Correlation between Social Support with Anxiety and Depression in the Elderly: a Study in Northern Iran

Mohammad Khademloo[1] · Alireza Khalilian[2] · Sajedeh Sadat Naghibi[3] · Mahmood Moosazadeh[4]

Abstract

In some studies, the relationship between psychiatric disorder and social support in elderly people, has been pointed. This relationship may be different in different countries. So, the purpose of this study is determine of correlation between social support and anxiety and depression in elderly people, in the North of Iran. In this study, the correlation of 157 elders with more than 60 years old was studied. The tools of collecting data were MOS social support survey (MOS-SSS) of Sherbourne and Steward, and Hospital Anxiety and Depression Scale (HADS) questionnaires. For analyzing data, statistical tests from Man Whitney, Kruskal–Wallis, Chi – Square, Fisher exact test, Spearman correlation coefficient and multiple linear regression test were used. Frequency of anxiety, depression in elders has been 40.8 and 47.1% respectively. The average of social support score was 64.4 ± 8.31. According to multiple linear regression results, by increasing age, social support score decreases 0.3 unit, significantly ($P = 0.003$). Social support score for men is 0.07 unit less than women ($P = 0.442$). Social support score for elderly people with anxiety score in average level ($P = 0.025$) and severity ($P = 0.020$), are 0.45 and 0.46 units less than elderly people without anxiety respectively. Age, marital status, anxiety and job are social support determinant, according to multiple linear Regression result.

Introduction

Old age is a natural movement that physiological and mental changes occur in the body (Kaldi et al. 2002). During this process, a healthy adult person physiological capacities

✉ Mohammad Khademloo
moh.khademloo@gmail.com

Extended author information available on the last page of the article

and aptitude for infecting with lots of diseases and death (Tosato et al. 2007). Old age is a period of life that usually starts from 60 to 65 years old (World Health Organization 2010). In this era, increasing the number of elderly people is so important that World Health Organization mentioned nowadays, revolution in demography is supposed to occur during the world (Tosato et al. 2007). Present statistics show that the number of people with more than 60 years old is almost equal to the number of children less than 5 years old. It is predicted that the number of elderly people will have been several times over children under 5 years old by 2050 and the number of elderly people will have reached 2 billion by 50 years later (Osuil 2005).

Also, statistical center of Iran announces that the frequency of people over 60 years old is 9.27% in 1395, while it was 8.3% in 1390 (Statistical Center of Iran 2016). It shows the speed of being old in Iran. According to the process of fast growth and that elderly people have an important role in transferring experience in the family and society, it is clear to pay attention to this group of people (Rafati et al. 2005). Both trying to increase ages and quality, being meaningful and welfare must be paid. According to active and successful old age strategy, policy making and planning for improving social and mental welfare are important for improving physical health (Fry 2001).

Mental disorders such as dementia and depression are common and they are as the second reason for loss of years of life with disability (Kinsella and Velkoff 2002; GBD 2020). Mental disorders with serious symptoms such as depression, anxiety, memory weakness, changing sleep pattern, feeling loneliness and social isolation are significant problems for people over 60 years old (Skoog 2011).

In the study of Miri et al. in Birjand, 51% elders were suspected of mental disorder, 3.3% infected with depression, 14.1% anxiety, 15.2% disorder in physical operation and 14.1% disorder in social operation (Miri et al. 2016).

In the study on the status of the elderly of Iran, prevalence of depression in elders was 43% (Sarokhani et al. 2018). In the study of Rahgozar et al. through out Iran, the prevalence of depression and anxiety were reported 22.4 and 23,5% respectively (Rahgozar 1999). Depression and anxiety are the cause of weakness in old ages that factors such as losing spouse, living alone and at home or special institutes for a long time, retirement and lack of social support have been effective in their creation and also elder's moral (Malakooti 2006). Social support has been one of the most important aspects of elder's life, and lack of elder social support causes depression. Social support had a lot of effects on physical, mental condition, life satisfaction and different aspects of life quality. It has been known as an effective factor of adjusting in confronting and adapting with stressful conditions of life (Ingersoll and Silverman 1978). Cobb states social support as perception that makes elders believe under other's respect and interest. It is really important and valuable component and belongs to a network of mutual commitment (Cobb 1976). Social support relates with improving psychological adaptation mechanisms and it helps elderly people feel safe, peaceful and belonging in stressful conditions (Yoo 2004). Bakhshani study in appraisal the relationship between social support and stressful events and depression, shows that the rate of social support has a negative correlation with depression and the score average of social support in depressed people is less than non-depressed ones significantly. So, it seems that social support has an adjusting role in creating or intensifying depression (Bakhshani 2005).

