ORIGINAL ARTICLE

The Predictors of Mental Health in the Iranian Elderly: The Role of Social Support and Loneliness

Roya Zakizadeh[1], MSc; Masoud Bahreini[2], PhD; Akram Farhadi[3], PhD; Razieh Bagherzadeh[4], PhD

[1]School of Nursing and Midwifery, Bushehr University of Medical Sciences, Bushehr, Iran
[2]Department of Nursing, School of Nursing and Midwifery, Bushehr University of Medical Sciences, Bushehr, Iran
[3]Department of Health Education and Health Promotion, School of Public Health, Bushehr University of Medical Sciences, Bushehr, Iran
[4]Department of Midwifery, School of Nursing and Midwifery, Bushehr University of Medical Sciences, Bushehr, Iran

Correspondence:
Masoud Bahreini, PhD; Professor of Nursing, Department of Nursing, School of Nursing and Midwifery, Bushehr University of Medical Sciences, Bushehr, Iran.
Tel: +98 77 33450187
Email: m.bahreini@bpums.ac.ir
Received: 10 October 2021
Revised: 11 November 2021
Accepted: 8 December 2021

Abstract

Background: The rapid growth of the elderly population, challenges and the importance of mental health of the elderly, need to pay attention to mental health and the factors affecting it are inevitable. The aim of this study was to determine the predictors of mental health in the elderly with the role of social support and loneliness.

Methods: In this correlational study, 318 elderly subjects who were registered in comprehensive health centers of Bushehr were selected by simple random sampling. The study data were collected using a Perceived Social Support (MSPSS), the Revised Loneliness (UCLA) and General Health Questionnaire-28 (GHQ). Data were analyzed through SPSS 19, using the Spearman correlation and linear regression tests.

Results: The Mean±SD of age of older adults was 66.74±5.87 years. Their Mean±SD scores of social support (families and friends) and loneliness were 43.57±7.19 (15.99±2.59 and 12.05±3.22) and 32.37±8.60, respectively. In explaining the variance of the mental health, the share of social support and loneliness was 10.5 and 6.9%. The research results indicated that the friend support and loneliness with β=-0.236 and β=0.308, respectively, had a statistically significant relationship with mental health (P<0.001).

Conclusion: The research results indicated that the mean score of family support was higher than other types; however, the friend support seemed to play a more effective role in improving mental health. It reminds the policymakers and health care providers, as well as families, of the need to pay attention to the friends' roles in supporting the elderly, thus reducing their loneliness and improving their mental health.

Please cite this article as: Zakizadeh R, Bahreini M, Farhadi A, Bagherzadeh R. The Predictors of Mental Health in the Iranian Elderly: The Role of Social Support and Loneliness. J Health Sci Surveillance Sys. 2022;10(1):105-112.

Keywords: Loneliness, Mental health, Old people, Social support

Introduction

Aging is not only a natural phenomenon, but also a valuable life stage associated with important physiological and psychological changes in the body.[1] According to the World Health Organization, developed and developing countries have defined age over 65 and 60 years as the elderly. Some countries also consider age as the beginning of aging, which leads to the loss of a role in society due to physical problems caused by age factors. The world's population aged 60 and over will almost double, from 12% to 22% from 2015 to 2050.[2, 3] In the 2016 census, the elderly population of Iran was reported to be about 7.5 million people (9.3% of the population).[4] According to international estimates, Iran's elderly population will increase faster than other parts of the world and even the world average from 2040, and it will surpass the average elderly population of the world

by 2045 and that of Asia 5 years later. As reported by the World Health Organization, the elderly population of Iran will first surpass its children in 2040.[5]

Old age is associated with many challenges and tensions, and the elderly often have complex needs related to their mental health. Meanwhile, aging is associated with biological, perceptual, growth and developmental changes that are beyond human control; it will affect the mental health of the elderly, in addition to their physical capabilities, if not managed properly.[6] Mental health is the main pillar of health essential for a satisfying life in old age. It is a condition in which people can achieve their goals based on their abilities.[3] Therefore, maintaining and improving the mental health of the elderly and recognizing the factors affecting it are very important to achieve successful aging, and the needs and problems of the elderly as one of the most vulnerable groups in society should be given more attention.[7] Also, many social, demographic, and biological factors affect a person's mental health. Researchers believe that the presence of chronic diseases, loss of independence, loneliness, and social isolation are important factors threatening the mental health of the elderly. On the other hand, social support and family interaction can be effective in increasing respect for the elderly, and thus their mental health.[8]

