Development and validation of the Iranian Social Health Questionnaire (IrSHQ)

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Abstract

Background: Social health is a fundamental dimension of health, and plays an important role in promoting social well-being. Research in social health needs reliable and valid tools, which should be also applicable to any type of social context. This study was aimed to develop an effective social health questionnaire for the social context of Iranian society.

Methods: The study was conducted in three phases: 1) A preliminary 43-item questionnaire was created based on an extensive literature review; 2) The questionnaire was validated. Firstly, social health experts evaluated content validity; secondly, an exploratory factor analysis and Cronbach's coefficient test were used; 3) The questionnaire was tested in a representative sample of 500 persons, who were selected through a multistage sampling in Tehran, Iran, in 2015. All analyses were carried out using SPSS software (version 22).

Results: We developed the Iranian Social Health Questionnaire (IrSHQ) consisting of a 29-item questionnaire organized in seven subscales – 'Social interaction', 'social responsibility', 'conscientiousness', 'attitude to society', 'empathy', 'family relationship', and 'social participation'–. Internal consistency using Cronbach's alpha coefficient was 0.86. Validity and reliability of our questionnaire were confirmed.

Conclusion: Due to the size and diversity of participants, validity of results, compliance with Iranian culture, and its relative shortness, the IrSHQ appears to be a very useful instrument for measuring individual's social health in the Iranian social context.

Riassunto

Introduzione: La salute sociale è una dimensione fondamentale della salute e gioca un ruolo importante nella promozione del benessere sociale. La ricerca sulla salute sociale necessita di strumenti validi ed affidabili, che dovrebbero anche essere applicabili in ogni tipo di contesto sociale. Questo studio è stato ideato per sviluppare un efficace questionario sulla salute sociale adatto al contesto sociale iraniano.

Metodi: Lo studio è stata condotto in tre fasi: 1) una versione preliminare a 43 item del questionario è stata preparata sulla base di un'estesa revisione della letteratura. 2) Il questionario è stato validato. Per prima cosa, esperti del settore hanno valutato la validità del contenuto; poi sono state effettuate l'analisi fattoriale esplorativa ed il calcolo del coefficiente di Cronbach. 3) Il questionario è stato testato su di un campione rappresentativo della popolazione iraniana composto da 500 persone selezionate attraverso un campionamento multi-stadio effettuato nella città di Teheran, in Iran, nel 2015. Tutte le analisi sono state effettuate utilizzando il software SPSS (versione 22).

Risultati: Abbiamo sviluppato il questionario "Iranian Social Health Questionnaire" (IrSHQ), composto da 29 item organizzati in sette sottoscale denominate "Interazione sociale", "Responsabilità sociale", "Coscienziosità", "Attitudine verso la società", "Empatia", "Relazioni familiari" e "Partecipazione sociale". La consistenza interna usando l'alpha di Cronbach è stata pari a 0,86. La validità e l'affidabilità del nostro questionario sono state confermate.

Conclusione: In considerazione delle dimensioni del campione, della diversità dei partecipanti, della validità dei risultati, della conformità alla cultura iraniana e della sua relativa brevità, il questionario "IrSHQ" sembra essere uno strumento molto utile per misurare il grado di salute sociale dell'individuo nella società iraniana.

TAKE-HOME MESSAGE

To better measure and understand social health status in society, sensitive and socio-culturally specific instruments are indispensable. The 'Iranian Social Health Questionnaire' (IrSHQ) was developed to meet such a necessity in Iran.

