



Original Article

Fear of Falling and Social Participation in the Elderlies in Mobarakeh, Isfahan Province, Iran

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ABSTRACT

Article history

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Introduction: Due to the Increasing elderly population and the high prevalence of psychological, social and physical problems among them, this study was conducted to determine fear of falling and social participation status among elderly people in Mobarakeh city, Isfahan province, Iran in 2016.

Methods: This was a cross-sectional study in which 300 elderly residents of Mobarakeh city were randomly recruited by cluster sampling. Data collection tools were demographic questionnaire, Falls Efficacy Scale-International form and social participation scale of Canadian Community Health Survey. Mini Mental State Examination also was used to diagnose cognitive disorders. Data were analyzed with SPSS software using t-test, ANOVA and Pearson correlation coefficient.

Results: The mean age of participants was 70.83 ± 8.68 years and the mean score of fear of falling was 33.25 ± 16.37 (16-64). Regarding the fear level, 22.3 % had no fear, 34.3 % low fear, 20 % moderate fear, and 23% a high fear of falling. Mean score of social participation was 16 ± 4.63 (8-40). The most frequently reported social participation activity was attending religious ceremonies (99.7 %) while the least was attending professional and social forums (79.3 %). There was an inverse significant correlation between fear of falling and social participation ($r = -0.421, p < 0.01$).

Conclusion: Level of fear of falling in the elderlies was moderate while social participation was low. By using preventive measures, effective education, psychological and social interventions, disease-control programs and removing the existing obstacles, the fear of falling could be reduced and social participation could be promoted among the elderlies.

Keywords: Elderly, Fear of Falling, Social Participation

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Introduction

Fear of falling is the most common phobia among the elderly and refers to loss of self-confidence due to fear of fall when doing daily activities such that

routine activities cannot be done without falling (1, 2). Fear of falling leads to limited activities of daily living (ADL) and instrumental ADL's, physical

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functioning, and dependency, admission to nursing homes, depression and anxiety and decline in quality of life (3-5). The prevalence of fear of falling ranges from 25% to 85% in different communities (6). Age, gender, low education level, history of falling, low social participation, low income, marital status (fear of falling is more common in the single and people who live alone), smoking, and alcohol use are some of the sociodemographic characteristics that are associated with fear of falling (7-10).

Declined social participation is also a social problem in aging. Decline in social activities is so in-depth and influencing for the elderly that it may lead to developing a sense of being burden on others that may be increasingly intensified due to development of certain physical and mental disorders (11). Social participation is an organized process in which people are involved deliberately, voluntarily, collectively, and with regards to certain interests that lead to self-flourishing and achieving purposes and their contribution in power sources (6). The elderly's participation in meaningful activities within the framework of friendship and organized participation (attending different courses) is a key factor for promoting the quality of life and general health and consequently decreasing disabilities due to old age (12).

In addition to decreasing mortality, disabilities, and depression at older ages; social participation leads to feeling healthy and improving cognitive health and healthy behaviors (13-17) in aging. Therefore, social participation is considered the basis of prosperous older ages that is the cause of healthcare services delivered to the elderly (18). Besides that, what is referred to as prosperous and dynamic old age in countries with older population is realized through commitment to the elderly's social participation in the community. The meaningful relationship between this phenomenon and the elderly health, and a satisfactory termination of transition to old ages have been constantly attracting much attention (4).

Najafi Ghezalchah et al. study reported high prevalence of falling and fear of falling, and significant association between them among the elderly living in a nursing home. In that study, approximately 47 % of the elderly reported to fall over three times within the past six months but they could not illustrate correlation between falling/fear of falling with social participation (7). Borhaninejad et al. study, however, demonstrated that fear of falling was significantly associated with age, gender, marital status, education level, and history of falling. Borhaninejad et al. argued that in the elderly, fear of falling led to limited physical functioning (19). Darvishpoor et al. also reported a low level of social participation among elderly's in Tehran (20). Pin and Spini reported a negative association between falls and social participation among a middle-aged and elderly European sample (21).

