Original Article
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Medical Journal of the Islamic Republic of Iran (MJIRI)
Iran University of Medical Sciences

Psychometric properties of the Persian version of Social Capital Questionnaire in Iran

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Received: 9 May 2013 Accepted: 17 Aug 2013 Published: 1 Mar 2014

Abstract

Background: The aim of this study was to investigate the psychometric properties of Social Capital Questionnaire (SCQ) developed by Onyx and Bullen (2000) among a sample of medical science students in Tehran University of Medical Sciences, Iran and to compare the factor analysis with findings from two previous studies in Australia and the United States.

Methods: Multistage cluster sampling was employed to recruit 293 medical science students (Male: 95/Female: 198) from 7 faculties in Tehran University of Medical Sciences. After translating SCQ into Persian applying back-translation technique and three-stage consensus panel, the questionnaires administered to the respondents and they were asked to complete them. Statistical Analysis was performed using SPSS version 16.0 for Windows.

Results: Exploratory Factor Analysis (EFA) was conducted to evaluate factor structure of the Persian SCQ (P-SCQ), which showed a moderate replicability, validity, and reliability (Cronbach alpha= .79) to those found in previous studies. Twelve factors extracted with eight values greater than 1 which altogether accounted for 76.23% of the total variance. Applying Cattell's scree test, it was indicated that between seven and eight factors extracted. The correlations between factors were detected in the low (at the lowest 0.002) to modest (at the highest 0.614) range.

Conclusion: The differences found in the factor analysis between the studies may be ascribed to the various types of populations studied. Despite the difference in populations studied, our findings support the meaningfulness of P-SCQ as an instrument that is worthy of further attention for use in social health researches, although more studies are recommended to help researchers in comparing its variety in dimensions of different communities.

Keywords: Social Capital, Factor Analysis, Construct Validity, Iran.

Cite this article as: Yari A, Nadrian H, Rashidian H, Nedjat S, Esmaeilnasab N, Doroudi R, Hoursan H. Psychometric properties of the Persian version of Social Capital Questionnaire in Iran. *Med J Islam Repub Iran* 2014 (1 Mar). Vol. 28:17.

Introduction

Generally, there are associations between the concept of social capital and social and civic participation as well as networks of cooperation and solidarity (1). The existing literature is rife with different definitions, conceptualizations and perspectives in social capital area. For example, Bourdieu's distinct perspective on social theory of forms of capital (2) in contrast to Putnam's perspective on communication line of polit-

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ical thinking (3) and Coleman's exposition of "family social capital" (4) are three distinct schools of thought which currently well known in the published literature. Despite these different definitions and perspectives, there is a slowly growing general agreement on social capital definition in the health field (5), which referred to as ''social networks and their associated norms of reciprocity'' (6). Social capital is composed of the features of social organization and integration that makes co-operation easier for reciprocal advantage (5). This comprises the social relations which allow individuals and/or communities to obtain preferred goals (4) as well as the features of social life like networks, norms and trust in others which allow participants to act together in a more effective manner to follow jointly held objectives (3).

Social capital has been associated with a variety of health outcomes. Organizational 'membership density'-the number of organizations to which people belong-and 'social trust'-whether or not someone can 'trust most people'- as social capital indicators consisting with structural/cognitive framework, have been associated with better health status (7), decreased mortality (8-9), and decreased violence (10). Additionally, the numbers of literatures linking health behaviors in the developing countries to social capital are few. For example, a study conducted in Kermanshah (a Western city close to the place the current study conducted) found that there are associations between social capital and mental health of the immigrants living in their new society (11). Moreover, a study in India showed that performing a community- empowerment program could lead to higher participation in childhood immunizations (12).

Searching literature in the area of instrumentation of social capital with theoretically based instruments shows that the focus of these studies are on creating new instruments instead of trying to replicate or modify an existing one (13). As psychometric testing or standardization of these new instruments has not been subjected, their interpretation and generalization have become difficult (14). Therefore, conducting such studies which test psychometric properties of an instrument in different languages may be useful in interpreting and generalizing results found in different studies.

The Social Capital Questionnaire (SCQ) is the outcome of a work conducted by Onyx and Bullen (15-17) from the Center for Australian Community Organizations and Management (CACOM) in order to measure the concept of social capital. In order to define a conceptual framework for social capital and develop the questions for the survey instrument, Onyx and Bullen applied a comprehensive literature reviews and discussions through expert panels including academician and practitioners. The questions were designed to assess the dimensions believed to stand for social capital. These dimensions included trust /perceived safety, values of self, personal empowerment, diversity/openness, participation in the local community, reciprocity, relations within the workplace, and attitudes toward government. The original SCQ comprised 68 items, along with 17 additional demographic items. After administrating the SCQ to 1211 adults in rural and urban areas of New South Wales, Australia, the initial psychometric properties were investigated. Factor analysis of the instrument showed a factor structure very similar to the initial theoretical conceptualization. These eight factors included Proactivity in a Social Context, Feelings of Trust and Safety, Tolerance of Diversity, Value of Life, Family and Friends Connections, Neighborhood Connections, Formal Participation in Local Community, and Work Connections. Based on factor loadings and item–total correlations, 36 best items, were retained from the original 68 social capital items. The internal consistency, using Cronbach's Coefficient Alpha estimated to be 0.84 for the 36 items with item–total correlations in the range of 0.25–0.45

which indicated a significant but not redundant contribution from each item. The results of their study approved the psychometric strength of their newly developed SCQ.

