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Social Capital and Its Predictive Role in Quality of Life among the Elderly Referring to Health Centers in Tabriz, Iran: A Community-Based Study

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Abstract

Introduction: Paying attention to the quality of life (QOL) in the elderly life is an important issue, given the criticality of this period. The Objective of the present study is to determine social capital and its predictive role on QOL among elderly people living in Tabriz, East-Azerbaijan province, Iran.

Methods: The present cross-sectional study was accomplished in 2018 on 522 elderly people referred to the health centers in city of Tabriz. A multi-stage random cluster sampling was implemented. The data were collected, using a demographical questionnaire, Onyx-Bullen social capital, and WHOQOL-BREF QOL questionnaires. Then, they were analyzed by SPSS software version 15 and descriptive (frequency, percentage, mean (SD) and inferential statistics (Pearson, and Multivariate linear regression) were provided.

Results: The mean age of the participants was 65.7 years, 58% were women, 85.5% were married, and 37.5% were illiterate. The mean)SD (of social capital score was 71.87 (10.51) (in the range of 36-144) and for QOL, it was 64.64 (10.81) (in the range of 0-100). Social capital had positive and direct relation with QOL. Out of all the variables studied; marital status, education, economic status, health status, the absence of cardiovascular diseases (CVDs), and joint pains had significant relation with QOL. By some modifications in context factors, social capital was considered to be a predictive factor for QOL [β (95%CI): 0.28 to 0.36)].

Conclusion: For the promotion of QOL among the elderly, certain strategies must be implemented by health policy makers to enhance social capital among elderly people.

Introduction

Population aging phenomenon has been considered to be one of the most significant socioeconomic and health challenges of the 21th century.[1,2] Increased rate of aged people in developing countries is significantly higher than that of the developed ones. According to a report by World Health Organization (WHO), up to 2050, almost 80% of elderly people will be living in low- and middle-income countries (LMIC).[3] Simultaneous to the global population growth, Iran is facing increase in the number of aged people.[4] Expanding life is not the sole aim of modern science, rather, it must try to prepare a ground on which aged people spend their lives with physical/psychological health and calmness.[5] Therefore, parallel to the increase in the number of aged people, enough attention must be paid to their quality of life (QOL) and identifying the effective factors on their QOL to design comprehensive and proper policies regarding elderly people.[6]

As defined by WHO, QOL is people's perception of their own cultural position and system of values. It is associated with their perception of their own expectations, norms, and emotions.[7] QOL domains cover different physical, psychological, social and environmental dimensions.[8] It is clear that by the increase in age, elderly people become more prone to the chronic diseases, [9] loneliness isolation, and lack of social support, all of which can decrease the elderly's QOL.[10]

The more social solidarity there is in a society, the healthier the society will be.[11] Health is a prerequisite for QOL[12] The elderly people's QOL and its relation to social

capital are of prime importance. Social capital includes personal and social factors that impalpably affect the elderly's health.[13-15] It is comprised of 8 domains of social participation, social agency and context, trust and security, interactions with neighbors, interactions with family and friends, tolerance and acceptance of differences, job interactions, and value of life which are determining factors in terms of a successful and healthy elderly life that can promote QOL.[16] Kaplan and Lynch defined social capital as a type of capital accumulation that contributes to social solidarity, social devotion, self-confidence and healthiness. [17]

Social capital and its compromising elements lower down stress and anxiety and increase self-confidence through increasing communication, disseminating knowledge on promoting health, providing easier access to resources, preserving healthy behavior, providing financial and emotional support, facilitating collective interactions like social support and participation. Through all these factors, social capital can bring vitality and physical health to elderly people.[18,19] The effect of social capital on health is more than economic and cultural capitals. Unfortunately, its role has been blurred by the passage of time. Social relations can decrease sense of loneliness and decrease risky behaviors, increase sense of powerfulness, and promotes the elderly health.[20] Health policymakers and experts can utilize social capital as an intellectual framework to find out ways of activating elderly people in order to preserve their interactions in social and civil activities.[21]

Noghani and Razavizadeh emphasized the relation between social capital and health in a systematic review.[22] Social capital can enhance people's adaptability,[23] promote healthy behaviors,[24, 25] increase trust and cooperation, decrease daily stress-generating factors [26] and decrease health inequalities.[27] Moreover, social capital provides healthy and independent participation and the elderly people's presence in the community.[28]

In view of the increasing rate of population aging, alterations in population pyramid, and changes in the type of Iranian families from extended to nucleus type and also considering the generated gap between the elderly and young people and also little social participation, it seems critical that we focus on QOL of elderly people who are the most vulnerable in the community.