INTRODUCTION

Our understanding of health and its determinants has greatly increased in recent decades. Especially, growing recognition of social determinants of health has stimulated research on social aspects of health [1, 2]. In 1948, World Health Organization (WHO) revised the first definition of health that was limited to a 'biomedical model' of health, by including also psychological and social aspects of health. Indeed, according to the WHO's definition, health is a 'state of complete physical, mental, and social well-being and not merely absence of disease or infirmity' [3]. However, to date no universally accepted inter-disciplinary definition and measurement system of social health has been determined [4, 5]. Marandi found that among different determinants of health, the social one accounts for approximately 50% of health differences [6]. But unfortunately, social health -as one of the main domains of health- is not as clear as the physical and mental health. In health and social sciences research, social health is an argumentative and dynamic concept [7]. Generally, the concept of social health focuses on individual's ability to function in a community and to have an interpersonal communication, and on the quality of well-established social networks and social support [8]. Methodologically speaking, some indices were developed in order to measure levels of social health. Overall, scholars follow two main approaches for measuring social health, which can complement each other; the individual and societal pathways. The individual one is more concentrated on interactions among individuals within a society. In accordance with this view, social health is defined as 'an assessment of functions and circumstances of one person in a given society' [9–11]. On the contrary, the society-based approach attempts to adopt a macro view towards social health. Indeed, in this second case the unit of analysis is the society considered as a whole and this point of view provides a clearer understanding about overall conditions and future trends in the society [12–13]. Considering all potential definitions and approaches, social health can be studied in three different ways: 1) social health as the social dimension of individual's health, where individual lives and interacts with the society; 2) social health as a 'healthy' society providing pro-health social conditions; and 3) social health as 'a better social status in a general way', that according to each society's situations, can have different objective meanings and examples [11]. Among different indices that scholars used to measure social health, we can mention some of them as following: 1) The 'Fordham Social Health' index, which measures some different variables in different age groups and other variables regardless of age; 2) the 'Ontario Healthy Communities Coalition' index (2003), which attributes to a healthy population the following characteristics: clean and safe environment, peace, equity and social justice, adequate access to food, water, shelter, income, safety and security, work and recreation, adequate access to health care, opportunity for learning and developing skills, strong and supportive relations and networks, supportive work environments for family and individual well-being, extensive participation of dwellers in decision making, cultural and spiritual heritage, varied and dynamic economy, protection of natural environment and responsible consumption of resources that assures their sustainability [14]; 3) the 'North Carolina Population Health Workgroup' concept where a healthy population should enjoy security and affordable house; accessible transportation system, job security, and healthy and safe environment; sustainable ecosystem, accessible, and prevention-focused health care; and, finally, 4) the 'Healthy Village' concept provided by WHO Eastern Mediterranean Office (2010), which includes some variables such as clean and safe material environment, social coordination, openness to experiences, interactions and various relationships, protection and promotion of cultural and historical heritage, appropriate and accessible health care, economic variation and originality, and sustainable utilization of available resources [11].

Despite the effort for measuring social health, too much attention was paid to some

questionnaires that were developed considering a few dimensions of social health, such as social support [15], social functioning [16], and social interaction [17]. In Iran, only few studies were carried out to develop scales for measuring social health. Indeed, an effective and validated questionnaire should also consider cultural and language differences within a population in order to measure what it is intended to measure [18–19]. In Iran, due to the socio-cultural diversity with regard to language, ethnicity/race, religion, and social context, the usage of a foreign social health questionnaire could be misleading. In light of the importance of social health in terms of overall individual health status, this study focused on the individual approach to social health in order to develop and validate a useful social questionnaire for our social context, which we named 'Iranian Social Health Questionnaire' (IrSHQ). This new scale could increase our understanding of social aspects of health and pave the way for social organizations to promote effective social health-related interventions. Moreover, such a study might provide to the Ministry of Health and Medical Education (MoHEM) and other Iranian policymakers with a local social health questionnaire for measuring social health status, to better support social health-specific educational programs.

METHODS

Sampling and design

In this study, we used a three-phase mixed method approach in order to develop, validate, and implement the questionnaire. Our research was carried out in Tehran, capital of Iran, in 2015. During the implementation phase, we used a multistage sampling method to select a representative sample population.

Development phase

In this first phase, a comprehensive social health items pool, using an extensive literature review was prepared. We performed a comprehensive and accurate literature review in order to identify all interesting aspects of so-

cial health. The strategy for items generation was to identify, evaluate, and modify items from existing social health relevance literature. After reviewing different studies and instruments, 80 items were chosen from the literature. We adapted them in a culturally, and religiously acceptable way. Consequently, 37 items were omitted and the preliminary questionnaire consisted of 43 items.

