

# Measurement and Predictors of Resilience Among Community-Dwelling Elderly in Kashan, Iran: A Cross-Sectional Study

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## Abstract

**Background:** As the ability to cope with challenging conditions, resilience results in personal growth and development after experiencing tragic conditions. There are limited studies regarding resilience and its associated factors in elderly patients in Iran. Given that the cultural, social, religious characteristics might affect the level of resilience, we conducted the present study among an elderly population in Kashan.

**Objectives:** This study aimed to evaluate the resilience and its associated factors among elderly in Kashan City, Iran.

**Methods:** A cross-sectional study was conducted on 500 individuals who were selected through a two-stage randomized cluster sampling methods among elderly residents of 8 urban health care facilities in Kashan, Iran. Data collection was performed using a five-part instrument including a demographics questionnaire and abbreviated mental test scale, the Connor-Davidson resilience scale, Rosenberg self-esteem scale, and general health questionnaire28. Data were analyzed using descriptive statistics, chi-square test, t-test, analysis of variance and multivariate regression analysis.

**Results:** A significant direct association was found between resilience and the self-esteem scores ( $r = 0.461$ ,  $P < 0.001$ ). Conversely, an indirect correlation was found between resilience and mental health scores ( $r = -0.510$ ,  $P < 0.001$ ). Regression analysis showed that self-esteem and mental health could explain 32% of the variance of resilience in older adults. Significant relationships were found between resilience and variables such as age, sex, marital status, income, job, education, and life arrangement ( $P < 0.05$ ).

**Conclusions:** Several factors including personal characteristics, self-esteem and mental health of the elderly can affect their resilience. Choosing some strategies to modify and improve some of the influencing variables may be effective in increasing the resilience in older adults.

**Keywords:** Resilience, Community-Dwelling, Elderly

## 1. Background

Resilience is the ability to cope with difficult conditions and results in personal growth and development after experiencing tragic conditions (1). It is also defined as the level of adaptability and ability to use all the personal capabilities to cope with challenging conditions or devastating illnesses (2). Studies have shown that resilience is a multidimensional feature varying according to the time, gender, age, cultural context, individual temperament, and social factors (3, 4). While one study has shown that younger adults are at a moderated level of resilience (5), it might range from medium to high levels among college students (6).

According to the latest statistics, old adults constitute about 7% of Iran's population (7). Older adults are known as a vulnerable group of the society, most of them experi-

ence varying degrees of defects, chronic diseases, disabilities and emotional stresses such as the loss of a loved ones (8-10).

Several studies have been conducted on resilience in older adults (11-14). A study in California showed that older adults are within acceptable levels of resilience (11). The literature on resilience and its associated factors in the elderly and in other age groups are conflicting. In some of the studies, a significant correlation was found between resilience and physical health (12, 13). However, this relationship was not confirmed in a study on Swedish seniors (14). It is believed that the people's ability to cope with difficult conditions is associated with their mental health. Therefore, people with higher levels of mental health are expected to demonstrate higher levels of resilience (15). In a study on the relationship between resilience and perceived physical and mental health, older

females with higher levels of mental health demonstrated higher resiliency. However, the study could not find a similar relationship in older males (14). In another study, a significant relationship was found between income and resilience (16). However, other studies in older adults could not find the same relationship (13) or reported conflicting results (11). In a study on older adults, living with significant others and having strong social connections were strongly correlated with resilience (15). However, such a correlation was not observed in another study (16).

## 2. Objectives

Given the aforementioned controversies on resilience in older adults and its associated factors and the fact that limited studies are available in this regard from Iran, and that most of the available studies in this field are conducted on the age groups under 60 years, and given that the cultural, social, religious characteristics might affect the level of resilience, this study aimed to evaluate the resilience and its associated factors among the older adults in Kashan City, Iran.

## 3. Methods

### 3.1. Study Design

This cross-sectional study was conducted on a sample of older adults in Kashan, Iran, from September to December 2014.

