. Among university students, 190 were undergraduate and 70 were graduate. The mean undergraduate grade point average (GPA) was 17.21, the mean graduate GPA was 17.32, and the overall undergraduate and graduate GPA was 17.24.

Table 1 shows a list of Iran's Universities of Medical Sciences (including Isfahan University of Medical Sciences, Hamedan University of Medical Sciences, Bushehr University of Medical Sciences, and Tehran University of Medical Sciences) which offers both undergraduate and graduate programs of Medical Library and Information Sciences. Moreover, the information of the study participants by the university is presented in Table 1.

The CR and Cronbach's alpha were used to measure the model reliability. The results are presented in Table 2. The Cronbach's alpha value for the measurement model of SQ and self-compassion was 0.6,<sup>[22]</sup> which was a high level for alpha. The value of CR was higher than 0.7, and it could be concluded that the model variables (SQ and self-compassion) showed the acceptable value of CR. Furthermore, the AVE value and the communality values of structural model of self-compassion measured based on SQ were = 0.606, indicating that the convergent validity of the study questionnaire was at an acceptable level.

Based on the findings of the study, effect coefficient, standard error, T value, and value of explained variance by each item were calculated for SQ and self-compassion, which showed item coefficient 6 of SQ and item coefficient 17 of self-compassion at the level of  $P < 0.05$ , and the remaining items of the questionnaire had a significant effect on SQ and self-compassion at the level of  $P < 0.01$ .

Furthermore, communality indicators with cross-validity (CV) and redundancy indicators with CV were used to evaluate the quality of both the measurement model and the structural model, respectively. Redundancy indicators with CV for SQ and self-compassion were 0.229 and 0.196, respectively, and communality indicators with CV were 0.222 and 0.24, respectively, indicating that a confirmed GoF for the model.

As can be seen from Table 3, the SQ and its components had a high effect size on the self-compassion (effect size = 0.779). Furthermore, the T values lied outside the range (-1.96, 1.96), and they were statistically significant, indicating that a confirmed GoF for the model.

According to the results of this study, standard coefficients of structural model of self-compassion measured based on SQ were presented in Figure 1.

As shown in Figure 1, SQ and its components at the level of  $P < 0.05$  had a significant effect on the self-compassion. The component of transcendental consciousness with the effect size of 144.0 and the component of conscious state

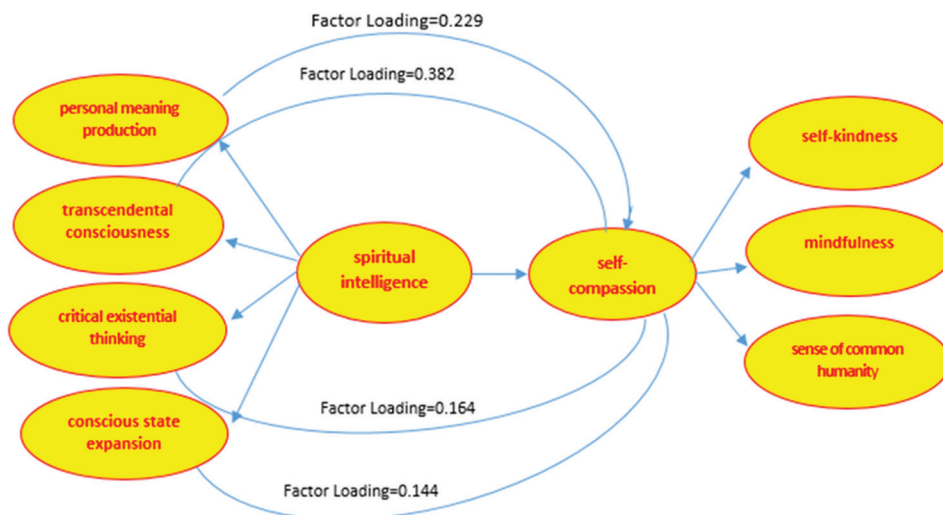


Figure 1: Standard coefficients of structural model of self-compassion measured based on spiritual intelligence