Loneliness is a challenge of old age, leading to the possibility of developing and exacerbating mental and physical illnesses. Evidence suggests that loneliness is a widespread phenomenon that affects 25-50% of the total elderly population.[9] Loneliness, which manifests itself as one gets older, is a painful and unpleasant personal experience, causing feelings useless, depressed, and hopeless. It is associated with lower life satisfaction. Researchers have considered loneliness as a cause of cognitive decline, low self-esteem, anxiety, sleep disorders, alcohol abuse, and suicidal behavior. They have further cited negative emotions, poor quality of life, disability, higher use of social and health, and even mortality as complications of loneliness. Research indicates that loneliness can be overcome using strategies such as lowering expectations, increasing the number of friends, establishing new relationships, building positive and friendly relations, and participating in religious and voluntary activities. Studies further reveal that good social support significantly reduces loneliness and improves mental health.[3]

Social support can also positively affect the elderly's health. The effect can be related to the concept of health in various physical, psychological, and social dimensions, increasing well-being.[10] Social support perceived by the elderly is a type of awareness in which the individuals conclude that they are being cared for, supported, valued, and respected by others and that they are in a network of two-way communication and commitment.[11] The methods and amount of social support for the elderly are different in each society, depending on its cultural, social, and economic conditions. Although scientific evidence introduces the family as a key source of social support and interpersonal relationships,[12] unfortunately, the level of social support of the family in old age is reported below average.[13] This challenge, especially with the industrialization of societies and cultural changes, generation gaps, and declined participation at the community level, leads the elderly to loneliness and social isolation, making them prone to mental disorders.[14]

In this regard, psychiatrists can improve their efficiency to develop more comprehensive models by promoting strategies related to healthy aging and reflecting the factors affecting it. Also, they promote stereotypical interventions related to aging by helping to identify the resources that contribute to flexibility and reduce loneliness and social well-being.[3, 15]

A review of previous studies shows that researchers have looked at the relationship between social support, mental health, and loneliness in different countries.[15-17] Other studies have shown that demographic variables, supports, and physical limitations are effective in the mental health of the elderly.[18, 19] Some studies have also addressed the role of loneliness in old age and its effects on the mental health of the elderly.[3, 12] However, the results of these studies are not similar. Some indicate that older people with a positive attitude towards life and avoidance of loneliness are more active in life and more involved in social interactions and activities.[20] In a study with different results, researchers show that life satisfaction indices in the lonely people are not significantly different from those in the non-lonely people.[21]

Given the growing population of the elderly and social changes related to the phenomenon of modernity, it is essential to conduct studies on the psychosocial fields in the elderly. It seems necessary to consider the roles of factors such as social support and loneliness in the mental health of the elderly due to differences in the cultural and social structures of Iranian society with the others, as well as contradictions in the results of previous studies. Also, despite numerous investigations in the field of mental health and the factors affecting it, a single result and a specific pattern have not been obtained in this regard. Moreover, further studies on this field deepen knowledge and awareness of the roles of the two mentioned factors in the mental health of the elderly, allowing better planning to promote their well-being. Due to the importance of mental health, few studies (especially in Iran) have been conducted to examine all three variables and the role of these variables on the mental health of the elderly. Therefore, this study was conducted to determine the predictors of mental

health in the elderly with the role of social support and loneliness in Bushehr in 2019.

Methods

This cross-sectional study was conducted in comprehensive health service centers of Bushehr in southern Iran, and its study population consisted of the elderly referring to the centers. In Iran, health care is provided by centers called a health house in rural areas and a comprehensive health center in cities. The latter provides integrated health service packages, such as various types of education and health services at three levels to prevent communicable and non-communicable diseases, for different groups, including pregnant mothers, infants, children, middle-aged people, and the elderly, by health team members. To select the participants, we used random sampling on a list of the elderly covered by comprehensive health centers according to the inclusion criteria. The inclusion criteria were age range of 60 years old or above, under coverage of comprehensive health care centers, ability to communicate verbally, and no speech disorder. Exclusion criterion was considered incomplete completion of questionnaires. The sample size of 259 was obtained according to α=0.05 and β=10% with the lowest correlation coefficient between social support and mental health based on a study by Hosseini and Bahraminejad,[22] with the mean correlation coefficient of 0.2. Given the probability of non-response rate of 25%, the questionnaires were finally distributed among 325 individuals, of whom 318 answered the questionnaires completely and entered the study.