### 3.2. Sampling

The sample size was calculated based on a previous study in which the mean and standard deviation of resilience among community-dwelling older women was  $75.73 \pm 13$  (13). Then, using the Cochran's formula and considering the following parameters ( $\alpha = 0.05$  and  $d = 2$ ), 290 subjects were estimated to be needed in the study. Because the cluster sampling was used, a design effect of 1.7 was applied to the sample, and 500 participants were selected among the 21000 older adults under the coverage of the urban healthcare centers in Kashan city.

### 3.3. Data Collection

Individuals were contacted by the telephone, were briefed on the study purpose, and invited to participate in the study. If they agreed to participate in the study, they were invited to the corresponding healthcare center to be assessed for eligibility and if they were eligible, they were provided with the data collection instrument that should be completed individually. If an individual did not agree to participate in the study or was not eligible, another one

meeting the inclusion criteria was selected using the aforementioned method. Inclusion criteria were willingness to participate in the study, a minimum age of 60 years and older, living in Kashan, having an Iranian nationality, and lack of known psychological or cognitive disorders based on the abbreviated mental test scale (AMTS). Exclusion criteria included refusal to complete the study instrument or incomplete answering. Literate participants answered the study instrument through self-report. However, the first author interviewed the illiterate and semiliterate subjects and recorded their answers in the questionnaires.

### 3.4. Instrument Design

Data collection was performed using a five-part instrument. The first part was the AMTS, which was used to assess the subjects' eligibility. This is a 10-item scale for the screening of cognitive disorders. A score of 6 or less in this test indicate a cognitive impairment. All eligible subjects completed the second part of the instrument that included 12 questions on the subjects' demographics including age, gender, education level, number of children, gender of children, living arrangement, marital status, job, source of income, income, known disorders, and place of residence. The third part was the Connor-Davidson resilience scale (CD-RISC). This is a 25-item scale and all items are responded on a 5-point Likert scale (0 = false to 4 = always true) summing up a score ranging from zero to 100. Higher scores indicate a greater degree of resilience (17). The Farsi version of the CD-RISC was validated by Ranjbar and Kakavand and its reliability was assessed using the internal consistency method with a Cronbach's alpha of 0.84 (18). The Rosenberg self-esteem scale (RSES) and the general health questionnaire 28 (GHQ28) were used as the fourth and fifth parts of the instrument. The RSES has a reliability coefficient of 0.82 to 0.88 (19) and consists of 10 items for assessing the self-esteem. The RSES score range from -10 (the least self-esteem) to +10 (the highest self-esteem). The GHQ28 consists of four subscales each with seven items including somatic symptoms, anxiety/insomnia, social dysfunction and severe depression. All items are responded on a 4-point Likert scale of none, mild, moderate, and severe which are scored from zero to three, summing up a score between zero and 84. The lower scores indicate a greater degree of health. The Farsi version of GHQ28 questionnaire was validated by a previously published study in the elderly population yielding an acceptable reliability lower bound estimate (Cronbach's alpha = 0.77 - 0.88) (20).

### 3.5. Ethical Considerations

The study was approved by the research council and the ethics committee of Kashan University of Medical Sciences (ethical code: P/29/5/1/3555). The study objectives and

procedures were explained to the subjects and their written informed consents were obtained. The subjects and their families were assured about the voluntary nature of the study, data confidentiality, and all of them signed written informed consent before participation. Moreover, permissions were obtained from the Shahid Beheshti University.

### 3.6. Data Analysis

Data analysis was carried out using SPSS version 13. The normal distribution of the data was examined using the Kolmogorov-Smirnov test. Descriptive statistics such as mean, standard deviation, and frequencies were calculated for demographic variables. Chi-square test was used to determine the relationship between resilience and qualitative/categorical variables. The t-test and analysis of variance were used to compare the mean scores between the study subgroups. Multivariate regression analysis was also used to investigate the contribution of different variables in the subjects' resilience.

## 4. Results

Demographic characteristics of the elderly are presented in the [Table 1](#). The mean overall resilience score of the older adults was 64.3, which was in the moderate level. A significant difference was observed between the mean resilience scores in males and females ( $P = 0.017$ ). Moreover, a significant difference was observed between the older adults with different age categories ( $P < 0.001$ ) so that the mean resilience was higher in the age range of 60-69 years. The mean resilience scores in terms of different demographic variables are presented in [Table 1](#).