After a few years, O'Brien et al., (13) in the United States administered a revised version of the instrument as part of a larger study designed to measure individual perceptions of social capital, sense of community, and fear of crime in an effort to ''tease apart" the interaction of these constructs and their relationship with the fear of crime. They reported the psychometric properties of the SCQ in a separated article (13). The Australian research team's SCQ was adapted before use. For example, the original self-administered and pencil instrument was altered for telephone administration. After collecting data applying this instrument, Exploratory Factor Analysis (EFA) was conducted to evaluate the factor structure of the revised SCQ. At the end of the study, O'Brien et al., (13) discovered a similar factor structure to that found in the initial study and concluded that the Onyx and Bullen SCQ were worthy of more consideration as a practical instrument for health researchers and community agencies interested in social capital.

To the best of our knowledge, the number of studies investigated the psychometric properties of a social capital scale in Persian is few. Therefore, the aim of present study was to investigate the psychometric properties of Onyx and Bullen's instrument among a sample of medical science students in Tehran University of Medical Sciences, Iran and to compare the factor analysis with findings from two previous studies in Australia (15) and the United States (13).

Methods

Multistage cluster sampling was employed to recruit 360 medical students (Male: 95/Female: 198) from 7 depatrments in Tehran University of Medical Sciences, in 2011. The ratio of at least 10 subjects for each item (18) considered to estimate the sample size. Since the SCQ constituted 36 items, the sample size was considered to be 360 students. Among 10 departments existed in the university, seven were randomly selected. Students were recruited proportionally base on the department capacity (i.e., the higher capacity of the department, the higher recruitment). Students who attended regular academic senior courses were included in the study. At the first days of autumn semester, prior to the beginning of formal classes, the questionnaires were administered to the respondents and after considering the ethical issues they were guided for completing the questionnaires and then asked to complete them. The refusal rate among the students was low and 317 questionnaires completed by the students, with, the response rate of about 88%. Due to partial completion, 24 questionnaires excluded from the original data. Thus, the analysis conducted on the data was collected only from 293 respondents. Some demographic characteristics of the respondents are shown in Table 1.

The original survey protocol was reviewed and approved by the Human Subjects Committee at School of Health and Health Research institute, Tehran University of Medical sciences. Ethical approval for the study was also given by the Medical Research Council's Ethics Committee in Tehran University of Medical Sciences.

Measures

The Social Capital Questionnaire (SCQ) is one of the most significant instruments in the social capital literature (15). The SCQ was composed of 36 items which developed and piloted across 5 communities in Australia. It classified into eight dimensions, encompassing Value of Life (3 items), Tolerance of Diversity (3 items), Neighborhood Connections (5 items), Family and Friends Connections (3 items), Work Connections (4 items), Community Participation (7 items), Feelings of Trust and Safety (5 items) and Proactivity (6 items). All 36 SCQ items were provided with a 4-point Likert-type scale ranging from 1 (no, not much or no, not at all) to 4

(yes, definitely or yes, frequently) (15).

Demographic Data Form included 8 questions and was developed by researchers to obtain data that are related to the participants and their the socio- demographic characteristics of them, such as age, gender, residency place, field of study, degree, economic and marital status and the number of family members.

For the present study, an original Persian translation of the SCQ was used as part of a larger study designed to investigate the relationship between social capital and mental health among a sample of medical sci-

Table 1. Relationship between the student s' characteristics and the mean score of the factors (n=293)