Data collection was performed in February and March 2019. The samples were requested to participate in the research by phone. During the telephone call, the participants were asked to visit the comprehensive health centers covered by the research. The time to visit the centers was determined according to the elderly opinion, and data collection was done on specified days. If the selected person was not willing to participate in the research, another person was randomly selected and replaced.

Demographic information forms, together with the General Health Questionnaire, Multidimensional Scale of Perceived Social Support (MSPSS), and the Revised UCLA Loneliness Scale, were used to collect the data. The questionnaires were self-administered. In the illiterate elderly case, the questionnaires were read and completed by an elderly family member. The questionnaires were provided for the participants in comprehensive health service centers and completed in the same place. The time to complete the questionnaires was about 30 minutes for each participant.

The Goldberg General Health Questionnaire was used to assess the participants' mental health status. It has 28 items designed to assess four domains: severe depression, anxiety and insomnia symptoms, social dysfunction, and physical somatic symptoms.[23] The GHQ-28 asks the participants to specify how their health, in general, has been over the past few weeks. To reach this goal, it uses behavioral items with a 4-point scale, indicating the following frequencies of experience: "not at all," "no more than usual," "rather more than usual", and "much more than usual". In this questionnaire, a higher score indicates worse mental health. For the Iranian elderly, the reliability of the questionnaire has been determined with a Cronbach's alpha coefficient of 0.94, split half of 0.86, and test-retest of 0.6.[23] In the present study, Cronbach's alpha reliability was confirmed to be 0.91.

MSPSS was utilized to assess the social support in the participants. Zimet et al. reported the alpha coefficient of the questionnaire in the range of 0.85 to 0.91.[24] The questionnaire has 12 items that measure perceptions of social support adequacy in three sources of family, friends, and other important individuals. This 5-point Likert questionnaire ranges from a score of 1 for strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree; it has a score between a minimum of 12 and a maximum of 60. In Iran, the reliability coefficient was 0.82, 0.86, and 0.86, according to Cronbach's alpha method for each dimension, and the validity was confirmed by the factor analysis.[25] In the present study, the internal consistency of total social support, the support of family, friends, and other important people was confirmed by Cronbach's alpha of 0.94, 0.91, 0.96, and 0.89, respectively.

In this work, the Revised Loneliness Scale by Russell was used to assess the participants' feelings of loneliness. The questionnaire had 20 items based on a 4-point Likert scale (never, rarely, sometimes, and always). The test scores ranged from 20 to 80. In studies on the psychometry of Russell's questionnaire, the optimal reliability was obtained for different domains with an alpha range of 0.89 to 0.94.[26] The reliability coefficient of the tool was obtained as 0.86, using a Cronbach's alpha in Iran by Sodani et al.[27] In the present study, the reliability was confirmed to be 0.92, using Cronbach's alpha.

The research was approved by the Research Council of Bushehr University of Medical Sciences with the ethics code of IR.BPUMS.REC. 1397.087. The participants completed the written informed consent forms .Before that, the participants were given the necessary oral explanations about the objectives of the study and were assured that they would participate in the study anonymously.

Data were described using descriptive statistics (frequency, mean, and standard deviation). To measure the correlation of the main variables, we used the Spearman correlation since the mental health variable had no normal distribution. Mann-Whitney

and Kruskal-Wallis tests were used to determine the relationships of demographic variables and mental health due to the lack of normal distribution of mental health variables; the mean ranks of this variable were compared at different levels of demographic variables. Finally, the hierarchical linear regression analysis (Enter method) was performed to investigate the relationships of social support and loneliness with mental health in terms of demographic variables. It should be noted that the logarithmic transformation of the dependent variable was performed due to the non-normality of the dependent variable and residuals in the linear regression; the obtained score was used for the regression analysis. The data were normalized after the logarithmic transformation, and the residuals were normal. Demographic variables were analyzed in the first model, and social support and loneliness were added to the model, respectively. For nominal and rank variables, the dummy variables were used in the regression. Other linear regression assumptions were also examined. The assumption of independent residuals was checked using the Durbin-Watson test; the value indicated the independence of the residuals since it was in the range of 1.5-2.5. The maximum Leverage index value indicated no observation under which the index was greater than 0.5, indicating no observation that the independent variable was an outlier. Also, the Office index was examined to detect observations under which the dependent data were outlier, so that there was no observation under which the index was greater than $2\sqrt{(p/n)}$. The multicollinearity was also checked using the tolerance and inflation index; the former was less than 0.1, and the latter was no more than 10, indicating the absence of multicollinearity. The significance level was less than 0.05 for all cases.