The extensive review of literature did not yield any research to have investigated the predictive role of social capital on QOL of the elderly. Moreover, due to different cultural, social, and economic features of people in different regions, and there being no standard questionnaires to measure QOL and social capital by the majority of papers, there seems to be a pressing need for the present study to be conducted. Therefore, the current investigation was carried out to determine social capital and its predictive role on the QOL of elderly people who lived in city of Tabriz, East Azerbaijan province, Iran.

Materials and Methods

The current cross-sectional study on elderly people was carried out in 2018 in the city of Tabriz, north-west of Iran. Based on the annual report by Iranian Statistics Center (2016), Tabriz population was 1 558 693 and its elderly people were 174 158.[29] The studied population included all aged people, living in Tabriz and being 60 or higher. The inclusion criteria were age ≥60 years, a willingness to participate, being able to communicate, living in Tabriz, having medical records and the absences of any cognitive, psychological, and visual/hearing impairment. The exclusion criterion was incomplete completion of questionnaires more than 20%. To calculate the sample size (confidence interval [CI] of 95%, test power of 0.9), was determined using two-tailed test and STATA software (version 14) and it was calculated to be 261 with 0.2 correlation. According to the structure of cluster sampling, the number was then multiplied by 2 and the total sample size was calculated to be 522.

The sampling was in a type of multi-stage cluster sampling done in health complexes all around the city. A health center is a unit located inside the city covering approximately 12 000 people on average.[30] Health centers are managed by health complexes, each health complexes containing at least 3 to 5 health centers. First of all, using http://www. random.com, 7 out of 20 all health complexes were randomly selected and from each health complexes 2 health care centers were then randomly picked. Next, according to the population info, the proper sample size based on the main sample size and proportionate to the health center size was calculated and again, using https// www. random.com, the people were randomly selected from all elderly people aged ≥60 years. Then utilizing Integrated Health System of Sib (http://sib.sbmu.ac.ir) people's info and phone numbers were extracted. The elderly were contacted via phone calls and were briefly debriefed about the aim and methodology. In case of willingness, they were asked to be present at the health center in pre-arranged time. In case of unresponsiveness, absence of inclusion criteria or unwillingness to participate, the next elderly was randomly selected. In a meeting, the objective was clearly explained to the participants and the inclusion criteria were rechecked again. If eligible, the written consent form was taken and the questionnaires were filled in the form of interviews and in a silent room.

The questionnaires applied included items on demographics such as age, gender, weight, height, body mass index (BMI), marital status, education, number of children, economic status, health status, occupation, living conditions (living alone or with children, etc.), and probable diseases. The social capital questionnaire (Onyx & Bullen) included 36 questions covering 8 domains of social participation, social agency and context, trust and security, interactions with neighbors, interactions with family and friends, tolerance and acceptance of differences, job interactions and value of life. The scoring range is

36-144. Higher number connotes stronger social capital and vice versa. In a study by Rajabi Gilan et al., a factor analysis was done by Varimax method and the correlation coefficient of the questionnaire was calculated to be in a range of 0.52 to 0.87 with the reliability being 0.84.[31] The reliability of the questionnaire was evaluated by Onyx and Bullen., using Cronbach's alph on 40 statistical populations and it was approved as acceptable.[32] In Eftekharian et al., study, conducted in the city of Sari (north of Iran), they concluded that Onyx & Bullen questionnaire was efficient enough to be implemented on the elderly, and with Cronbach's alpha coefficient being 0.96, it acquired the highest reliability.[20]

WHOQOL-BREF questionnaire includes 26 items covering 4 domains of physical health, psychological health, social relation, and environment. The scoring range for physical health is 7-35, for psychological health it is 6-30, and for social relation and environment it is 3-15 and 8-40, respectively. The total scoring range is 24-120. After the raw scores in 4 domains were calculated, the total score was turned into 100 scoring format. Research on psychometric characteristics of short form of the questionnaire revealed that discriminant validity, content validity, internal reliability (Cronbach's alpha for physical health = 0.80, psychological health = 0.76, social relation = 0.66, and environment = 0.80) and test-retest reliability were desirable. In Iran, the validity and reliability of this questionnaire was approved by Nejat et al.[33]

The reliability of the questionnaire was approved by 10 academic staff members of the Faculty of Nursing and Midwifery of Tabriz University of Medical Sciences. Moreover, the reliability of the social capital questionnaire and its domains were calculated by Cronbach's alpha for the participation in local community = 0.70, social agency = 0.65, trust and safety = 0.61, interaction with neighbors = 0.63, interaction with family = 0.60, tolerance and acceptance of differences = 0.92, job interactions = 0.63, value of life = 0.61 and the total social capital = 0.87. The reliability of QOL questionnaire and its domains, using Cronbach's alpha, was calculated to be 0.83 for physical health, 0.72 for psychological health, 0.60 for social relation, 0.75 for environment and the total QOL = 0.90.