variable	Mean (SD)	Frequency (%)	1 p.value	2 p.value	3 p.value	4 p.value	5 p.value	6 p.value	7 p.value	8 p.value
Gender			.005	.477	.021	.003	.640	.045	.195	.301
Male		95(32.4)								
Female		198(67.6)								
Age (year) (n=285)	23.4 (2.7)		.302	.505	.054	.268	.927	.524	.423	.064
18-21		171(60)								
22-25		74(25.9)								
26-29		24(8.5)								
More than 30		16(5.6)								
Field of study			.001	.069	.201	.007	.179	<0.001	.014	.070
Medicine		70(23.9)								
Dentistry		27(9.2)								
Pharmacy		32(10.9)								
Nursing		30(10.2)								
Rehabilitation		31(10.6)								
Paramedical		53(18.1)								
Health		50(17.1)								
Residency place			.891	.088	.321	.309	.124	.271	.911	.632
(n=284)		166(56.6)								
Dormitory		94(32.1)								
Living with parents		24(8.2)								
Private house										
Degree (n=284)			.637	.603	.551	.087	.261	.200	.005	.233
Bachelor		131(44.7)								
Master		52(17.7)								
Doctoral		101(34.5)								
Economic			.884	.258	.233	.133	.683	.067	.309	.051
Status (n=277)		8(2.7)								
Very Weak		25(8.2)								
Weak		135(46.1)								
Moderate		78(26.6)								
Good		31(10.6)								
Very Good										
Marital Status (n=288)			.394	.917	.073	.870	.226	.835	.166	.053
Single		264(90.1)								
Married		24(8.2)								
Family Members (N)	4.6(1.6)		.136	.451	.344	.234	.438	.216	.224	.136
(n=255)		3(1.2)								
1		132(51.4)								
2-4		101(39.3)								
5-6		19(7.4)								
More than 6										
Language (n=280)			.117	.661	.763	.366	.741	.146	.294	.853
Persian speaking at		215 (73.4)								
home		65 (22.9)								
Non-Persian speaking										
Employment(n=256)			.367	.910	.071	.128	.844	.069	.050	.079
Yes		37 (12.6)								
No		219 (74.7)								
Residential House			.488	.257	.589	.542	.399	.236	.013	.548
Space (n = 227)		13(4.4)								
Less than 60 m^2		50(17.1)								
61-100 m^2		90(30.7)								
101-200 m^2		43(14.7)								
201-300 m^2		31(10.6)								
More than 300 m^2										

Factor 1= Feelings of Trust and Safety in the Local Community; Factor 2 = Feeling of Trust for Formal Participation in the Community; Factor 3= Feeling of Safety at Night in the community; Factor 4= Tolerance of Diversity and Social Participation; Factor 5 = Neighborhood Connections; Factor 6 = Value of Life; Factor 7 = Family and Friends Connections; Factor 8 = Pro-Activity in Social Context

ences students in Tehran, Iran. The focus of current study was only on investigating the psychometric properties of the Persian version of the 36 items SCQ.

In order to achieve the Persian translation of SCQ, a back-translation technique (19-20) was employed. Two Persian native translators (one specialist in the area of health education and behavior with experience in health sociology and one professional translator) translated the SCQ into Persian, independently. The formated translation was discussed in a first consensus panel (a specialist in the area of health education and behavior with experience in health sociology, a sociologist and two experts in health education) to achieve the first preliminary version. This consensus version was translated back to English by another translator (one English native professional translator) who had not seen the original English versions of the scale. In order to achieve a second preliminary version, the translation and back translation were discussed in a second consensus panel. These consensus versions completed by 20 students to confirm if all items of the questionnaire were understandable and included all the expected concepts and items without any redundancy. It found that the questionnaire was clear and well understood and therefore no cross-cultural modification made for them. Finally, a third consensus panel was formed to achieve the final version of the Persian SCQ (P-SCQ).

Statistical Analysis

Statistical Analysis was performed using SPSS version 16.0 for Windows. A p-value <0.05 was considered statistically significance. A series of descriptive statistic tests, independent sample t-test and One-way ANOVA tests were applied to describe and interpret the meaning of data. Exploratory Factor Analysis (EFA) was conducted to evaluate factor structure of the P-SCQ.

Results

The mean age of the study participants was 23.4 with the standard deviation of 2.7. Females (67.6%) and medical students (23.9%) constituted the majority of the respondents. Nearly, 46% of the participants had moderate economic status. For 43% of the respondents, the number of family members were more than 5. Moreover, using Cronbach's Coefficient Alpha, the internal consistency estimated to be 0.79 for the 36 items with item–total correlations were in the range of 0.19–0.58.

Applying a series of descriptive statistic tests, independent sample t-test and One-way ANOVA tests, the characteristics of the respondents as well as the associations between the student s' characteristics and the mean score of the factors were investigated which is shown in Table 1. Statistically significant differences were found in the factors "Feelings of Trust and Safety", "Tolerance of Diversity", and "Value of Life" by gender and field of study. The difference in "Feelings of Trust and Safety" and "Tolerance of Diversity" favored male gender but in "Value of Life" this difference was reversed. Moreover, there was a significant difference in "Family and Friends Connections" by degree and residential house space. More analysis of data showed that the mean score of the respondents living in a house with a space of about 100 m^2 and the baccalaureate students were more than the others, significantly.

The mean and standard deviations for each 36 P-SCQ items are shown in Table 2. Overall, the score of items for all participants was moderate to low except for the following five items: "Some say that by helping others you are helping yourself in the long run. Do you agree?", "Does your area have a reputation for being a safe place?", "In the past week, how many phone conversations have you had with friends?", "How many people did you talk to yesterday?" and "Do you feel part of a team at work?".