Results

The research participants were 318 elderly (98% response rate) with a mean age of 66.74±5.87 years (range: 60-87 years). The number of their children was at least zero and at most 12 children (median and mode=4 children). Also, the median index of chronic disease was 2, with a range of zero to 7. Table 1 presents other demographic characteristics; Table 2 provides the mean score and standard deviation of social support, mental health, and loneliness in the elderly; also, Table 3 gives the correlation between quantitative demographic, social support, and loneliness variables with mental health.

The regression analysis results indicated that the predictive variables in model 1 (the relevant

Table 1: Comparison of the mean rank of mental health in the levels of demographic variables (n=318)

Variable	Subgroup	Frequency (Percent)	Mean Rank of mental health	Statistics (P value) Z* or X^2
Gender	Female	142 (44.7)	184.62	-4.380* (<0.001)
	Male	176 (55.3)	139.23	
Marital status	Married	262 (82.4)	149.30	-4.283* (<0.001)
	Single	56 (17.6)	207.21	
Education	Illiterate	66 (20.7)	208.61	49.943 (<0.001)
	Reading and writing	35 (11.0)	205.61	
	Elementary	47 (14.8)	157.84	
	High school	26 (8.2)	170.00	
	Diploma	99 (31.1)	119.52	
	Academic	45 (14.2)	135.22	
Living situation	Lives independently with spouse and children	251 (78.9)	148.70	17.449 (<0.001)
	Lives independently with a married child	52 (16.4)	193.95	
	Single	15 (4.7)	220.73	

*The reported statistic is Z.

Table 2: Mean of social support, mental health, and feeling of loneliness

Variable	Sub scale	Mean±SD
Social support	Friends	12.05±3.22
	Family	15.99±2.59
	Significant Other	15.53±2.56
	Total score	43.57±7.19
Mental health	Somatic symptoms	12.94±2.89
	Anxiety and insomnia	14.22±3.07
	Social dysfunction	14.55±1.83
	Severe depression	8.69±2.31
	Total Score	50.42±7.97
Feeling of loneliness	---	32.37±8.60

Table 3: Correlation Matrix

Variables	1	2	3	4	5	6	7	8
1-age	1.000							
2-Number of children	0.290**	1.000						
3-Number of chronic disorders	0.266**	0.171**	1.000					
4-Supports from Friends	-0.003	-0.192**	-0.161**	1.000				
5-Supports from Family	-0.007	-0.042	-0.039	0.398**	1.000			
6-Supports from Significant Other	-0.079	-0.003	-0.072	0.376**	0.443**	1.000		
7-Total score of social Supports	-0.020	-0.101	-0.104	0.811**	0.883**	0.852**	1.000	
8-Feeling of loneliness	0.145**	0.095	0.214**	-0.307**	-0.330**	-0.404**	-0.414**	1.000
9-Mental health	0.234**	0.138*	0.373**	-0.380**	-0.300**	-0.341**	-0.406**	0.508**

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 4: Regression analysis to examine the predictors of mental health