Regarding the lack of study on relationship between fear of falling and social participation in Iran, this study was conducted to investigate fear of falling and social participation status among the elderly in

Mobarakeh, Isfahan province, Iran.

Methods

Participants and the study protocol

In this cross-sectional study which carried out in December 2016, total number of 300 older people living in Mobarakeh were enrolled. Sample size was determined considering cluster sampling design coefficient, $\alpha = 0.50$, $\beta = 0.200$, and $r = 0.200$ (22). To conduct cluster sampling, 10 thirty-branch clusters were determined in Mobarakeh. To achieve this purpose, the addresses of the 10 cluster heads were randomly selected to conduct sampling at their homes. The inclusion criteria were being Iranian, 60 years and over, volunteering to participate in the study, and having no history of cognitive disorder (Mini Mental State Examination (MMSE) scores < 20 for illiterate participants and MMSE scores < 27 for literate ones). The questionnaires filled out by the second author of the paper through interviewing the participants in one 20-30 minutes session.

Instrument

For all participants, first the MMSE was filled out, and then, if they had no cognitive disorders, demographic characteristics questionnaire, fear of falling questionnaire, and social participation scale were filled out.

To detect people with cognitive disorders, the MMSE was used (23). This scale was translated into Persian by the faculty members of the University of Tehran in 2007-2008 and its reliability confirmed by the Cronbach's alpha coefficient 81 % and sensitivity 90 % (24). This questionnaire consists of 20 items and the maximum possible score for it is 30. Scores 27-30 represent normal condition, 21-26 mild cognitive impairment, 11-20 moderate cognitive impairment, and 0-10 severe cognitive impairment (25). For illiterate participants, score 20 was considered cutoff point. The illiterate elderly with < 20 scores and literate ones with < 27 scores did not entered the study. To gather demographic information, a demographic questionnaire was used consisting of items on age, gender, education level, marital status, employment or retirement status and living status (alone or not). The participants were also asked a question about the ways of accessing healthcare information.

Falls Efficacy Scale-International form, was used to measure fear of falling. This scale consists of 16 items about the levels of the elderly's concern about falling again during conducting social and personal activities either really or imaginarily inside and outside home. This questionnaire was constructed by the European network for falls prevention. The items are rated by 4-point Likert scale, 1: no fear, 2: little fear, 3: moderate fear, and 4: severe fear. The maximum possible score for this questionnaire is 64. Score 16 represents no fear, scores 17-32 represent low fear, 33-48 represent moderate fear, and 49-64 represent severe fear (26).

The reliability of the Persian version of this questionnaire in Iran was derived 95 % according to the Cronbach's alpha coefficient (7).

Social participation scale of Canadian Community Health Survey (27) was used to measure social participation. This instrument includes 9 items on conducting collective activities, attending religious ceremonies, team sports, educational and cultural activities, and participating in social and charity institutes and group entertainments. This questionnaire also includes 15 yes/no items on the barriers to the elderly's social participation. In the first section, the items are rated by 5-point Likert scale: never, at least once a year, at least once a month, at least once a week, and at least once a day. The range of scores is 8-40; the higher the mean score, the higher the level of social participation. The validity and reliability of this questionnaire was derived 0.76 according to the Cronbach's alpha coefficient in a pilot study on 30 participants, which was considered in acceptable range.

Ethical considerations

The research purposes were explained to the participants and they were ensured that the data would be kept completely private and that the participation in the study would be voluntary. Then, the participants provided informed consent to participate in the study if they volunteered to do so. Besides that, the protocol of the study was approved by the ethics committee of Shahid Sadoughi University of Medical Sciences, Yazd, Iran (ethical approval code: IR.SSU.SPH.REC.1395.3).

Data analysis

Data analysis was conducted by SPSS software. To compare the mean values of the two groups, independent t-test was used and to compare those of over two groups, ANOVA with LSD post hoc test was used. Pearson correlation coefficient was used to investigate correlations.