Validation phase

In this second phase, the questionnaire validation was established using face and content validity, and construct validity. The preliminary questionnaire was circulated to a group of 10 persons who were purposely chosen among the Iran's most influential experts on social work and social welfare issues, in order to assess its content validity. The Content Validity Index (CVI) was applied to estimate the validity of statements. Content validity was undertaken to ascertain whether the content of the preliminary questionnaire was appropriate and relevant for the purpose of the study. Moreover, experts selected some items that they wanted to modify, re-order, or add. Reviewers, independently from one another, rated the relevance of each item using a 10-point Likert scale (1–10). Experts' suggestions were used to make a vis-à-vis questionnaire with more inclusive and exhaustive variables about the most important social health issues. Face validity addressed whether the questions were clear and representative, and whether the overall questionnaire made sense to participants. To determine the face validity of the IrSHQ, an evaluation form was developed to help respondents evaluate every item, and provide their suggestions for essential revisions. This evaluation form and preliminary questionnaire were piloted among 25 subjects. An exploratory factor analysis (principal components analysis followed by a Varimax rotation) was used to prove the construct validity. The sample adequacy for extraction of the factors was confirmed through Kaiser-Meyer-Olkin (KMO) and Bartlett's tests. The KMO statistic varies from 0 and 1. A value close to 0 indicates that the sum of

partial correlations is larger than the sum of correlations, which indicates diffusion in the pattern of correlation, and that factor analysis is inappropriate. A value close to one indicates that factor analysis will yield distinct and reliable factors [20]. Moreover, in order to test reliability, internal consistency was measured using Cronbach's alpha test. Internal consistency examines the inter-item correlations within an instrument and indicates how well a set of statements or items measure the same construct or idea. In Cronbach's alpha test, a value from .70 to .79 is considered fair, a value from .80 to .89 is considered good, and a value of .90 and over is considered excellent [21, 22]. The final version of the 'IrSHQ' consisted of a 29-question scale divided in seven subscales. Finally, we included in the questionnaire a standard demographic section for research purposes.

Implementation phase

In the last phase, the final version of the 'IrSHQ' was explored by a representative sample of 500 persons. A multistage sampling was used to select the subjects; in the first stage, a 'probability proportional to size' sampling was used to choose clusters from Tehran. Then, in the second stage, a 'simple random' sampling was used to select adult people from each cluster for the final sample. Specifically, Tehran was at first divided into four geographical locations (north, south, east, and west), and, then, two sites were randomly selected from every location. Subsequently, some blocks were randomly chosen from each site proportional to its size, and some households were randomly taken from each block. Data collection was carried out by a trained team of students who were supervised by a researcher in charge (FA). All eligible participants were given a written informed consent about the study purposes, confidentiality, and their rights to refusal and uncontested withdrawal at any stage of the study. All analyses were carried out using SPSS software (version 22).

Ethics approval

This study was permitted by ethics committee of University of Social Welfare and Rehabilitation Sciences (document code 32712).

RESULTS

Of all study subjects, 289 persons (56.7%) were male, 118 (23.6%) had less than high school education, 182 (36.4%) had high school and diploma, and the rest had an academic degree. The mean age was 34.4 years (SD ± 14.11) (Table 1).

Table 1. Demographic characteristics of the participants (*n* = 500).

Variables		Frequency (Mean)	Percent (SD)
Age		34.46 *	14.11 *
Gender	Male	272	54.40
	Female	228	45.60
"Educational Level"	Less than Secondary School	118	23.60
	Diploma and Secondary School	182	36.40
	University degree	200	40.00
"Marital status"	Married	283	56.60
	Single	196	39.20
	Divorced	16	3.20
	Widow	5	1.00

*As age was a continuous variable, the mean and standard deviation are reported.

Content validity

In the preliminary 43-item draft, seven items were deemed to be invalid because they didn't yield the required scoring in CVI. All the remaining items were valid with CVIs ranging from 0.80 (8/10) to 1.00 (10/10), and, therefore, they were retained. After asking the experts for their opinion about the relevance and clarity of the suggested questions, the final draft of our questionnaire was prepared. The relevance, clarity, and comprehensiveness of the final questionnaire were 96.3%, 95.6%, and 84%, respectively.

Face validity

To test this validity, 25 participants in pilot study rated statements in a Likert scale ranging from 1 to 4. About 90% of them indica-

subscales. Indeed, exploratory factor analysis of the questionnaire identified seven subscales that covered 29 items (statements). These seven subscales explained 63.1% of the variance in the data, which can be considered reasonable for a questionnaire (Table 2).

Table 3 shows the results of the factor analysis. Firstly, 43 statements were entered in the factor analysis model. Following Pett, Lackey and Sullivan (2003), factor loading was considered as following: 'fair' ≥ 0.45, 'good' ≥ 0.55, 'very good' ≥ 0.63, and 'excellent' ≥ 0.71 [23]. The most parsimonious solution [24] was used with seven-factor including the 29-item IrSHQ. Therefore, all final items loaded at 0.45 or higher on one specific factor, and less than 0.3 on any other factors. Following these criteria, 14 questions were omitted from the final factor analysis since they did not load

Table 2. Structure of factors and Factors Analysis Matrix.