Table 2. Social Capital Questionnaire items mean and standard deviation

items	Mean (SD)
Do you feel valued by society?	2.25(0.81)
If you were to die tomorrow, would you be satisfied with what your life has meant?	2.34(0.82)
Have you ever picked up other people's rubbish in a public place?	2.17(0.93)
Some say that by helping others you are helping yourself in the long run. Do you agree?	3.31(0.84)
How often do you help out a local group as a volunteer?	2.79(0.92)
Do you feel safe walking down your street after dark?	1.89(0.84)
Do you agree that most people can be trusted?	1.76(0.72)
If someone's car breaks down outside your house, do you invite them into your home to use the phone?	1.91(0.95)
Can you get help from friends when you need it?	2.91(0.85)
Does your area have a reputation for being a safe place?	3.24(0.73)
If you were caring for a child and needed to go out for awhile, would you ask a neighbor for help?	2.27(0.94)
Have you visited a neighbor in the past week?	1.33(1.23)
How often would you say you have attended a local community event in the past 6 months?	2.82(1.14)
Are you an active member of a local organization or club?	1.88(1.44)
Does your local community feel like home?	2.33(0.96)
In the past week, how many phone conversations have you had with friends?	3.02(0.94)
How many people did you talk to yesterday?	3.21(0.83)
Over the weekend do you have lunch/dinner with other people outside your household?	1.94(0.92)
Do you go outside your local community to visit your family?	2.02(1.62)
When you go shopping in your local area are you likely to run into friends and acquaintances?	2.68(0.91)
If you need information to make a life decision, do you know where to find that information?	2.7(0.85)
In the past 6 months, have you done a favor for a sick neighbor?	0.99 (1.56)
Are you on a management committee or organizing committee for any local group or organization?	1.42(0.77)
In the past 3 years, have you ever joined a local community action to deal with an emergency?	1.72(0.93)
In the past 3 years, have you ever joined a local project or work?	1.76(0.94)
Have you ever been part of a project to organize a new service in your area?	1.54(0.71)
If you disagree with what everyone else agrees on, would you feel free to speak out?	2.67(0.96)
If you have a dispute with your neighbors are you willing to seek mediation?	2.26(0.92)
Do you think multiculturalism makes like in your area better?	2.06(0.91)
Do you enjoy living among people of different lifestyles?	2.44(1.32)
If a stranger, someone different, moves into your street, would they be accepted by the neighbors?	2.77(0.93)
Do you feel part of the local geographic community where you work? [a]	2.49(1.42)
Are your workmates also your friends? [a]	2.81(1.65)
Do you feel part of a team at work? [a]	3.15(0.91)
At work do you take initiative to do what needs to be done even if no one asks you to? [a]	2.5(1.33)
In the past week at work, have you helped a workmate even though it was not in your job description? [a]	2.67(0.93)

a: those had a paid employment answered these questions

Exploratory Factor Analysis was performed to evaluate the factor structure of the P-SCQ. Although the previous studies conducted in Australia and United States had shown the expected factors, we chose to perform EFA could determine the best factors for our data. The factor structure of the P-SCQ was conducted applying the principal component factor analysis with varimax rotation. Twelve factors extracted with eigenvalues greater than 1 which altogether accounted for 76.23% of the total variance. Applying Cattell's scree test, between seven and eight factors were extracted. Then principal component factor extraction with varimax rotation with seven, eight, nine and twelve factor solutions were conducted.

In order to determine simple structure and the best solution, visual inspection and the hyperplane count were considered, respectively. When variables had high loadings on one factor and very low (close to zero) on the remaining factors, simple structure was obtained for a cleaner definition of the factor. Also, the hyperplane count is a value that reflects the number of basically zero loadings on one factor (21). Better simple structure and higher hyperplane count was found on the eight factor solution. In order to interpret factors, the factor pattern coefficient values were considered. The least cut-offs for interpreting factor pattern coefficients has been recommended to be ranged between absolute values of 0.30-0.32, indicating 10% overlapping variance