Also, according to Landman'sstudy et al., there is a significant relationship between higher levels of anxiety and lower amount of social support (Landman and Karlien 2005). Hughes'sstudy shows that there is a correlation between higher levels of social support and lower levels of anxiety and the most effect of religiousness on reducing anxiety has been done by social support. It shows the modifier role of social support (Hughes 2004). Rashedi et al. showed that there is a significant inverse relationship between social support and anxiety in the elderly (Rashedi et al. 2013). In another study in Iran found that there is a significant relationship between social support and social well-being in the elderly (Goudarz et al. 2015).

As elderly people with regard to their social, economical and physical conditions and the complexity of current society and modern lifestyle extremely need social support; so, this research was done in health centers, in the north of Iran in 2018 in order to review the correlation of social support with anxiety and depression in elderly people.

Materials and Methods

This descriptive study is a type of correlation. Statistical community of this research include old men and women with 60 years old or more in urban health centers, in a region, in the North of Iran (Behshahr, Mazandaran Province). To determine the number of sample, the results of Alipoor'sstudy and et al. have been used. In the mention study, the correlation between structural support and anxiety was 0.33. With considering this result, the confidence level of 99%, the power of 90%, two-tailed test, and based on the formula of the correlation coefficient in the software G-power, sample size was determined to 130. By taking into account 20% data deficiency in completing questionnaire, the number of sample was estimated 157 (Alipour et al. 2009).

With regard to setting up six urban health centers and almost equal number of population, samples were distributed among urban health centers equally. The eligible criteria is being 60 years old or more and individual satisfaction and the exclusion criteria is the lack of clear physical defects such as blindness, disability, and mental. After approval ethic committee (Mazandaran University of Medical Science), informed consent obtained from participants.

The tool of collecting data was questionnaire including three section:

First part: It includes questions about demographic data such as age, sex, education, housing condition and type of insurance.

Second part: MOS social support survey (MOS-SSS) of Sherbourne and Steward, questionnaire include 19 phrases about operational support. It assesses 4 dimensions of social support, containing: tangible support, excitedly support/data support, kindness, and positive support cooperation. Participants specify amount of agreement or disagreement with each phrase in a 5 degrees Likert scale (never = 1 score, rarely = 2 scores, sometimes = 3 scores, often = 4 scores, always = 5 scores). Questions from 1 to 8 assess excitedly support, containing positive emotion, sympathy and encouragement to expressing feeling and data support, containing guideline, informing or giving feedback. Questions from 9 to 12 assess tangible support, material and behavioral assistance. Questions from 13 to 15 assess positive social cooperation, containing paying attention to recreational activities. Questions from 16 to 18 assess kindness which consists of expressing

love and interest and question 19 is over all. The lowest and the most score in this test are 19 and 95 respectively. To get general point, all scores are added. The higher point of subject in this scale shows that he or she has a desired social support. Validity of this test has been reported by using Cronbach Alpha in the scope of 0.74 to 0.93 (Helgeson 2003). Also reliability and validity of the questionnaire of MOS-SSS was carried out among Iranian adults with chronic disease (Mohammadzadeh et al. 2016).

Third part: To assess anxiety and depression, Hospital Anxiety and Depression Scale (HADS) questionnaires was used. This questionnaire has 14 questions, 7 questions assess anxiety and other 7 questions assess depression. For each question, there are 4 answers that have 0–3 points. So, the most and the least point for each item are 21 and 0 respectively. Score of 0 to 7 points, 8 to 10 points, 11 points or more belong to healthy, borderline, sick people respectively. Validity and reliability of this questionnaire have been evaluated by Montazery et al. in Iran in 2003 (Montazeri et al. 2003).

Entering data was done in SPSS software, version 16 (SPSS Inc., Chicago, Illinois, USA). The assessment of normal distribution was performed by Shapiro-Wilk test. For analyzing data, Mann Whitney, Kruskal–Wallis, Chi – Square, Fishers exact, Spearman Correlation Coefficient Test were used. Also, Multiple Linear Regression test was used for adjusting the effect of suspected variations on confounder. The criterion for judging was a significance level less than 0.05.