Results

The mean age of the participants was 83.70 ± 8.68 (60-92) years and 56.3 % were illiterate, 23.3 % had elementary education level, 5.7 % guidance school education, and 6.7 % academic education; 67 % were married, 66.3 % retired and 45.3 % jobless. Table 1 shows the demographic characteristics of the participants.

The most frequent accident detected was falling (41 %) followed by home accidents (26.3 %) and traffic accidents (12 %). Regarding the frequency of fear of falling, 22.3 % of the elderly did not have fear of falling, 34.3 % low fear of falling, 20 % moderate fear of falling, and 23 % severe fear of falling. The most frequently attended ceremonies were religious ceremonies (99.7 %) and the least frequently attended

ceremonies was professional and social forums (79.3 %).

Table 1. Demographic characteristics of the participants

Variable		N	%
Gender	Male	115	38.3
	Female	185	61.7
Education	Illiterate	169	56.3
	Primary school	70	23.3
	Guidance school	17	5.7
	High school diploma	24	8.0
Marital status	Academic	20	6.7
	With spouse	201	67.0
Retired	Without spouse	99	33.0
	Yes	199	66.3
Employment status	No	101	33.7
	Occupied	30	10.0
	Housewife	134	44.7
Living status	Workless	136	45.3
	With wife	205	68.3
	With unmarried children	25	8.3
	With married children	23	7.7
	Alone	47	15.7

Tables 2 and 3 show the details of social participation and its reported barriers to these activities among the participants.

The mean score for fear of falling and social participation was derived 33.25 ± 16.37 and 16.0 ± 4.63 , respectively. According to the Pearson correlation coefficients, the levels of fear of falling increased but social participation decreased with age. In addition, the higher the score for fear of falling the subjects had, the lower the level of social participation was detected. The mean scores for fear of falling and social participation were significantly associated with marital status, education level, employment status, and history of falling (Table 4).

Discussion

The present study was conducted to investigate the status of fear of falling and social participation in the elderly in Mobarakeh. Although the studied participants had moderate levels of fear of falling, despite with a wide confidence interval of half mean score, (mean score: 32.25 ± 16.37), compared to others show a low frequent fear of falling. For example, Borhaninejad et al. reported the high mean score of fear of falling 82.31 ± 9.02 (19). Najafi Ghezalchah et al. study on 160 older people demonstrated that most participants had a moderate level of fear of falling (7).

Tables 2. Frequency distribution of social participation activities among participants

Community-related activities	Never		At least once a year		At least once a month		At least once a week		At least once a day	
	N	%	N	%	N	%	N	%	N	%
Informal and formal activities such as small get-togethers, meals outside the household, weddings or reunions	18	6	49	16.3	100	33.3	79	26.3	54	18
Participate in church or religious activities such as services, committees or choirs	29	9.7	47	15.7	73	24.3	89	29.7	62	20.7
Participate in sports or physical activities with other people	151	50.3	30	10	30	10	47	15.7	42	14
Participate in educational and cultural activities involving other people such as attending courses, concerts or visiting museums	264	88	23	7.7	9	3	2	0.7	2	0.7
Participate in service club or fraternal organization activities	269	89.7	18	6	7	2.3	4	1.3	2	0.7
Participate in neighborhood, community or professional association activities	281	93.7	13	4.3	4	1.3	1	0.3	1	0.3
Participate in volunteer or charity work	156	52	52	17.3	58	19.3	25	8.3	9	3
Participate in any other recreational activities involving other people, including hobbies, bingo and other games	217	72.3	27	9	27	9	19	6.3	10	3.3

Tables 3. Frequency distribution of barriers to social participation activities among participants