Table 1: List of Iran’s universities of medical sciences offers both undergraduate and graduate programs of Medical Library and Information Sciences

List of Iran’s universities of medical sciences	Undergraduate students			Postgraduate students			Questionnaires collected
	Female	Male	Married	Female	Male	Married	
Isfahan University of Medical Science	38	19	11	12	-	3	65
Hamedan University of Medical Science	50	4	10	12	-	4	65
Boushehr Province University of Medical Science	48	12	8	13	3	7	69
Tehran University of Medical Science	22	7	2	32	8	5	61

Table 2: Average variance extracted value and the communality values of Cronbach’s alpha and composite reliability of model of self-compassion measured based on spiritual intelligence

Variables	AVE	Communality	Cronbach’s alpha	Composite reliability
Structural model	0.606	0.606	-	-
Spiritual intelligence	0.426	0.352	0.916	0.92
Self-compassion	0.75	0.34	0.84	0.87

AVE=Average variance extracted

Table 3: Results of effect of spiritual intelligence on self-compassion

Relation	Factor Loading	t	P	R <sup>2</sup>
Spiritual intelligence→self-compassion	0.779	20.887	0.01	0.6060

expansion with effect size of 0.392 had the highest and lowest effects on self-compassion, respectively.

The GoF has been developed as an overall measure of model fit. GoF is one of the most important measures of model fit.<sup>[23]</sup> The GoF acts similar to fit indices for the LISREL (linear structural relations) model, and it ranges from 0.0 to 1.0 and the GoF values close to 1 indicate a good quality of the model. In the present study, the GOF was used to measure the model fit. In this formula, communality is the average common

values of each construct in PLS. According to Wetzels, Odekerken-Schroder, and Van Oppen, three values of 0.01, 0.25, and 0.36 which were known as weak, medium, and strong values for GOF. According to the results of this study, the value of the GoF of the model was 0.457, which indicated good fit of the structural model.

Formula 1: Model validation based on GOF index:

$$GOF = \sqrt{\text{communalities} \times r^2} = \sqrt{0.346 \times 0.606} = 0.457$$

## Discussion

In the present research, the reliability of the measurement model of SQ and self-compassion was assessed based on Cronbach’s alpha and CR, which indicated the high-level reliability of this model. The results were consistent with those of studies conducted by Sharifnia, Mehrabian, King and DeCicco, Hariri and Zarrinabadi, Shiasi *et al.*, Momeni and Ebrahimi, Hosseinchari and Zakeri, Chan and Siu, and Kuar and King<sup>[19,20,24-31]</sup> for SQ, and the research conducted by Momeni *et al.*, Ajam *et al.*, Raes and Pommier, Thompson and Waltz, and Rajabi and Maghami on self-compassion,<sup>[32-36]</sup> which indicated the high reliability of the measurement scales used in the study.

Our results showed that the present model had a level of satisfactory validity with respect to both the high



level of AVE and probability values (T values), which was consistent with the results of a study conducted by Sharifnia<sup>[24]</sup> for SQ and those of research performed by Neff, Momeni *et al.*, and Neff and McGehee for self-compassion.<sup>[32,37,38]</sup>

Our results demonstrated that there was a significant association between SQ and self-compassion, which was consistent with those of studies conducted by Benedict-Montgomery and Akin and Akin.<sup>[14,15]</sup> In his study, Mathad *et al.* also demonstrated a significant relationship between self-compassion and mindfulness as one of the components of SQ. Moreover, Our results corroborate the study of Benedict-Montgomery finding a significant relationship between self-compassion and spirituality.<sup>[15]</sup> In his study, Ghobari Bonab showed that spiritual maturity as one of the manifestations of SQ encompasses wisdom and compassion for others,<sup>[39]</sup> which is in line with our results.