Results

One hundred and fifty-seven elderly people with more than 60 years old were studied. The number of men and women was 88 (56.7%) and 69 (43.3%) respectively. The average of age for this study was 65.35 ± 3.78. The maximum and minimum of age were 78 and 60 respectively. According to age, the most number was 60–64 years old (45.9%). Also, 33.8% of elderly people were retired, 56.6% of them have personal house, 50.4% are social security insure, 69.4% live with their spouse,11% live alone and 23.6% live with one of his or her children.

Meanwhile 40.8% of elderly people were anxious. 52.9% of them are on the borderline and 6.4% are normal. Also, the frequency of anxiety of both sex were similar. Frequency of anxiety was 37.5%, 41.5% and 10% in 60–64, 65–69 and more than 70 years old respectively. As a whole, based on the results of univarite tests (Chi-square or fisher exact tests), the status of demographic features with anxiety in elders hasn't had statistically significant difference ($p > 0.05$).

47.1% of these elders were depressed. Also, status of depression, 47.8% of samples were the borderline and 5.1% of them were normal. Frequency of depression among women and men were 43.5% and 50% respectively. Frequency of depression were 45.8%, 52.3% and 35% in 60–64, 65–69 and more than 70 years old respectively. 50% of elders with paternal house, 44.8% with personal house, and 51.9% with rental house were depressed. According to depression condition and marital status, 45% of elders who live with their spouse, 54.5% of them living alone, 51.4% of elders who live with one of their children, were depressed. Based on depression and amount of income, 36.8% of elders with more than moderate and above income level and 38% of them with less than moderate income level were depressed. Also, 56.4% of the retired elders, 42.4% of with social security insurance and 52.8% elders with other insurance were

depressed. Generally, according to the results of univarite tests (Chi-square or fisher exact tests), the condition of demographic features with depression in elders, statistically significant difference wasn't observed ($P > 0.05$).

The average score of social support in the elderly studied was 64.4 ± 8.31. The average score of social support based on five domains, included: excitely support 26.47 ± 4.24, tangible support 14.6 ± 2.79, positive cooperation 10.57 ± 2.79, kindness 9.82 ± 1.8. The average score of social support in women and men was 64.23 ± 9.61 and 64.53 ± 7.19 respectively (Table 1).

According to the results of the study, social support score average in elders with anxiety condition was 63.51 ± 8.9 in sickness condition, 64.46 ± 8 on the borderline and 69.5 ± 5.08 in normal condition, that is, elders social support score in normal condition has been more than that in sickness and on the borderline condition. Also, the score of social support components in elders in normal condition was more than that in sickness and on the borderline condition. Although the differences have not been significant statistically ($P > 0.05$).

The results of study show that the average of social support score in elders with depression condition in sickness, on the borderline and normal was 63.79 ± 7.65, 64.92 ± 9.05 and 65.12 ± 7.51 respectively, that is, social support score in normal depression has been more than that in two other conditions, but these differences have not been significant statistically ($P > 0.05$).

The results of multiple linear regression test (Table 2) show that by increasing age, social support score reduces 0.27 unit significantly ($\beta = -0.27$, $P = 0.003$). Social support score for men 0.07 unit less than women that this difference is not significant statistically ($\beta = -0.07$, $P = 0.442$). Social support score for elders that have personal house 0.05 unit more than that for elders who has paternal house ($\beta = 0.05$, $P = 0.619$) and social support score for elders that have rental house 0.09 unit less than that for elders who have paternal

Table 1 The average of social support score and its sub-components by gender

	Gender	n	Mean	SD	CI 95%	P value
Social support	Female	69	64.23	9.61	61.92–66.54	0.875
	Male	88	64.53	7.19	–66.0563	
	Total	157	64.4	8.31	63.09–65.71	
Excitedly support	Female	69	26.39	4.81	25.23–27.54	0.833
	Male	88	26.53	3.8	25.72–27.34	
	Total	157	26.47	4.26	25.79–27.14	
Tangible support	Female	69	14.62	2.94	13.91–15.32	0.871
	Male	88	14.63	2.69	14.06–15.2	
	Total	157	14.63	2.79	14.18–15.07	
Positive cooperation	Female	69	10.43	2.37	119.86–	0.449
	Male	88	10.69	1.73	10.32–11.06	
	Total	157	10.57	2.03	10.25–10.9	
Kindness	Female	69	9.82	1.92	9.36–10.28	0.869
	Male	88	9.81	1.71	9.45–10.18	
	Total	157	9.82	1.8	9.53–10.1	

house ($\beta = -0.09$, $P = 0.377$). Social support score for elders who live alone significantly 0.19 unit less than elders that live with their spouse ($\beta = -0.19$, $P = 0.026$) and social support score for elders that who live with one of their children 0.07 unit more than that for elders who live with their spouse ($\beta = 0.07$, $P = 0.484$).