Barriers	Yes		No	
	N	%	N	%
Cost	157	53.3	143	47.7
Transportation problems	147	49	153	51
Activities not available in the area	260	86.7	40	13.3
Location not physically accessible	42	14	258	86
Location is too far	65	21.7	235	78.3
Health condition limitation	180	60	120	40
Time of the activities not suitable	13	4.3	287	95.7
Don't want to go alone	89	29.7	211	70.3
Personal or family responsibilities	116	38.7	184	61.3
Language related reasons	20	6.7	280	93.3
Too busy	32	10.7	268	89.3
Afraid or concerns about safety	90	30	210	70
Boredom	105	35	195	65
Disorganization	3	1	297	99

Table 4. Distribution of mean scores of fear of falling and social participation by some sociodemographic variables

Variable		Social participation	p	LSD post hoc	Fear of falling	P	LSD post hoc
Gender	Male	18.06 ± 4.87	< 0.001	-	26.91 ± 13.73	< 0.001	-
	Female	14.72 ± 3.98			37.18 ± 16.67		
Education	Illiterate	14.48 ± 4.13	< 0.001	Illiterate<	37.76 ± 16.67	< 0.002	Illiterate >
	Primary school	16.62 ± 4.05		primary school,	12.31 ± 15.87		primary school,
	Guidance school	18.82 ± 5.18		guidance school,	24.41 ± 12.86		guidance school,
	High school diploma	19.70 ± 4.67		diploma, above diploma	22.50 ± 9.03		diploma, above diploma
	Academic	19.80 ± 4.00		primary school< diploma, above diploma	19.80 ± 7.72		primary school> diploma, above diploma
Marital status	With spouse	16.98 ± 4.59	< 0.001	-	20.02 ± 14.11	< 0.001	-
	Without spouse	14.01 ± 4.09		-	43.34 ± 16.04		-
Employment status	Occupied	17.20 ± 3.53	< 0.001	Housewife<	22.83 ± 8.18	< 0.001	Housewife<
	Housewife	14.93 ± 3.84		Working,	34.47 ± 15.13		Working,
	Workless	16.79 ± 5.31		workless	34.34 ± 18.09		workless
Living status	With wife	17.05 ± 4.65	< 0.001	with wife>	28.59 ± 14.22	< 0.001	with wife<
	With unmarried children	14.08 ± 4.22		with unmarried children,	25.00 ± 44.84		with unmarried children,
	With married children	12.26 ± 3.38		with married children, single	48.34 ± 15.39		with married children, single
	Alone	13.87 ± 3.38		with unmarried children> with married	40.00 ± 15.37		with married children> single
History of falling	Yes	14.67 ± 4.34	< 0.001	-	41.32 ± 16.20	< 0.001	-
	No	16.92 ± 4.61			27.63 ± 14.01		-

Lopez et al. study on 147 older people reported that 133 older people had fear of falling according to at least one item of the Falls Efficacy Scale (28). Boyd et al. study however demonstrated similar prevalence of moderate fear (36.2 %) (8). Mann et al. study on the elderly with history of falling within the past six months, reported that 63.5 % of them were worried about falling again (10). Fear of falling if causes the elderly to pay further attention to daily activities including walking and daily routines, or more clearly, if it play a protective role, it can be useful. In such conditions, fear induces a reasonable and logical reaction to the potential risk of falling. But, if such

fear is, however, associated with negative outcomes including decline in doing daily routines, physical activity, and quality of life and loss of self-confidence, it should be considered a risk factor.

The overall level of social participation was low (mean score: 16.0 ± 4.63). Interestingly, 70.3 % of these elderly reported willing to participate in the group recreational and social activities in the past year. The most frequently reported barriers to socializing were lack of socially interesting activity in the neighborhood, disease and health problems, and costs. Darvishpoor et al. study, consistently, reported that the level of social participation was low in the

elderly (mean score: 15.96 ± 4.30) and the most frequently reported same barriers including diseases, lacking interesting activity in the neighborhood, and commuting (20).

The frequency of fear of falling in the current study followed a predictable pattern; approximately one third showed low level of fear while at around one fifth had either moderate or high level, or were free of fear of falling in contrast to subjects in Najafi Ghezalchah et al. study who were mostly (76.2 %) at moderate level of fear of falling (7). The reason for this discrepancy may be that the mentioned study carried out on institutionalized individuals which were not included in current study.