Table 3. Rotated factor pattern coefficients of Social Capital Questionnaire

items	Factor pattern coefficients							
	1	2	3	4	5	6	7	8
Do you feel valued by society?	.117	.399	-.312	.119	.116	.536	-.095	-.174
If you were to die tomorrow, would you be satisfied with what your life has meant?	.141	-.386	.147	-.032	.005	.612	.148	.028
Some say that by helping others you are helping yourself in the long run. Do you agree?	.218	-.332	.275	-.029	.196	.645	.002	.142
If a stranger, someone different, moves into your street, would they be accepted by the neighbors?	.080	-.014	-.425	.275	-.025	.589	.167	.059
Are your workmates also your friends? [a]	-	-	-	-	-	-	-	-
Do you feel part of a team at work? [a]	-	-	-	-	-	-	-	-
At work do you take initiative to do what needs to be done even if no one asks you to? [a]	-	-	-	-	-	-	-	-
Do you agree that most people can be trusted?	.016	.505	.167	.207	.284	.306	-.103	-.017
Are you an active member of a local organization or club?	.104	.720	.051	-.084	.138	-.032	-.064	-.110
In the past 6 months, have you done a favor for a sick neighbor?	.057	.590	.162	.149	-.215	-.063	.207	.045
Are you on a management committee or organizing committee for any local group or organization?	.277	.735	.120	-.216	.121	-.302	-.039	-.046
In the past 3 years, have you ever joined a local community action to deal with an emergency?	.044	.777	.184	-.009	.037	.012	.055	.113
In the past 3 years, have you ever joined a local project or work?	.153	.601	-.179	.167	-.143	.161	.005	-.292
How often do you help out a local group as a volunteer?	.466	.148	.457	-.005	-.312	.243	-.094	.350
If someone's car breaks down outside your house, do you invite them into your home to use the phone?	.497	.273	.126	.133	.256	.066	-.063	.184
If you were caring for a child and needed to go out for awhile, would you ask a neighbor for help?	.545	-.153	.151	.118	.227	-.212	.128	-.370
How often would you say you have attended a local community event in the past 6 months?	.615	.030	-.306	.101	-.127	.212	.153	.222
Does your local community feel like home?	.786	.139	-.024	-.185	.311	.175	.067	.005
Have you ever been part of a project to organize a new service in your area?	.535	.201	-.136	.226	-.076	-.153	.012	-.272
Do you feel part of the local geographic community where you work? [a]	-	-	-	-	-	-	-	-
Have you visited a neighbor in the past week?	.084	.284	-.412	-.231	-.105	-.009	-.078	.575
Do you go outside your local community to visit your family?	-.056	-.057	-.019	.232	.176	.046	.037	.743
If you disagree with what everyone else agrees on, would you feel free to speak out?	.157	.154	-.049	-.049	.092	.425	.358	-.508
Over the weekend do you have lunch/dinner with other people outside your household?	.013	.263	-.038	.097	-.031	-.097	-.069	-.447
Have you ever picked up other people's rubbish in a public place?	-.011	.373	.340	-.499	.102	.434	.148	-.232
Do you think multiculturalism makes like in your area better?	-.071	.374	.331	.655	.150	.186	-.047	-.081
Do you enjoy living among people of different lifestyles?	.193	.051	-.047	.787	.145	-.068	.109	.187
In the previous week, have you helped your workmate in a work which has not been your duty? [a]	-	-	-	-	-	-	-	-
Can you get help from friends when you need it?	.101	.084	-.011	.035	.378	.363	.473	.394
In the past week, how many phone conversations have you had with friends?	-.006	-.015	-.021	-.062	-.046	.156	.748	.070
How many people did you talk to yesterday?	-.063	-.065	.093	.020	-.180	-.100	.830	-.156
If you need information to make a life decision, do you know where to find that information?	.307	.161	-.085	-.011	.371	.297	.559	.070
Does your area have a reputation for being a safe place?	.123	.036	-.209	.165	.495	.233	.180	-.043
When you go shopping in your local area are you likely to run into friends and acquaintances?	.316	.155	.027	.290	-.544	.445	.147	-.009
If you have a dispute with your neighbors are you willing to seek mediation?	.142	.080	.164	.036	.587	-.072	-.189	.128
Do you feel safe walking down your street after dark?	-.088	.217	.742	.015	.029	.154	.057	-.061

a: those had a paid employment answered these questions

Factor 1= Feelings of Trust and Safety in the Local Community; Factor 2 = Feeling of Trust for Formal Participation in the Community; Factor 3= Feeling of Safety at Night in the community; Factor 4= Tolerance of Diversity and Social Participation; Factor 5 = Neighborhood Connections; Factor 6 = Value of Life; Factor 7 = Family and Friends Connections; Factor 8 = Pro-Activity in Social Context

(22). Hence, the cut-off of 0.30 was considered to include one item in interpretation of a factor (Table 3).

Since the study population selected from medical sciences students hence, the number of employed participants was too low (only 12.5%). We chosed to exclude the items constituting the work connections factor in Table 3. Instead, a new factor with one loaded item emerged from factor analysis called "Feeling of Safety at Night in the Area" (Factor 3 in the present study). For some of the factors, item loading on each factor was not similar with those of the previous studies conducted in Australia and the United States and for others item loadings was similar to those of previous studies (Table 4). For example, the "Value of Life" factor in this study, did not match the factor identified by previous studies (13, 15). The original form of this factor was constituted from only two items: ''If you were to die tomorrow, would you be satisfied with what your life has meant?'' and ''Do you feel valued by society?''. But in the study conducted in the US, "Value of Life" comprised only one of those items along with items from other factors such as "Neighborhood Connections" and "Pro-Activity in a Social Context".

Table 4. A comparison between factor items from the current study and those of O'Brien et al. (2004) and Onyx and Bullen (2000) study results