Social support score for elders with low ($\beta = 0.09$, $P = 0.339$) and very low income level ($\beta = 0.10$, $P = 0.302$) is respectively 0.09 and 0.1 unit more than that in elders with moderate and over income level. Social support score for elders that in anxiety score with moderate level ($\beta = -0.45$, $P = 0.025$) and sick ($\beta = -0.46$, $P = 0.020$), respectively 0.45 and 0.46 unit are less than that in elders without anxiety. Social support score for elders that in depression score with moderate level ($\beta = 0.32$, $P = 0.141$) and sick ($\beta = 0.18$, $P = 0.403$), respectively 0.32, 0.18 unit are more than elders without depression. Social support score for elders with other jobs significantly 0.2 unit are less than retired elders ($\beta = -0.2$, $P = 0.041$). Social support score for elders with other insurance 0.06 unit has been more than that for elders with social security insurance ($\beta = 0.06$, $P = 0.437$), although this difference has not been significant.

Generally, among different variations included to multiple linear regression model, some variations such as anxiety, age, marital status, and job were social support determinants. Also, the variables of included in this model predict only about 9% social support score (Adj R- squared = 0.088).

Discussion

In this study, the correlation of social support with anxiety and depression was reviewed. Based on the results of this study, Social support score for elderly people with anxiety score in average level and severity, are 0.45 and 0.46 units less than elderly people without anxiety respectively. Also, 40.8% studied elderly were anxious,

Table 2 Determining factors related to social support in elders based on results of multiple linear regression

Variables		β	P value
age		−0.27	0.003
Gender (Ref: Female)		−0.07	0.442
House (Ref: Paternal house)	Personal house	0.05	0.619
	Rental house	−0.09	0.377
Marital status (Ref: with spouse)	Alone	−0.19	0.026
	With one of children	0.07	0.484
Income level (Ref: moderate and above)	Low	0.09	0.339
	Very low	0.10	0.302
Anxiety status (Ref: normal)	Border line	−0.45	0.025
	Disease	−0.46	0.020
Depression status (Ref: normal)	Border line	0.32	0.141
	Disease	0.18	0.403
Job (Ref: retired)	Other Jobs	−0.20	0.041
Insurance (Ref: social security)	Other insurance	0.06	0.437

and 52.9% of them were on the borderline status. In Miri's et al. study (2016), in Birjand, (a region in southeast of Iran) 51% elders were suspected to mental disorder and 14.1% of them were anxious. In Rahgozar's study (1999) the rate of anxiety prevalence was reported 23.5%. In Alipoor's study (2009), the rate of anxiety in these elders was reported 44%. In Han's study (2014), 99.1% of the elders infected silicosis had anxiety signals, although this study has not been done for the review of anxiety prevalence in elders, but the amount of disorder cases in elders referring to the Health Centers has been determined. The results of this study have been similar to Alipoor's study (2009). The probable reason of difference in the results of this study with other studies can be related to the type of study, sampling approach, demographic features and different tools for measuring mental disorder and cultural and social differences in societies.

According to the results of this study, 47.1% of studied elderly were depressed. In Miri's study, (2016) 515 of elders were suspected to mental disorder. In the study of elders in Iran, the frequency of depression in elders was reported 19.3% (Sarokhani et al. 2018). In Rahgozar's study (1999), the frequency of depression was 22.45. In Alipoor's study (2009), the frequency of depression was 40% and in Emami's study, the frequency of depression in the elders of Tehran was 51.8% (28). In Han's study (2014) 86.1% of elders affected silicosis has depression signals. The results of this study, were like Alipoor's and Emami's studies (Alipour et al. 2009; Bakhtiyari et al. 2017). Depression signals in Bing's study were reported much more than those in this study (Han et al. 2014).The reason of difference in the results of this study with other studies refers to choosing the methods of study, chosen target group from society or special groups, and also, difference in measuring tools of mental health and being different the perception and inference of people from study tool questions according to cultural and social conditions.