The highest level of social participation was derived for religious ceremonies, in contrast, the lowest was for professional and social forums which was respectively consistent and inconsistent with Darvishpoor et al. study (20). Such the paradox may be explained by the traditional differences and religious context of people living in Mobarakeh as well as socioeconomic differences such as education, the type of jobs (hard works and agriculture), and income level.

In the current study, fear of falling levels increased and social participation declined with aging. Some other studies have also demonstrated association between age and fear of falling (3, 6, 8, 10). Some other demonstrated that age was significantly associated with social participation (11, 16, 29). This may be the natural result of Aging that it is accompanied by decline in the physiological, anatomical, and cognitive capacities in older people causing a general reduction in practical abilities such as loss of cognitive and physical functioning and coping with stress, fear and other states.

The findings of the current study demonstrated an association between gender and fear of falling so that the levels of fear of falling was higher in women than men, as stressed in previous studies (11, 20, 30). The correlation found between gender and fear of falling has been thought by some an unexplainable risk factor (3, 6, 8-10, 19). Moreover, as some other studies (11, 16, 20, 30) reported male subjects showed overall social participation higher than females which may be attributed to anatomical, physiological and psychological differences between men and women.

In the current study, the fear of falling level was correlated with living arrangement of the subjects; as so it was higher in the widows/widowers than in the elderly living in a marital life, as reported in previous studies (3, 8, 19). Conversely, as some argue for, the level of social participation was higher in the married elderly than in those who were living alone (11, 20, 30). Receiving emotional support from spouses in stressful situations such as living stress, anxiety, and fear is effective in exhibiting reasonable and logical reaction to fear particularly in the elderly with history of fear of falling. Moreover, it is likely that attending family meetings, religious ceremonies and festivals, pilgrimage, and recreational and group activities increase when the elderly live in a marital life.

The findings of the current study showed that the levels of fear of falling and social participation, as expected, were higher in the illiterate older people than in the literate ones. Cho et al. (3), Boyd et al. (8), Koumar et al. (9), Mann et al. (10), and Borhaninejad et al. (19) studies showed that lower education level was associated with higher levels of fear of falling. Siron et al. (16) and Darvishpoor et al. (20) studies also indicated a similar association between education level and score for social participation. It seems that people with higher education levels are more successful in receiving information and applying psychological strategies to cope with fear; even, ability to learn and enhance individual and social skills, understand laws and regulations, and even protect oneself against external adverse agents is higher in people with higher education levels occasionally than in the illiterate people. Illiterate people or those with low education level are less likely to be able to conduct such actions due to being illiterate and therefore not being able to read manuals and signs. Higher levels of education pave the way for participating in educational and cultural activities as well as attending societies such as those for retired people and therefore help to enhance social participation.

Regarding employment an interesting finding was that fear of falling level was higher in the jobless and housewife old people than in the employed ones. Social participation level was also higher in the employed elderly than in the unemployed as reported by others (3, 9-10, 19). Employment provides an appropriate context for participating in professional and occupational institutes and forums, which causes enhancement of self-confidence, in addition to increasing active presence in the community and work environment. These conditions can explain decline in fear of falling and increase in social participation.

Besides that, fear of falling and social participation was significantly associated with living status. Cho et al. (3), Gilmore et al. (27) and Koumar et al. (9) studies reported association between living alone and fear of falling. This finding represents the cause-and-effect that those older people who live a marital life have higher level of social participation and lower level of fear of falling.

According to our results level of fear of falling was higher in the elderly with history of falling while social participation was lower. Cho et al. (3), Scheffer et al. (6), Najafi Ghezalchah et al. (7), Mann et al. (10), Boyd et al. (8), and Koumar et al. (9) reported consistent findings and argued that fear of falling not only immediately contribute to falling but also is a risk factor for falling, so creating a vicious circle in distance between falling and fear of it. Loss of self-confidence, inability to do daily routines, fear of falling, and reduction in social interactions are certain conditions that the elderly are faced with after falling.