items	Onyx and Bullen	O'Brien et al.	Current study
	Factor*	Factor*	Factor**
Does your area have a reputation for being a safe place?	1	1	5
Does your local community feels like home?	1	1	1
Do you feel safe walking down your street after dark?	1	1	3
Do you agree that most people can be trusted?	1	1	2
Are you on a management committee or organizing committee for any local group or organization?	2	2	2
Have you ever been part of a project to organize a new service in your area?	2	2	1
Are you an active member of a local organization or club?	2	2	2
In the past 3 years, have you ever joined a local community action to deal with an emergency?	2	2	2
How often would you say you have attended a local community event in the past 6 months?	2	2	1
How often do you help out a local group as a volunteer?	2	2	1
Do you feel part of a team at work? [a]	3	3	-
Are your workmates also your friends? [a]	3	3	-
Do you enjoy living among people of different lifestyles?	4	4	4
Do you think multiculturalism makes like in your area better?	4	4	4
Have you visited a neighbor in the past week?	5	5	8
If you were caring for a child and needed to go out for awhile, would you ask a neighbor for help?	5	5	1
In the past 6 months, have you done a favor for a sick neighbor?	5	5	2
Some say that by helping others you are helping yourself in the long run. Do you agree?	9	6	6
If you were to die tomorrow, would you be satisfied with what your life has meant?	6	6	6
Can you get help from friends when you need it?	5	6	7
If you have a dispute with your neighbors are you willing to seek mediation?	8	6	5
In the past week, how many phone conversations have you had with friends?	7	7	7
How many people did you talk to yesterday?	7	7	7
Over the weekend do you have lunch/dinner with other people outside your household?	7	7	8
In the past week at work, have you helped your workmate even though it was not in your job description? [a]	8	8	-
At work do you take initiative to do what needs to be done even if no one asks you to? [a]	8	8	-
Have you ever picked up other people's rubbish in a public place?	8	8	4
If you need information to make a life decision, do you know where to find that information?	8	Closest to 1	7
Do you feel valued by society?	6	Closest to 1	6
If you disagree with what everyone else agrees on, would you feel free to speak out?	8	Did not load	8
If someone's car breaks down outside your house, do you invite them into your home to use the phone?	1	Closest to 1	1
When you go shopping in your local area are you likely to run into friends and acquaintances?	5	Did not load	5
Do you feel part of the local geographic community where you work? [a]	3	Closest to 1	-
Do you go outside your local community to visit your family?	8	Did not load	8
If a stranger, someone different, moves into your street, would they be accepted by the neighbors?	9	Did not load	6
In the past 3 years, have you ever joined a local project or work?	-	-	2

* Factor 1= Feelings of Trust and Safety; Factor 2 = Formal Participation in the Community; Factor 3= Work Connections; Factor 4= Tolerance of Diversity; Factor 5 = Neighborhood Connections; Factor 6 = Value of Life; Factor 7 = Family and Friends Connections; Factor 8 = Pro-Activity in Social Context; Factor 9 = Other (for original study only)

**Factor 1= Feelings of Trust and Safety in the Local Community; Factor 2 = Feeling of Trust for Formal Participation in the Community; Factor 3= Feeling of Safety at Night in the community; Factor 4= Tolerance of Diversity and Social Participation; Factor 5 = Neighborhood Connections; Factor 6 = Value of Life; Factor 7 = Family and Friends Connections; Factor 8 = Pro-Activity in Social Context

These dissimilarities between different studies discussed in another expert panel to decide if the new bundles of items can be interpreted like the original title or a new ones was needed. Based on the bundles of items found in the present study, the title of some factors was changed (Tables 3 and 4). Thus, factors with the title of "Feelings of Trust and Safety", "Formal Participation in the Community" and "Tolerance of Diversity" were changed to "Feelings of Trust and Safety in the Local Community", "Feeling of Trust for Formal Participation in the Community" and "Tolerance of Diversity and Social Participation", respectively.

As mentioned above, the cut-off of 0.30 was considered to include one item in in-

Table 5. Social Capital factors Correlation Matrix

Variables	1	2	3	4	5	6	7	8
1	1							
2	-0.481	1						
3	0.234	0.121	1					
4	-0.013	0.245	-0.158	1				
5	0.253	0.140	-0.122	0.206	1			
6	-0.169	0.242	-0.134	0.195	0.007	1		
7	-0.217	-0.160	0.109	-0.199	0.012	0.300	1	
8	-0.237	0.002	0.167	0.352	0.061	0.307	0.614	1

All correlations > 0.11 are significant at the 0.01 level. Factor 1= Feelings of Trust and Safety in the Local Community; Factor 2 = Feeling of Trust for Formal Participation in the Community; Factor 3= Feeling of Safety at Night in the community; Factor 4= Tolerance of Diversity and Social Participation; Factor 5 = Neighborhood Connections; Factor 6 = Value of Life; Factor 7 = Family and Friends Connections; Factor 8 = Pro-Activity in Social Context

terpretation of a factor. Considering the factor scores represented in Table 4, it was clear that the score of items "How many people did you talk to yesterday?", "Does your local community feel like home?" and "Do you enjoy living among people of different lifestyles?" are 0.830, 0.786 and 0.787, respectively, which considered as high scores on its respected factor scales. In contrast, the score for item "can you get help from friends when you need it?" was 0.473, which considered as a low score on its represented factor scale.

Table 5 shows the correlation of factors in the current study. The factor correlations were in the low (at the lowest 0.002 between the factors, "Feeling of Trust for Formal Participation in the Community" and "Pro-Activity in Social Context") to modest (at the highest 0.614 between the factors "Family and Friends Connections" and "Pro-Activity in Social Context") range.