Since most of the studies found that there are significant associations between self-compassion and mental health, life satisfaction, and communication,<sup>[10,16,18]</sup> it can be said that self-compassionate people have better mental health, and they are capable of solving their problems, and this can improve their ability to communicate effectively with others. Some studies have shown that there are significant associations between SQ, mental health, happiness, job satisfaction, and life satisfaction.<sup>[17,19,20,40-42]</sup> Overall, it seems that people with higher levels of SQ and self-compassion are satisfied with their life, and they have the best quality of life and also they can communicate effectively with others.

In the present study, the GoF was used to measure the model fit, the GoF assessed the ability of model to predict and whether the tested model was successful in predicting variables. In fact, models with acceptable fit should be able to predict the endogenous variables of the structural model. In other words, if the relationships between structures in the model are correctly defined, the structures sufficiently influence each other. From these results, it can be concluded that the model of self-compassion measured based on SQ indicated the acceptable fit. Our results also demonstrated that SQ had a significant effect on self-compassion, which was consistent with those of Mathad *et al.*'s study showing a significant relationship between self-compassion and mindfulness as one of the components of SQ,<sup>[13]</sup> and the study of Benedict-Montgomery finds a significant relationship between self-compassion and spirituality.<sup>[15]</sup> It should be noted that most of the studies have not been examined the effect of SQ as a model and only the relationships have been investigated. The results of the present study showed that among the components of SQ, transcendental consciousness exerted the greatest effect on self-compassion and such the effect is to be

expected according to the concept of recognizing aspects of transcendence of self, others, and the world through consciousness<sup>[19,43-47]</sup> for transcendent awareness and compassion meaning moral virtue<sup>[48]</sup> and awareness and thoughts without judgment.<sup>[33]</sup> Among the components of SQ, the conscious state expansion had the least effect on self-compassion. Given the concepts of prayer and meditation in the conscious state expansion and the concepts of self-compassion that indicate breaking the cycle of self-absorption and increasing feelings of interconnectedness,<sup>[16]</sup> this effect size is acceptable. The dimensions of self-compassion are inspired by basic human values, tolerance to self and others and maintaining a behavioral balance, expressing acceptance of problems without negative mental states<sup>[38]</sup> and dimensions of SQ related to purpose and meaning of life, coping with adversity, taking a limitation and turning it into an opportunity, and self-control that ultimately lead to the preservation and development of human values; therefore, considering the role of SQ and self-compassion in improving the quality of life and job satisfaction, communication, interactive skills, and effective communication, it is expected that SQ has a significant effect on self-compassion.

## Conclusion

The objective of Library and Information Sciences is to pave the way for communication between the two essential elements of "information" and "a person who needs information," therefore, it is essential that people who deal with this field be familiar with the communication and how to communicate effectively. The communication plays an important role in careers in library and information science offering services, such as principles of reference work, marketing, and consulting. From the results obtained, it can be concluded that library and information science students who have high level of SQ and self-compassion will succeed not only in their personal life but also in the field of their career and advancement of organizational goals. Since SQ plays an effective role in communicating and understanding other people, which is one of the conditions for healthy communication, it seems essential to be kind to others as a logical way rather than the way of employing compassion that prevents solving the problems and harm oneself. Furthermore, by increasing compassionate toward one's feelings, one can take better care of one's own suffering and improve mental health, which can lead to reduced job burnout and increased self-efficacy. Given the effect of SQ on self-compassion, it seems that by enhancing SQ through training the individuals, their self-compassion can be increased. As stated, self-compassion affects people's quality of life and mental health, so it can prevent burnout and increase people's efficiency.

Therefore, library and information science students need to have high levels of SQ and self-compassion which can help guarantee a more successful future in this field and increase the quality of research.

One of the strengths of this study is that it develops a model for measuring self-compassion based on SQ by the components of each variable and their effects. Furthermore, the components affecting each of the model variables were determined and confirmed by factor analysis, and the effective cases were introduced in this study. One of the limitations of the present study is that it limits to medical library and information science students conducted in a relatively short period of time. Therefore, future research should seek a larger sample size and conducted the study for a long period of time. Furthermore, based on the results of this study, we recommend that the future researchers employ the present model to measure self-compassion and SQ.

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### Conflicts of interest

There are no conflicts of interest.

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