The results of the current study demonstrated that fear of falling was negatively and significantly correlated with social participation. Koumar et al. (9) reported social isolation in the elderly with fear of falling and avoidance of social activities. It can be

argued that in the elderly, fear of falling causes decline in participation in social activities because of potential complications due to falling such as fracture, long-term pain, and dysfunction.

Conclusion

The findings of the current study demonstrated that level of fear of falling was moderate and social participation was low in the elderly. Therefore, to provide elderly with welfare and help them live a healthy and dynamic life, it is necessary to reduce the levels of fear of falling and care dependency and promote social participation among the elderly through adoption of preventive approaches, effective education, psychological, advisory, and social interventions, codification of applied plans to manage diseases and eliminate current problems and barriers, and setting of appropriate purposes to enhance the elderly's functioning.

Study limitations

The first limitation of the current study is its cross-sectional design, which does not show a powerful causal relationship between the studied construct. Using self-report instruments to collect the participants' information is another limitation of this study. Besides that, living in the traditional and cultural context of Mobarakeh might have biased the respondents' answers to the questionnaires that should be taken into account in applying the results.

Conflict of interest

The authors declare that there is no conflict of interests.

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References

1. Filiatrault J, Gauvin L, Richard L, Robitaille Y, Laforest S, Fournier M, et al. Impact of a multifaceted community-based falls prevention program on balance-related psychologic factors. *Archives of Physical Medicine and Rehabilitation*. 2008; 89(10): 1948-57.
2. Reelick MF, Van Iersel MB, Kessels RP, Rikkert MG. The influence of fear of falling on gait and balance in older people. *Age and Ageing*. 2009; 38(4): 435-40.
3. Cho H, Seol SJ, Yoon DH, Kim MJ, Choi BY, Kim T. Disparity in the fear of falling between urban and rural residents in relation with socio-economic variables, health issues, and functional independency. *Annals of Rehabilitation Medicine*. 2013; 37(6): 848-61.
4. Ungar A, Rafanelli M, Iacomelli I, Brunetti MA, Ceccofiglio A, Tesi F, et al. Fall prevention in the elderly. *Clinical Cases in Mineral and Bone Metabolism*. 2013; 10(2): 91-5.
5. Suzuki M, Ohyama N, Yamada K, Kanamori M. The relationship between fear of falling, activities of daily living and quality of life among elderly individuals. *Nursing & Health Sciences*. 2002; 4(4): 155-61.
6. Scheffer AC, Schuurmans MJ, Van Dijk N, Van Der Hooft T, De Rooij SE. Fear of falling: measurement strategy, prevalence, risk factors and consequences among older persons. *Age and Ageing*. 2008; 37(1): 19-24.
7. Najafi Ghezlcheh T, Ariapour S, Jafari Oori M. Epidemiology and relationship of fall and fear of falling in the elderly residing at Kamrani nursing home, Tehran, Iran. *Iranian Journal of Ageing*. 2016; 10(4): 152-61. [Persian]
8. Boyd R, Stevens JA. Falls and fear of falling: burden, beliefs and behaviours. *Age and Ageing*. 2009; 38(4): 423-8.
9. Kumar A, Carpenter H, Morris R, Iliffe S, Kendrick D. Which factors are associated with fear of falling in community-dwelling older people?. *Age and Ageing*. 2014; 43(1): 76-84.
10. Mane AB, Sanjana T, Patil PR, Srinivas T. Prevalence and correlates of fear of falling among elderly population in urban area of Karnataka, India. *Journal of Mid-Life Health*. 2014; 5(3): 150-5.
11. Asadollahi A, Hoseinzadeh A, Tabrizi AM, Nabavi A. Urban lifestyle and social participation of aged citizens of Ahwaz city: a regional survey. *Journal of Applied Sociology*. 2013; 49(1): 1-4.
12. Kim S, So WY. Prevalence and correlates of fear of falling in Korean community-dwelling elderly subjects. *Experimental Gerontology*. 2013; 48(11): 1323-8.
13. Wilkins K. Social support and mortality in seniors. *Health Reports*. 2003; 14(3): 21-34.
14. Lund R, Nilsson CJ, Avlund K. Can the higher risk of disability onset among older people who live alone be alleviated by strong social relations? A longitudinal study of non-disabled men and women. *Age and Ageing*. 2010; 39(3): 319-26.
15. Fiori KL, Antonucci TC, Cortina KS. Social network typologies and mental health among older adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*. 2006; 61(1): 25-32.
16. Sirven N, Debrand T. Social participation and healthy ageing: an international comparison using SHARE data. *Social Science & Medicine*. 2008; 67(12): 2017-26.
17. Engelhardt H, Buber I, Skirbekk V, Prskawetz A. Social involvement, behavioural risks and cognitive functioning among older people. *Ageing and Society*. 2010; 30(05): 779-809.