The normality of data distribution was evaluated, utilizing Kolmogorov-Smirnov test. The data were analyzed by SPSS software (version 15). Descriptive data were depicted as frequency, percentage, mean (SD) and for the analytical data Pearson test and multivariate linear regression were applied and $P<0.05$ was considered to be statistically significant.

Bivariate statistical tests such as independent *t* test and one-way analysis of variance (ANOVA) were used to analyze the relation between QOL and socio-demographic characteristics. Then, the independent variables with $P<0.2$ in the bivariate tests were entered into the multivariate linear regression model with backward strategy to control the confounding variables and to measure the respective effects of the social capital on QOL. Before conducting multivariate analysis, the assumptions of the regression including normality of the residuals, homogeneity of the residual variance, multicollinearity of independent variables, and independence of the residuals were studied.

Results

To access the needed sample size, considering the eligibility criteria, 667 elderly, covered by health centers, were randomly selected from April to August 2018. Finally, 522 eligible participants were enrolled in the study and filled the questionnaires. The mean)SD(of participants' age was 65.55)5.39(. More than half were women and most of them were married (85.5%). One third was illiterate (37.5%). More than half were middle income people (57.9%). Table 1 illustrates more details.

Mean (SD) of the total score of social capital and elderly QOL were, respectively, 71.87)10.51(and 64.64 (10.88(. Table 2 shows the scores of different domains of social capital and QOL.

According to the Pearson test there was a direct and significant relation between QOL and its domains and the total social capital ($P<0.05$). The highest correlation was between the dimension of social relation health QOL and social capital ($P<0.01$, r=0.436) (Table 3).

According to the regression analysis adjusted for context variables, there was a significant relation between social capital and QOL ($P<0.05$) in a way that, QOL scores increased by increment of capital increased. Moreover, there was a significant relation between variables including marital status, education, economic status, health status and the absence of cardiovascular diseases (CVDs) and joint pains with QOL (Table 4).

Discussion

The aim of current study was to evaluate the social capital and its predictive role on QOL of elderly people in Tabriz. The findings revealed that the mean (SD) social capital among the elderly was 71.87 (10.51) (scoring range 36-144) indicating undesirable social capital. This finding is in accordance with Akbari et al., study in Sanandaj, Iran in 2016. The mean score of social capital among women at the age range of 17-80 was reported to be 76 based on Onyx& Bullen questionnaire.[34] It is also in line with that of Moradian Sorkhkalaee et al., in 2012 with the mean age of 20.55 in students of Tehran University of Medical Sciences which reported the mean social capital using the above questionnaire as 43.87 out of 100.[35] Research has revealed that social capital among men/women with different ages was low and thus, necessary actions must be taken to enhance social capital at lower ages in both genders.

Findings of the current investigation indicated that mean score of QOL of the elderly in Tabriz was 64.64 (10.88) from 0-100, similar to the studies with the same questionnaire on the elderly people in Iran[36] and India-

Table 1. Demographic characteristics of participants who referred to health centres in city of Tabriz (n = 522)

Demographics	No. (%)
Gender	
Male	219 (42)
Female	303 (58)
Marital status	
Single	1 (0.2)
Married	446 (85.5)
Divorced	1 (0.2)
Partner deceased	74 (14.2)
Education	
Illiterate	196 (37.5)
Just reading & writing	50 (9.6)
Primary	108 (20.7)
Guidance school	38 (7.3)
High school	7 (1.3)
Diploma	72 (13.8)
University	51 (9.8)
Life status	
Alone	40 (7.7)
With spouse	256 (49)
With family	225 (43.1)
With relatives	1 (0.2)
Others	0(0)
Economic status	
Income = expenditure	302 (57.9)
Income >expenditure	35 (6.7)
Income <expenditure	185 (35.4)
Disease[a]	
CVDs	78 (14.9)
Hypertension	172 (33)
Diabetes	115 (22)
Joint pains	249 (47.7)
Gastrointestinal	19 (3.6)
Pulmonary	22 (4.2)
Cancers	5 (1)
Others	68 (13)
Job status	
Employed	26 (5)
Retired	189 (36.2)
Unemployed	25 (4.8)
Disabled	4 (0.8)
Housekeeper	278 (53.2)
Number of children	
0	16 (3.1)
1-3	221 (42.3)
4≤	285 (54.6)
Health status	
Better than Peers	221 (42.3)
Like Peers	252 (48.3)
Worse than Peers	49 (9.4)
Demographics	
Age[b]	65.55) 5.39(
BMI[b]	4.46))28.85
Number of children[b]	2.07 (4.05)

[a] Some people had more than one disease; [b] Mean (SD).