In this study, the average of social support score has been 64.4 ± 8.31. The average of social support score for old men and women was similar and very close each other. In this study, social support reduces by increasing age and this difference was significant. According to it, elders more than 70 years old have had less social support. Social support in elders that live alone has been less than other marital cases and this difference has been statistically significant. Social support hasn't had significant relationship with type of house, income. In this study, elders social support with normal anxiety condition has been higher than that with the anxiety condition of sick and on the borderline. This difference hasn't been statistically significant. In this study, elders social support with normal depression condition has been more than social support of the two others, but statistical difference wasn't observed. In this study, there was a reversed correlation between social support and depression, anxiety and age. By increasing anxiety score, social support score reduces. According to the results of the study, the relationship between social support and age, living alone, other job groups, and anxiety has been significant in sickness and on the borderline condition.

In Lijun's study (Montazeri et al. 2003), there was statistically significant relationship between loneliness, social support and depression. In Han's study (2014), social support has had significant effect on anxiety and depression signals and improving social support has made anxiety and depression signals. In Chi's study (Chi and Chou 2001), at least, one of social support dimensions has related to depression signals. In Park's study, there was a reversed relationship between social support and depression.

In Sue's study (Park and Roh 2013), also, social support has been one of important factors for predicting depression in Chinese elders. Also, in Alipoor's study (2009) kinds of social support had reversed and significant relationship with anxiety and depression. In Sadegi's study (2000), satisfaction of social support had a main role in preventing depression. In Motamedi's study (2002), social support had a significant effect on feeling alone, general health, and elders satisfaction of life. In Bakshaei's study (2005), social support had a correlation with depression rate and the average of social support in depressed people significantly has been lower than non-depressed people.

The results of this study about social support have been like most related researches, but in some components, there were some differences, too. The difference in this case refers to study approach, number of samples, research community, measuring tools for social support, anxiety and depression, cultural and social differences, social values and people perception and belief in different societies.

This study showed that among different variables in multiple linear regression, age, marital status, anxiety and job are social support determinants. As social support is one of important and effective factors on elders mental health, so, in the course of improving elders health level in the society and reducing anxiety and depression in them, It is necessary to pay attention to different aspects of social support in family, social dimensions and as a social asset.

Compliance with Ethical Standards

Conflict of Interest   None.

References

Alipour, F., Sarabi, H., Forouzan, S., Nabavi, H., & Khedmati, M. E. (2009). The role of social support in the anxiety and depression of elderly. *Iranian Journal of Ageing., 4*(1), 53–61.

Bakhshani, N. M. (2005). Relation of perceived social support and stressful events of life with depression. *Journal of Clinical Psychology, 2*(9), 49–55.

Bakhtiyari, M., Emaminaeini, M., Hatami, H., Khodakarim, S., & Sahaf, R. (2017). Depression and perceived social support in the elderly. *SIJA., 12*(2), 192–207.

Chi, L., & Chou, K. L. (2001). Social support and depression among elderly Chinese people in Hong Kong. *Journal of Aging and Human Development, 52*(3), 231–252.

Cobb, S. (1976). Social support as a mediator of life stress. *Psycihometrics in Medicine, 38*, 300–314.

Fry, P. S. (2001). Predictors of health-related quality of life perspectives, self-esteem, and life satisfactions of older adults following spousal loss: An 18-month follow-up study of widows and widowers. *Gerontologist., 41*(6), 787–798.

GBD 2016 Occupational Risk Factors Collaborators. (2020). Global and regional burden of disease and injury in 2016 arising from occupational exposures: a systematic analysis for the global burden of disease study 2016. *Occupational and Environmental Medicine, 77*(3), 133–141.

Goudarz, M., Foroughan, M., Makarem, A., & Rashedi, V. (2015). Relationship between social support and subjective well-being in older adults. *Salmand: Iranian Journal of Ageing., 10*(3), 110–119.

Han, B., Yan, B., Zhang, J., Zhao, N., Sun, J., Li, C., Lei, X., Liu, H., & Chen, J. (2014). The influence of the social support on symptoms of anxiety and depression among patients with silicosis. *The Scientific World Journal, 2014*, 724804.

Helgeson, V. S. (2003). Social support and quality of life. *Quality of Life Research, 12*(1), 25–31.

Hughes, E. (2004). Social support and religiosity as coping strategies for anxiety in hospitalized cardiac patients. *Annual Behavior Medicine., 28*(3), 179–185.

Ingersoll, B., & Silverman, A. (1978). Cooperative group psychotherapy for the aged. *The Gerontologist, 18*(2), 201–206.