18. Nourolah T, Ghaemi Z, Goodarzi HM, Naeneeni O, Jafari S, Ghaderi S, et al. 1390 National Census of Population and Housing. Statistical Center of Iran; 2011.
19. Borhaninejad V, Rashedi V, Tabea R, Delbari A. The relationship between fear of falling in the elderly with physical activity. *Medical Journal of Mashhad*. 2015; 58(8): 446-52. [Persian]
20. Darvishpoor Kakhki A, Abed Saeedi ZH, Abbaszadeh A. Social participation, barriers, and related factors in older people in Tehran. *Journal of Health Promotion Management*. 2014; 3(4): 65-73. [Persian]
21. Pin S, Spini D. Impact of falling on social participation and social support trajectories in a middle-aged and elderly European sample. *SSM-Population Health*. 2016; 2: 382-9.
22. Hulley SB, Cummings SR, Browner WS, Grady DG, Newman TB. *Designing clinical research*: Lippincott Williams & Wilkins; 2013.
23. Molloy DW, Alemayehu E, Roberts R. Reliability of a standardized mini-mental state examination compared with the traditional mini-mental state examination. *The American Journal Psychiatry*. 1991; 148(1): 102-5.
24. Foroughan M, Jafari Z, Shirin BP, Ghaem MFZ, Rahgozar M. Validation of mini-mental state examination (MMSE) in the elderly population of Tehran. *Psychology and Educational Sciences*. 2008. 29-37. [Persian]
25. Yardley L, Beyer N, Hauer K, Kempen G, Piot-Ziegler C, Todd C. Development and initial validation of the Falls Efficacy Scale-International (FES-I). *Age and Ageing*. 2005; 34(6): 614-9.
26. Eichhorn-Kissel J, Dassen T, Kottner J, Lohrmann C. Psychometric testing of the modified Care dependency scale for rehabilitation. *Clinical Rehabilitation*. 2010; 24(4): 363-72.
27. Gilmour H. Social participation and the health and well-being of Canadian seniors. *Health Reports*. 2012; 23(4): 1.
28. Lopes K, Costa D, Santos L, Castro D, Bastone A. Prevalence of fear of falling among a population of older adults and its correlation with mobility, dynamic balance, risk and history of falls. *Brazilian Journal of Physical Therapy*. 2009; 13(3): 223-9.
29. Ayoubi Avaz K, Parvaneh S, Akbari Kamrani A, Miller W, Reza Soltani P, Ghahari S. Comparison of social participation level between older adults with assistive mobility devices and those without the devices. *Iranian Journal of Ageing*. 2015; 10(3): 166-73. [Persian]
30. Moradi S, Fekrazad H, Mousavi M, Arshi M. The study of relationship between Social Participation and quality of life of old people who are member of senior association of Tehran City in 2011. *Iranian Journal of Ageing*. 2013; 7(4): 41-6. [Persian]