Discussion

The present study investigated the psychometric properties of Onyx and Bullen's instrument among a sample of medical science students in Tehran University of Medical Sciences, Iran and compared the factor analysis with findings from two previous studies in Australia (15) and the United States (13). The SCQ has been validated in several countries, including Australia (15), the U.S (13) and Northern Ireland (23). However, not only any Persian version of this index in Iran was not available nor validated social capital scale does exist in Persian. Therefore, we had to translate the SCQ into Persian language and tested its psychometric properties and validity.

As a whole, the results found in the present study support, moderately, the applicability and construct validity of the P-SCQ in an Iranian sample. In the present study all of the items loaded on, at least, one factor and, were similar to the findings of the previous studies (13, 15), an eight factor analysis was derived from the Iranian sample. Moreover, 19 out of 36 items did not load on the expected factors, whereas in the study conducted in the U.S. Only 11 items did not load as expected. A possible reason for the differences found between item loadings in these studies might be due to variation in selected methodologies. In the study conducted in Australia the selected respondents were from rural, suburban and inner-city community completed a self-administered questionnaire and in the US study, the data collected from a sample of adults living in a community in the Midwestern United States through telephone survey whereas in the present study, the respondents were medical sciences students. Another possible reason was due to the fewer relevancy of some items to the homogen sample of our study. Most of the students were single and living in dormitories apart from their family, and therefore, less likely to have relationship with neighbors, workmates and local community members.

The P-SCQ factor correlations were somewhat similar to those found by previous studies (13, 15) and some notable dif-

ferences were found. For instance, "Neighborhood Connections" and "Tolerance of Diversity" had a fair relationship (r=0.450) in the present study. But, in the previous studies this relation was moderate (r=0.21) (13) and weak (r=0.03) (15), respectively. In the current study, the correlation between 'Formal Participation" and "Work Connections" was moderate (r = 0.220) which is similar to those found by O'Brien et al. (r= 0.29), but is in contrast to those found by Bullen and Onyx (r<0.01). In the studies conducted in Australia and the U.S., the correlations between "Family and Friends Connections" and "Pro-activity in Social Context" were moderate (r=0.37 and r=0.35), but high (r=0.61) in the present study.

In order to compare, more precisely, the discrepancies and similarities of the findings of the present study with those conducted in Australia and the US and, also, and also to make the psychometric properties of SCQ more obvious, the relationships between the factor scores and the student characteristics were investigated. Like findings in study conducted in Australia, were found little associations between the dimensions of social capital and demographic variables, except for some limited factors. For example, significant differences were found in "Feelings of Trust and Safety" and "Tolerance of Diversity" by gender and field of study. But, there was no significant difference in total social capital by the students' characteristics. These findings support the idea concluded by Bullen and Onyx (15) that social capital "is evidenced equally by rich and poor, men and women, all ages, and all educational levels". In contrast, the findings of this study did not support those of O'Brien et al. (13) who found that increased salary and higher education were significantly associated with greater scores on the most of social capital factors. Moreover, the results of our study showed that there is no association between social capital factors and the student's age, financial status and race. The lack of association between social capital dimensions and demographic characteristics may result from homogeneity of respondents. Since all respondents were university students, they had somewhat close demographic characteristics and therefore low variations in population.

For study which investigated the applicability of an international scale in a new community, considering the community's individuals as a primary research in society may obtain better understandings of differences between various studies. Moreover, since the similarity in labeling factors was somewhat moderate in the present study and because of variations in scale composition between different studies, it was difficult to compare these results to those with dimensions of social capital applying different social capital scales in different communities.

The results of current study showed that 19 out of 36 items did not load on the expected factors. There are several possibilities for these differences such as; the homogeneity of the sample, as noted before, as well as the irrelevancy of the items to the sample, and variation in research or statistical methodologies (13). As a more significant possibility, the medical students in Iran (mean age ~21) may well have a different definition of Social Capital to those with English-speaking, home-owning, middle-aged residents of Australia/USA. Therefore, the differences found in the factor analysis between the studies may ascribed different types of populations studied. The authors believe that this reason along with the homogeneity of the sample, are the most probabilities for the differences found. Moreover, in agreement with O'Brien et al. (13) the term social capital was too broad and questionable to ever completely capture the mutual action between society and individuals with health and happiness. Also, due to its skeptical and wide dimensions especially in different communities with different cultures, collecting all its aspects together in a scale

may be difficult and could cause variations in results of different studies.

Limitations

Although, the ratio of at least 10 subjects for each item (18) considered to estimate the sample size (360 students), the analysis performed on the data was from, only, 293 respondents. Considering the importance of sample size in comparing subgroups, the reader is cautioned that the sample size was somewhat low and the inferences drown from results may be interpreted with caution. Moreover, the findings had limitations in terms of generalizability beyond the Iranian community. The students of a medical sciences university are not representative of the whole society and so, complementary studies are recommended. Nonetheless, Iranian medical sciences students have different characteristics from those Australian and the US populations; therefore, the results were limited in terms of comparison between communities. Finally, as noted, the homogeneity of the sample may be another limitation of the present study. Despite the limitations noted, the results of the present study are useful in helping researchers to obtain more evidence for constructing a valid and reliable social capital instrument.