Factors	Explanatory Factor Analysis			
	Number of items	Eigen value	Percentage of variance	Percentage of cumulative variance
Social interaction	9	8.03	27.69	27.69
Social responsibility	3	2.93	10. 10	37.79
Conscientiousness	5	2.06	7.11	44.91
Attitude to society	3	1.8	6.23	51.14
Empathy	5	**1.32**	4.56	55.7
Family relationship	2	1.09	3.75	59.46
Social participation	2	1.06	3.65	63.12

ted that they understood the questions ('easy to answer'), and more than 90% indicated that the appearance would be acceptable to the intended target audience.

Factor analysis

The KMO and Bartlett's test were 0.89 and 0.001, respectively. As mentioned above, the preliminary version of the questionnaire consisted of 43 items, of which 14 did not achieve significant loadings on any of the seven

at 0.45 on any factor (items 1, 2, 8, 9, 16, 21, 28, 29, 30, 31, 32, 40, 41, and 42). The final version of the IrSHQ consisted of 29 items organized in seven subscales, as following:

1. 'Social interaction' accounted for 27.7% of the total variance. Social interaction included 9 items (eigenvalue = 8.03) in the final questionnaire; it reflected information about the process by which we act and react to those around us. All of the 9 items loaded in a positive direction.

2. 'Social responsibility' accounted for 10.1% of the total variance, and included three items (eigenvalue = 2.93) with very high factor loadings ranging from 0.76 to 0.84. These items loaded in a positive direction, and focused on a framework that every individual has to behave ethically and with sensitivity towards social, cultural, economic, and environmental issues for the benefit of society.

3. 'Conscientiousness' was referred to the personality trait of being thorough, careful, or vigilant towards the society. Conscientiousness included 5 items (eigenvalue = 2.06) that loaded in a positive direction, and accounted for 7.1% of the total variance.

4. 'Attitude to society' accounted for 6.2% of the total variance, and included three items (eigenvalue = 1.8) with very high factor loadings ranging from 0.71 to 0.82. Attitude to society was about predisposition or tendency to respond positively or negatively towards a community or society. Attitude to society statements loaded in a positive direction.

5. 'Empathy' accounted for 4.5% of the total variance and comprised five positive items (eigenvalue = 1.32). Empathy was about the feeling that one person could understand and share another person's experiences and emotions.

6. 'Family relationship' accounted for 3.7% of the total variance, and included two positive items (eigenvalue = 1.09). These statements referred to quantity and quality of family relationships with each other.

7. 'Social participation' accounted for 3.6% of the total variance. Social participation comprised 2 positive items, and referred to one's degree of participation in a community or society. This seven-factor solution was responsible for 63.1% of the total variance.

The Cronbach's alpha for the total scale was 0.862, while with regard to the seven factors related to 'social interaction', 'social responsibility', 'conscientiousness', 'attitude to society', 'empathy', 'family relationship', and 'social participation', it was 0.883, 0.766, 0.874, 0.711, 0.817, 0.715, and 0.722 respectively, which indicates a high consistently reliable correlation between the items and the overall questionnaire (Table 4).

Table 3. Items and Factor Loadings for Seven Social Health Subscale Factors using principal component analysis with Varimax Rotation.