Kaldi, A. R., Akbari Kamrani, A. A., & Foroughan, M. (2002). Physical, social and mental problems of 13 areas ofTehrans elders. *Journal of community wellbeing., 17*, 233–243.

Kinsella, K., & Velkoff, V. A. (2002). The demographics of aging. *Aging Clinical and Experimental Research, 14*(3), 159–169.

Landman, P., & Karlien, M. C. (2005). Gender differences in the relation between social support, problems in parent-offspring communication, and depression and anxiety. *Social Sciences & Medicine., 60*, 2549–2559.

Malakooti, K. (2006). Validity, reliability and factor analysis of general health Questionnaire-28 (GHQ-28) in Iranian elderly. *Iranian Journal of Ageing., 1*, 11–21.

Miri, M., Salehiniya, H., Tiyuri, A., Bahlgerdi, M., & Taghizadeh, A. (2016). Prevalence of mental disorders and its related factors among elderly of Birjand, 2014. *JGN., 2*(2), 94–103.

Mohammadzadeh, J., Sayehmiri, K., & Mahmoudi, B. (2016). Standardization of social support scale (MOS) of adults who have chronic diseases in Ilam, 2015. *Sjimu., 23*(7), 69–77.

Montazeri, A., Vahdaninia, M., Ebrahimi, M., & Jarvandi, S. (2003). The hospital anxiety and depression scale (HADS): Translation and validation study of the Iranian version. *Health and Quality of Life Outcomes., 1*(1), 14.

Motamedi Shalamzari, A., Ejeei, J., Azad Fallah, P., & Kiamanesh, A. (2002). The role of social support, life satisfaction, general health and loneliness among the elderly above 60 years. *The Journal of Psachology, 6*(2), 132–115.

Osuil, P. (2005). Iranian elderly narrative statistic. *Monthly Health, 139*, 13.

Park, J., & Roh, S. (2013). Daily spiritual experiences, social support, and depression among elderly Korean immigrants. *Aging & Mental Health, 17*(1), 102–108.

Rafati, N., Yavari, P., Mehrabi, Y., & Montazeri, A. (2005). Quality of life and its influencing factors in adults aged 65 and over living in Kahryzek hospice charity. *Journal of Health School and Health research institute., 3*(2), 75–67.

Rahgozar, M. (1999). Elders' depression, anxiety, apprehension. *Hakim, 2*(2), 103.

Rashedi, V., Gharib, M., Rezaei, M., & Yazdani, A. A. (2013). Social support and anxiety in the elderly of Hamedan. *Iranian Rehabilitation, 14*(2), 110–115.

Sadeghi, M., Rodjuei, M., & Castoguay, S. (2000). The Effect of State of Stress and Social Support on the Depression of Elderlies. *Psycological Research, 5*(3), 25–11.

Sarokhani, D., Parvareh, M., Hasanpour Dehkordi, A., Sayehmiri, K., & Moghimbeigi, A. (2018). Prevalence of Depression among Iranian Elderly: Systematic Review and Meta-Analysis. *Iranian Journal of Psychiatry, 13*(1), 55–64.

Skoog, I. (2011). Psychiatric disorders in the elderly. *Canadian Journal of Psychiatry, 56*(7), 387–397.

Statistical Center of Iran. (2016). Census of Population and Housing Year. Available at http://www.sci.org

Tosato, M., Zamboni, V., Ferrini, A., & Cesari, M. (2007). The aging process and potential interventions to extend life expectancy. *Clinical Interventions in Aging, 2*(3), 401–412.

World Health Organization. (2010). *Global recommendations on physical activity for health*. Geneva: World Health Organization.

Yoo, Y. G. (2004). Perceived social support and morale of the elderly staying at home. *Taehan Kanho Hakhoe Chi, 34*(2), 297–306.

Affiliations

Mohammad Khademloo[1] · **Alireza Khalilian**[2] · **Sajedeh Sadat Naghibi**[3] · **Mahmood Moosazadeh**[4]

[1]   Department of Community Medicine, School of Medicine, Orthopedic Research Center, Mazandaran University of Medical Sciences, Sari, Iran

[2]   Department of Community Medicine, School of Medicine, Thalassemia Research Center, Hemoglobinopathy Research Institute, Mazandaran University of Medical Sciences, Sari, Iran

[3]   Mazandaran University of Medical Sciences, Sari, Iran

[4]   Health Sciences Research center, Addiction Institute, Mazandaran University of Medical Sciences, Sari, Iran