Conclusion

According to the results of the present study, the Persian version of SCQ demonstrated a moderate replicability, validity, and reliability. Further studies are required to help researchers in comparing various dimensions in multiple communities and also, in comparing the dimensions with other indicators of social capital and/or public health, like civic engagement, organizational membership records (13), mental health and participation in health promotion programs. Finally, as Bullen and Onyx (15) noted, this instrument is a practical and useful theory-based tool for researchers, health sociologists and community agencies, and is now available in Persian.

Acknowledgments

We would like to thank all those who participated in the study, especially the medical students in Tehran University of Medical Sciences for their valuable collaboration during data collection.

References

1. Franke S. Measurement of Social Capital, Reference Document for Public Policy Research, Development, and Evaluation. Policy Research Initiatives, Canada, 2005.

2. Weininger, E.B. & Lareau, A. (forthcoming). Cultural Capital. In: Encyclopedia of Sociology. Ed. George Ritzer. Oxford, UK: Blackwell. [Available at: www.brockport.edu/ sociology/faculty/Cultural_Capital.pdf]. Access date: 12/2/2013.

3. Luoma-aho, V. Bowling together-applying Robert Putnam,s theories of community and social capital to public relations. In: Ihlhen, O. & Fredriksson, M. (Eds.): Social Theory on PR, Routledge/Lawrence Erlbaum, 2009. pp. 231-251.

4. Williams K, Durrance J. C. Social Networks and Social Capital: Rethinking Theory in Community Informatics. The Journal of Community Informatics 2008; 4(3), 18-29.

5. De Silva M J, McKenzie K, Harpham T, Huttly SRA. Social capital and mental illness: a systematic review. J Epidemiol Community Health 2005; 59:619–627.

6. Putnam, R. Commentary: 'Health by association': Some comments. International Journal of Epidemiology 2004; 33: 512-519.

7. Yip W, Subramanian S.V, Mitchell A.D, Lee D.T.S, Wang J, Kawachi I. Does Social Capital enhance health and wellbeing? Evidence from rural China. Social Science and Medicine, 2007; 64(1), 35–49.

8. Nyqvist F, Pape B, Pellfolk T, Forsman A.K, Wahlbeck K. Structural and Cognitive Aspects of Social Capitaland All-Cause Mortality: A Meta-Analysis of Cohort Studies. Social Indicatiors Research, 2013; 111(1), 401–413.

9. Subramanian, S. V., Kawachi, I., & Kennedy, B. P. Does the state you live in make a difference? Multilevel analysis of self-rated health in the US. Social Science & Medicine, 2001; 53(1), 9–19.

10. Dinesen C, Ronsbo H, Juárez C, González M, Estrada Méndez MA, Modvig J. Violence and social capital in post-conflict Guatemala. Rev Panam Salud Publica. 2013; 43(3):162–8.

11. Lahsaeizadeh A, Moradi G. the relationship between social capital and mental health among immigrants. Social Welfare Journal 2007; 7(26),

161-180.

12. Mitchell A D, Bossert TJ. Measuring dimensions of social capital: Evidence from surveys in poor communities in Nicaragua. Social Science & Medicine 2007; 64: 50–63.

13. O'Brien MS, Burdsal CA, Molgaard C A. Further development of an Australian-based measure of social capital in a US sample. Social Science & Medicine 2004; 59: 1207–1217.

14. Macinko, J., & Starfield, B. The utility of social capital in research on health determinants. Milbank Quarterly, 2001; 79(3), 387–427.

15. Onyx J, Bullen P. Measuring social capital in five communities. The Journal of Applied Behavioral Science; 2000; 36, 1, 23-42.

16. Onyx, J., & Bullen, P. Measuring social capital in five communities in NSW: and analysis (Center for Australian Community Organizations and Management Working Paper Series No. 41). Sydney: University of Technology, Coogee, NSW Australia: Management Alternatives Pty Ltd, 1997.

17. Onyx, J., & Bullen, P. Measuring social capital in five communities in NSW: A practitioner's guide. Management Alternatives Pty Ltd, 1998.

18. Munro, B., H. Statistical methods for health care research. (5th ed). Philadelphia, PA: Lippincott Williams & Wilkins, 2004.

19. Cha ES, Kim KH, Erlen JA. Translation of scales in cross-cultural research: issues and techniques. Journal of Advanced Nursing 2007; 58(4):386-95.

20. Martin JS, Vincenzi C, Spirig R. Principles and methods of good practice for the translation process for instruments of nursing research and nursing practice. Pflege. 2007; 20 (3):157-63.

21. Fleming, J. S. The Case for Hyperplane Fitting Rotations in Factor Analysis: A Comparative Study of Simple Structure. Journal of Data Science 2012; 10: 419-439.

22. Tabachnick, B. G., & Fidell, L. S. Using multivariate statistics (6th ed). Boston, MA: Allyn & Bacon, 2012.

23. McAloney K, Stringer M, Mallett J. Social Capital in Divided Societies: Development of a Social Capital Questionnaire in Northern Ireland. International Journal of Social Inquiry 2011; 4(1), 113-131.