Predictive variable	Model 1			Model 2			Model 3		
	β	P	95% CI for B	β	P	95% CI for B	β	P	95% CI for B
Age	0.125	0.031	0.000 /0.003	0.161	0.003	0.001 / 0.003	0.145	0.005	0.001 / 0.003
Number of children	0.001	0.991	-0.004 / 0.003	-0.009	0.854	0-.004 / 0.003	-0.007	0.892	-0.003 / 0.003
Number of chronic disorders	0.289	<0.001	0.011 / 0.022	0.248	<0.001	0.009 / 0.021	0.213	<0.001	0.007 / 0.017
Male Gender (reference: Female)	-0.155	0.007	-0.037 / -0.006	-0.154	0.005	-0.036 / -0.007	-0.135	0.008	-0.032 / -0.004
Education level (Reference: illiterate)									
Reading and writing	0.047	0.407	-0.014 / .035	.052	.335	-0.012 / 0.034	.020	0.692	-0.017 / 0.026
Elementary	-0.106	0.091	-0.044 / 0.003	-0.084	0.149	-0.038 / 0.006	-0.076	0.169	-0.035 / 0.006
High School	-0.013	0.826	-0.023 0/.036	-0.018	0.744	-0.031 / 0.022	0.002	0.968	-0.025 / 0.026
Diploma	-0.254	0.001	-0.059/ -0.016	-0.166	0.020	-0.045 / -0.004	-0.129	0.057	-0.038 / 0.001
Academic	-0.104	0.138	-0.043 / 0.019	-0.033	0.616	-0.032 / 0.019	0.001	0.982	-0.024 / 0.024
Living (reference: Independent with spouse and unmarried children)									
Lives with a married child	0.025	0.788	-0.029 / 0.038	0.041	0.633	-0.024 / 0.039	0.026	0.746	-0.025 / 0.034
Alone	0.073	0.316	-0.023 / 0.070	0.105	0.124	-0.009 / 0.077	0.091	0.156	-0.011 / 0.070
Has a spouse (Reference: No spouse)	0.060	0.555	-0.027 / 0.049	0.098	0.327	-0.018 / 0.053	0.091	0.336	-0.017 / 0.050
Social support									
Friends				-0.263	0.000	-0.008 / -0.003	-0.236	<0.001	-0.007 / -0.003
Family				0.069	0.472	-0.003 / 0.007	0.065	0.472	-0.003 / 0.006
Significant Other				-0.194	0.040	-0.010 / 0.001	-0.094	0.296	-0.007 /0 .002
Feeling of loneliness							0.308	<0.001	0.002 / 0.003
R square	0.286			0.391			0.460		
Standardized R square	0.258			0.361			0.432		
R square change	0.286			0.105			0.069		
F (P value)	10.196 (<0.001)			17.326 (<0.001)			38.652 (<0.001)		

demographic variables, including age, number of children, number of chronic diseases, gender, education level, living situation, marital status) predicted about 25.8% of mental health changes. In model 2, in which social support subscales were included, 10.5% was added to the coefficient of determination, and the total variables of model 2 could predict 36.1% of the variance of the dependent variable. In model 3, 6.9% was added to the explained variance by including the loneliness variable, and all variables of model 3 could predict 43.2% of the changes in the mental health variable. The changes in the coefficient of determination were statistically significant in all models (P value<0.001 in all cases).

Table 4 presents the regression coefficients among the demographic variables in the final model; the mental health decreased as age and number of chronic diseases increased. The results indicated that men had better mental health. Further, mental health improved by increasing the support of friends and reducing the feeling of loneliness.

Discussion

The aim of this study was to determine the predictors of mental health in the elderly with the role of social support and loneliness in Bushehr. The results indicated that social, family, and friend supports had the highest to lowest levels, respectively, from the perspective of the elderly. The results were similar to those of other studies conducted in the same field.[13, 16, 28] Contrary to the present research, studies in other countries have reported higher

social support received from friends than from the elderly individuals' families.[29, 30] The reason for this difference can be the difference in the lifestyle of the elderly who have less family support and are looking for support outside the family. While almost all participants in the present study lived with their families, their first source of support is family support. The results of this study indicate the fact that the current elderly of Iranian society belongs to a generation whose most identity is formed in the family as the most important asset. In most Iranian families, strong support and intimate relationships between family members are valuable sources of social support. Furthermore, due to the limitations of urban life and socio-economic conditions, less social support is provided by non-family members. Therefore, it is not unreasonable to expect that the highest support will be received by the family and the lowest by friends according to the social support scores.[31]

Some impressive results of this study indicated that although the elderly had more family support than friends, the social support of friends had more power in predicting their mental health, i.e. the support of friends played a more important role in improving their mental health. Other studies on the role of social support of friends in the mental health of the elderly also confirm the results of the present work.[16, 32] Considering the differences in the way and type of support from family and friends may help us analyze the results better. Some researchers believe that providing too much instrumental support from families limits the elderly and decreases their independence. Studies have also found that family members are always the most important sources of instrumental social support, while the support of friends is usually emotional.[33] In this regard, another study shows that emotional support has a significant effect on the general health of the elderly, while instrumental support does not.[34] Berkman believes that support enhances health if it creates a sense of intimacy and that it is gained through emotional support. Therefore, emotional support means establishing an intimate relationship with people, while the instrumental support aims to help the individuals to meet their needs and requirements. Explaining the elderly's perception of instrumental family support, some researchers believe that instrumental support can even increase disability and morbidity in the elderly.[35] Also, the generation gap between family members may limit their intimate relationships, so that the family provides more instrumental and financial support for the elderly. In contrast, the elderly people are in the same age group as their friends; hence, they may have many common experiences and goals. Pleasant events, such as reminiscing about shared memories, group fun, and social participation, are usually accomplished by communicating with friends and gaining their support. This behavior often leads to a feeling of satisfaction and stress reduction in the elderly and ultimately promotes their mental health.[33-35]