Table 2. Mean (SD) of social capital, QOL and its domains scores in participants (N = 522)

Variable (Scoring range)	Mean (SD)	Range of obtained scores
Total social capital (36-144)	71.87 (10.51)	50-114
Participation in local community (7-28)	9.53 (2.33)	7-23
Social agency and context (7-28)	15.47 (2.69)	8- 28
Trust and security (5-20)	12.11 (1.96)	6-18
Interaction with neighbors (5-20)	9.70 (2.42)	5-18
Interaction with friends and relatives (3-12)	5.58 (1.52)	3-12
Tolerance of diversity (2-8)	3.39 (1.73)	2-8
Job interaction (3-12)	8.21 (1.69)	4-12
Value of life (2-8)	5.24 (1.08)	2-8
Total QOL (0-100)	64.64 (10.88)	14-100
Physical health (0-100)	67.58 (15.89)	17-100
Psychological health (0-100)	66.35 (13.28)	0-100
Social relation health (0-100)	55.62 (16.41)	6-100
Environmental health (0-100)	64.16 (1.038)	19-95

Table 3. The relation between social capital and QOL and its domains in participants (N=522)

Variable	Total social capital	
	r	*P*
Total QOL	0.412	<0.01*
Physical health	0.275	<0.01*
Psychological health	0.369	<0.01*
Social relation health	0.436	<0.01*
Environmental health	0.316	<0.01*

*Statistically significant

Puducherry city.[37] The mean score of QOL in these studies were 52.2 (20.2) and 49.74 (10.21), respectively. Baernholdt et al., reported high level of QOL among American elderly people.[38] An investigation by Raggi et al., also revealed higher level of QOL among Finnish elderly and adults.[39] These results showed that QOL in developing countries was relatively lower. Population aging is increasing in developing countries; in fact, QOL shows their health and welfare status. Therefore, necessary measures should be considered to enhance QOL in these countries and the plans already implemented in developed countries can be fruitful in this regard.

In the current study, there was a significant relation between marital status, education, economic status, health status, and the absence of CVDs/ joint pains with QOL.

There was a relation between marital status and QOL in this investigation which is in agreement with that of Pishgooie et al., who studied people with coronary diseases.[40] It is also in line with Mwanyangala et al.,[41] and Şahingöz & Şhahin[42] studying elderly people who indicated that marriage contributes to psychological health, which in turn enhances QOL among elderly people.

The current study revealed a relation between education and QOL of elderly people, which had also been reported in studies by Luthy et al.,[43] Shaabani et al.,[44] Lee et al.,[45] Ganesh Kumar et al.,[37] and Hongthia et al.[46] Education

Table 4. Prediction of QOL based on social capital by modifications in context variables in participants (N=522)

Variable	β (95% CI)[a]	*P*
Gender (reference: woman)	-	-
Man	-1.60 (-5.25 to 2.05)	0.390
Marital status (reference: with spouse)	-	-
Without spouse	-3.73 (-6.84 to-0.62)	0.019*
Education (reference: university)	-	-
Illiterate	0.58 (-2.77 to3.95)	0.731
Just read and write	0.83 (-2.90 to 4.58)	0.660
Primary school	0.31 (-2.86 to3.49)	0.846
Guidance school	0.70 (-3.11 to 4.51)	0.718
High school	-0.58 (-7.31 to 6.14)	0.865
Diploma	-3.56 (-6.65 to -0.47 (	0.024*
Life status (reference: with family)	-	-
Alone	0.26 (-3.62 to 4.15)	0.892
With spouse	1.06 (-0.62 to 2.74)	0.216
Economy (income=expenditure)	-	-
Income > expenditure	2.29 (0.73 to 3.86)	0.004*
income < expenditure	5.85 (2.63 to 9.08)	<0.001*
Health status (reference: worse than)	-	-
Better than	11.30 (14.4 to 38.17)	0.001*
Similar	6.42 (3.65 to 9.19)	0.001*
Having CVDs (reference)	-	-
Not having	2.26 (-0.13 to 4.40)	*0.037
Having hypertension (reference)	-	-
Not having	1.47 (0.18 to 3.14)	0.082
Having diabetes (reference)	-	-
Not having	0.83 (1.12 to 2.79)	0.404
Having Joint pains (reference)	-	-
Not having	3.40 (-1.80 to 5.01)	<0.001*
Having gastrointestinal disorders (reference)	-	-
Not having	2.26 (1.72 to 6.26)	0.266
Having pulmonary disorders (reference)	-	-
Not having	1.52 (2.19 to 5.23)	0.421
Having cancers (reference)	-	0
Not having	3.50 (4.20 to 11.21)	0.372
Having other diseases (reference)	-	-
Not having	1.52 (-0.69 to 3.74)	0.179
Job status (reference: housekeeper)	-	-
Employed	-0.86 (-5.92 to 4.20)	0.738
Retired	3.24 (-0.41 to 6.90)	0.082
Unemployed	2.30 (-2.45 to 7.05)	0.342
Children	-0.24 (-0.68 to 0.18)	0.265
Age	-0.12 (-0.29 to 0.03)	0.127
BMI	0.02 (-0.15 to 0.20)	0.797
Social capital	0.28 (0.20 to 0.36)	<0.001*
Adjusted R Squared	0.44	