Items (Statement No.)	F 1	F 2	F 3	F4	F 5	F 6	F 7
I am willing to give financial assistance to someone (13).	0.777						
I am trying to improve my relationship with others (18).	0.775						
Relationships with others make me feel happy (11).	0.754						
I am willing to help others for achieving their individual goals (15).	0.751						
I prefer to travel with others than travelling alone (19).	0.728						
I like to respect people's privacy (12).	0.726						
I feel secure in my relationships (17).	0.706						
I am willing to cooperate with others for issues of mutual interest (10).	0.672						
Cooperating with others helps me achieving my goals (14).	0.607						
In case of damage affecting public facilities, I am willing to inform competent authorities (38).		0.840					
I am in compliance with all costumes and rituals of my community (37).		0.761					
In case of street lighting problems, I am willing to contact my electricity authority (36).		0.760					
I don't like to attack people to achieve my individual goals (25).			0.888				
I am willing to give my assistance to the victims of natural and man-made disasters (24).			0.886				
I am reliable and responsible with my work and tasks (20).			0.794				
I am afraid in case of violation of people's rights (22)			0.787				
I like to respect people's civil rights, regardless of laws (23).			0.640				
I have a good attitude towards social responsibility (26).				0.828			
I share my community's opinions (27).				0.799			
There are many social incentives available for people to work in my community (33).				0.713			
People's problems concern me (3).					0.593		
I and my community's people share the same destiny (4).					0.610		
I am happy when people are happy (5).					0.705		
The people's future is important for me and my community (6).					0.810		
I can feel what other people are feeling and thinking (7).					0.770		
I am happy to participate in a family party (39).						0.790	
I am glad to give a party (43).						0.703	
I look for cooperation among different sectors of my society (34).							0.791
I vote in case of presidential election (35).							0.681

Notes: Factor 1: Social interaction; Factor 2: Social responsibility; Factor 3: Conscientiousness; Factor 4: Attitude to society; Factor 5: Empathy; Factor 6: Family relationship; Factor 7: Social participation. Statements were included if items loaded at 0.45 or higher on a specific factor.

Table 4. Internal consistency of the subscales and total scale based on Cronbach's alpha test.

Factor	Cronbach's alpha	Number of items
Social interaction	0.883	9
Social responsibility	0.766	3
Conscientiousness	0.874	5
Attitude to society	0.711	3
Empathy	0.817	5
Family relationship	0.715	2
Social participation	0.722	2
Total	0.862	29

DISCUSSION

Valid and reliable instruments are always necessary for developing social health interventions and evaluating the performance of social health policies. In this study, a social health questionnaire was developed and evaluated in an Iranian social context focusing mostly on psychometric properties. While social health has been recognized as an important aspect of health, researchers and policy makers believe that it is difficult to measure it, because its concept is somehow subjective and, often, it is confused with other similar theoretical constructs such as the 'well-being', the 'social support', or the 'social capital'. The findings regarding the IrSHQ's validity showed that this instrument can accurately measure levels of individual's social health in Iran. Processes used to validate this new social health questionnaire were appropriate. Face validity provided important information about operational ability of the questionnaire by adults; content validity showed that the content was relevant to the concept of social health defined in this study; exploratory factor analysis confirmed the credibility of theoretical construct of the developed questionnaire. Cronbach's alpha coefficient attested a high internal consistency. With regard to construct validity, a factor analysis was conducted that led to a 29-item questionnaire consisting of 7 factors.

These 7 factors explained about 63% of all variance. Results showed good validity and reliability for the whole questionnaire and each of the seven domains. It seems that this new social health questionnaire would cover the main domains of social health. Indeed, some revealed domains such as social interaction, social responsibility, and social empathy are an umbrella that aptly cover the social health. This comprehensive coverage will provide an opportunity for researchers to use this social health questionnaire for future studies. Furthermore, it has to be mentioned that most of the existing Iranian scales in the field of social health don't have such comprehensiveness and, usually, focus only on social well-being [25]. Indeed, the seven extracted factors in this study were more comprehensive than 3 or 12 factors reported in other studies [26]. Our study has some strengths. Indeed, we recruited a large sample size containing a wide range of age groups to study the psychometrics of the questionnaire; in addition, we used a mixed method integrating quantitative and qualitative data collection and analysis to extract the preliminary draft and develop the final questionnaires; moreover, trained and expert professionals analyzed our questionnaire. However, our study has also some important limitations to consider; indeed, further research is needed to assess validity and

appropriateness of this questionnaire within specific groups of population, such as elderly, children, and other special groups of people. Finally, this questionnaire was developed and validated in Tehran, which is the capital of Iran; for this reason, it can be suggested that the IrSHQ should be effectively extended to other provinces in Iran where to test its reliability and validity.

(IrSHQ), consisting of a 29-item questionnaire organized in seven subscales, appears to be a very useful instrument for measuring individual's social health in the Iranian social context. Factor analysis in the present study showed satisfactory validity and reliability and, for this reason, this questionnaire can be recommended for further studies investigating social health among Iranian adults.

CONCLUSION

In conclusion, due to the size and diversity of participants, validity of results, compliance with Iranian culture, and its relative shortness, the Iranian Social Health Questionnaire

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