The average resilience, self-esteem and mental health scores of the older adults were  $64.34 \pm 18.55$ ,  $7.16 \pm 2.42$  and  $27.86 \pm 12.97$ , respectively. A significant direct correlation was observed between resilience and the self-esteem scores ( $r = 0.461$ ,  $P < 0.001$ ). Conversely, an indirect correlation was found between resilience and mental health scores ( $r = -0.510$ ,  $P < 0.001$ ). Regression analysis showed that self-esteem and mental health could explain 32% of the variance of resilience in older adults [ $F(2, 497) = 11.62$ ,  $P < 0.001$ ;  $R^2 = 0.319$ ] ([Table 2](#)).

## 5. Discussion

The present study showed that the mean resilience in the older adults was in a moderate level. In two studies in New York and California, older adults demonstrated high levels of resilience that was similar to the resilience in younger adults ([11](#), [13](#)). Similar findings have also reported

by Nygren ([14](#)), Wagnild ([12](#)), and Wagnild and Young ([21](#)) who examined the resilience in older adults. The incongruence of our results and the aforementioned studies might be attributed to the differences in the economic, social and cultural contexts between developed and developing countries.

In the current study older men demonstrated higher levels of resilience than older women. This finding is consistent with the results of van Kessel ([2](#)) but in contrast to the study of Etasamipoor et al. demonstrating that older women are more resilient than men ([22](#)). This inconsistency may arise from the difference in scaling instrument as well as the cultural and socioeconomic status of the studies' population. Some of the studies reported that women experience more negative emotions in their daily lives than they experience higher levels of psychological disorders such as depression and anxiety that consequently decrease their resilience ([23](#)).

In the present study, an indirect correlation was found between age and resilience. This finding was in the same line with the results of Lamond et al. who studied predictors of resilience among community-dwelling older women ([11](#)). This finding might be related to the ongoing exposure of the population with stressors such as chronic medical conditions, physical disabilities, loss of income, and the poverty of socialization.

In the present study, a direct relationship was observed between income and resilience among older adults. Ramanaiah et al. ([16](#)) also reported a similar finding. However, in a comparison among low and high income older adults, Hardy and Hildon could not find a significant association between income and resilience ([13](#), [24](#)). Nonetheless, it seems reasonable to suppose a direct association between income and resilience because more income usually facilitates access to the required resources and provides a better social connection, all of which can increase the resilience. Otherwise, the people's resilience will be decreased as reported by Lamond et al. ([11](#)).

Our results also revealed a significantly better resilience in married individuals as well as those with a financial support coming from first-degree relatives. Similarly supported by Wells et al., a married couple benefits a higher level of self-confidence and support accounting for a higher level of resilience ([15](#)). Additionally, source of income affects the resilience in a way that occupations with high job-related pressure contribute to lower resilience. This was also documented by other studies ([10](#), [25](#)). In this study, the lowest resilience mean score was observed in the elderly who lived alone. A number of previous studies also reported similar findings ([8](#), [15](#)). Adams et al. have also reported that having strong social relationships is associated with a higher level of resilience and hardiness in difficult