Findings of the present study indicated that older people, who felt lonelier, were less likely to experience mental health. In the regression analysis, the loneliness variable had the largest share among the predictors of mental health. The results have also been confirmed in other studies conducted in Iran and other countries.[16-18] In explaining this finding, it can be said that if the belief is created in a person that he/she is alone and no one values him/her and he/she is reluctant to communicate with others, so the person is expected to suffer from mental health loss. According to the findings, elderly people who feel lonely, are at higher risk of severe psychological trauma and lower interactions due to chronic illness, as well as social problems and functional disabilities. Therefore, loneliness has become an important negative influential experience in the mental health of the elderly.[18]

Regarding demographic variables, finding indicated that increasing age and number of chronic diseases had negative effects on mental health, as mentioned in the studies by other researchers.[36-38] It seems that aging, the incidence of chronic diseases, physical problems, as well as lower abilities in the elderly, gradually make them separate themselves from society and social activities. The elderly's lower communication with friends and other people reduces the use of their experiences and opinions and ultimately decreases their ability to solve their problems. These disabilities cause unpleasant feelings in them, leading to a reduction in their mental health.[18] The present study further indicated that men had better mental health than women, which was consistent with the results of some other studies.[18, 19, 38] However, it was inconsistent with some other studies based on which the mental health of the elderly did not differ significantly in terms of gender.[39] A number of social and biological factors seem to play a role in shaping such outcomes. In Iranian society, especially in the past, when the elderly people were productive, men were more engaged outside home and women inside. Therefore, social networks and connections were more available for men than women. Women's lack of access to social capital and gender discrimination may also affect older women's mental health. Additionally, biological, hormonal, and menopausal changes in women can provide further explanations for the causes of poor mental health in older women.[40]

The present study was conducted in a research environment with geographical limitations and specific socio-cultural characteristics; hence, generalizing the results to other societies and cultures should be made with caution. Due to the simultaneous use of several questionnaires by the elderly, there was the possibility of common method bias. As the samples were selected from the elderly covered by the comprehensive health centers, the results could not be generalized to the

entire elderly society. In this regard, we suggest conducting longitudinal studies using the tools other than questionnaires to eliminate the limitations of common method bias, as well as investigating the variables in the elderly living in nursing homes.

Conclusion

Given that the Iranian society is moving toward aging, and the problems of this group are increasing, identifying the problems of the elderly, as one of the vulnerable groups in society, requires special attention. Among these problems, we can mention the irreversible factors of increasing age and the prevalence of chronic diseases, the adjustment and management of which should be considered from previous years and school ages, and the necessary education should be provided in this regard. Given that in Iranian culture most elderly people are cared for in the family and elderly care centers are still not accepted by most families, creating day centers where the elderly can spend hours of the day with their peers and in addition to family support, support of the friends, too, may help reduce feelings of loneliness and improve the mental health of the elderly. Creating social networks in the presence of the elderly with a history of friendship could help reduce their loneliness. This is what policymakers and relevant organizations should consider in the field of aging in planning and cost allocating. Awareness of families of the elderly about the impact of social support components, especially the support of friends and their effects on mental health, is a further beneficial measure. In aging policies, the elderly at risk of mental health, like women and the elderly with chronic illness, should be considered.

Availability of data and materials

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests: Authors declare that they have no competing interests

Funding

The present article was derived from a master's thesis on psychiatric nursing (Roya Zakizadeh) at Bushehr University of Medical Sciences and conducted under the support of the Deputy of Research and Technology of Bushehr University of Medical Sciences.

Acknowledgement

The authors are deeply grateful to all the elderly people who participated in the study, personnel of comprehensive health service centers, and the research and technology deputy of Bushehr University of Medical Sciences.

Conflicts of interest: None declared.

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