*Statistically significant. [a]CI: Confidence interval.

enhances self-confidence and knowledge about health, which contributes to more mental and physical health and better QOL.

Better economic status also increased QOL. This finding is in agreement with Campos et al.[47] Convenient economic status provides individuals with better services and healthier options which in turn, results in better QOL.

Health status was also related to QOL. Campos et al.,[47] and Layte et al.,[48] also confirmed this finding. Good mental and physical health can cause better QOL.

Current study also demonstrated that CVD is related to QOL. It was also indicated by Ekman et al.,[49] Tran et al.,[50] CVDs decreases QOL. This fact emphasizes the significance of focusing on QOL of CVD patients.

Joint pains were also found to affect QOL. Hu et al.,[51] pointed out the same issue. These pains decrease QOL, making QOL to be intertwined with these pains among the elderly.

Our findings showed that by adjusting context variables, social capital can play a predictive role in QOL of elderly people. So that social capital score is enhanced by increasing QOL score. Lucumi et al.,[16] studying Colombian elderly in 2007, Nilsson et al., focusing on the rural elderly in Bangladesh,[52] Ma et al., exploring AIDS in Chinese patients,[53] Abdul-Hakim et al., focusing on Malaysian rural families,[54] Karimzadeh studying the Indian families,[55] Rajabi Gilan et al., focusing on teachers,[31] Moradian Sorkhkalaee et al., on health staff [18] all highlighted the relation between social capital and QOL. Social capital affects QOL by transferring health information, promoting health behaviors, and lowering down stress and poverty.[54]

The advantages of this community-based study were accurate completion of the questionnaire and randomized sampling. There were also some limitations, among which the absence of generalizability of the present study to the whole country might be an obvious one. It was also impossible to include all elderly people. Furthermore, the participation of the female and active elderly people was more than others in this study. It is recommended that in further future studies, the questionnaires should be filled in at the elderly people homes so that all could have the chance to participate.

Conclusion

In view of the increasing rate of aging of global population, the elderly people's QOL, especially those who are living in developing country should be greatly focused on, so that they would lead a more active and successful life. Changing the structures of families toward nucleus families, aged people retirement, different chronic diseases in this age range, children's marriage and migration to other cities or countries have degraded social relationships and resulted in decreased social capital among the elderly people. Humans are social creatures and social capital is among determining factors of health. By increasing

Research Highlights

What is the current knowledge?

As defined by WHO, QOL is people's perception of their own cultural position and system of values. It is associated with their perception of their own expectations, norms, and emotions. Social capital includes personal and social factors that impalpably affect the elderly's health. The extensive review of literature did not yield any research to have investigated the predictive role of social capital on QOL of the elderly.

What is new here?

A significant relation was found between social capital and QOL ($P<0.05$). QOL scores increased by increment of capital increased.

communications, promoting healthy behaviors, reducing loneliness, enhancing the accessibility to resources all of which decrease stress, social capital can enhance health, vitality, and self-confidence among the elderly people.

Health authorities and policymakers should design diverse and dynamic educational plans to provide cultural and socioeconomic backgrounds for the promotion of social capital among the elderly people. Also, they should design approaches to enhance elderly people's presence in social groups and social media.

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Ethical Issues

The study was registered and approved by the Committee of Ethics of Tabriz University of Medical Sciences (IR.TBZMED.REC.1396. 1168).

Conflict of Interest

The authors declare no conflict of interest.

Author's Contributions

All the authors contributed to the conception and design of the study. ZNK and AFK wrote the first draft of the paper. ShBA and VP revised the manuscript. ZNK and MAJ have analyzed the research data. All authors read and approved the final manuscript.

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