**Table 1.** Demographic and Background Data of the Participants

Variable	No. (%)	Resiliency (Mean $\pm$ SD)	P Value
<b>Gender</b>			0.017
Male	205 (41)	66.73 $\pm$ 17.72	
Female	295 (59)	62.7 $\pm$ 18.98	
<b>Age, y</b>			0.001
60 - 69	254 (50.82)	67.54 $\pm$ 16.74	
70 - 79	164 (32.87)	62.81 $\pm$ 18.63	
+ 80	82 (16.42)	57.32 $\pm$ 21.42	
<b>Education</b>			0.001
Illiterate	241 (48.25)	59.32 $\pm$ 19.63	
Reading and writing	148 (29.63)	68 $\pm$ 16.27	
Intermediate school	68 (13.66)	69.93 $\pm$ 15.35	
Diploma and higher	43 (8.67)	71.31 $\pm$ 17.54	
<b>Job</b>			0.054
Retired and unemployed	140 (28)	66.14 $\pm$ 19.01	
Housewife	291 (58.21)	62.72 $\pm$ 18.65	
Business	40 (8)	70.06 $\pm$ 16.54	
Employee and manual worker	14 (2.84)	59.12 $\pm$ 14.81	
Farmer	15 (3)	69.06 $\pm$ 16.63	
<b>Money/month</b>			0.003
Less than 166 Dollars	158 (31.64)	60.74 $\pm$ 20.03	
166 to 332 Dollars	255 (51)	64.93 $\pm$ 16.87	
Top 332 Dollars	87 (17.43)	68.94 $\pm$ 18.84	
<b>Source of income</b>			0.017
Self	259 (51.86)	65.83 $\pm$ 17.53	
Spouse	149 (29.82)	64.74 $\pm$ 17.74	
Children or relatives	59 (11.85)	61.83 $\pm$ 21.24	
Charitable institutions	33 (6.68)	55.57 $\pm$ 22.53	
<b>Marital status</b>			0.013
Married	363 (72.62)	18.04 $\pm$ 65.63	
Widows and divorcees	137 (27.41)	61 $\pm$ 19.53	
<b>Having an underlying disease</b>			0.002
Yes	385 (77)	62.97 $\pm$ 18.94	
No	115 (23)	69.03 $\pm$ 16.46	
<b>Living companions</b>			0.043
With spouse	206 (41.23)	64.82 $\pm$ 18.56	
With spouse and children	144 (28.84)	67.05 $\pm$ 17.06	
Living with children or relatives	87 (17.42)	61.45 $\pm$ 21.54	
Single	63 (12.67)	60.41 $\pm$ 16.53	

**Table 2.** Multiple Regression Coefficients for the relationship Between Resilience With Mental Health and Self-Esteem Factors

Variable	B	$\beta$	R	R <sup>2</sup>	P Value
Self-esteem	2.13	0.279	0.565	0.319	0.001
Mental health	- 0.53	0.374			

situations (26).

The present study revealed a significant relationship between education and resilience. This finding was consistent with the results of Wells who compared the resilience in older adults living in rural, suburban, and urban areas (15). However Wells (15) could not find a significant relationship between education and resilience in older adults. Nonetheless, it seems that education increases the people's capability to use effective coping strategies such as problem solving, continence and searching social support. More educated people also have better financial status and higher self-confidence and all these factors can positively affect people's resilience and tenacity in facing difficulties (9).

This study showed that elderly people who suffer from chronic diseases have lower levels of resilience. This finding is consistent with several previous studies (4, 12, 13, 26, 27). Perhaps, chronic disorders provoke psychological reactions such as anxiety, depression, denial, negative thoughts and disappointment that consequently result in reduced resilience and abnormal behaviors (24). However, Nygren et al. (14) and Wells (15) reported that having lower levels of physical health does not necessarily reduce the level of resilience in older adults.

The current study revealed a direct correlation between self-esteem and resilience. This finding is consistent with the results of Lamond et al. (11). Other studies have also reported that cognitive factors such as high levels of self-esteem, self-efficacy and using problem-focused coping strategies are related to higher levels of resilience (28) and better psychological adjustment (23). On the other hand, resilience will increase the individual's self-esteem through increasing the possibility of positive emotions and successful coping with negative life experiences (22).

The present study showed a significantly correlation between mental health and resilience. That means, higher levels of mental health bring the older adults higher levels of resilience. This finding is in line with the results of previous studies (12, 13) that showed an indirect relationship between resilience and demonstrating depressive symptoms and other mental disorders. A number of researchers also reported that resilient people usually show higher levels of mental and physical health, self-confidence, self-esteem, adaptability, and self-fulfillment (26, 27, 29, 30).

This study bears some limitations which should be considered. First, the study was conducted in a population with a traditional culture, which could not be representative of the elderly population. Secondly, our study could not appraise the reliability and validity of the scaling instruments in our population culture beforehand. Lastly, this study could not analyze the correlation between the underlying medical conditions and resilience, which provide valuable information regarding one of the most important contributors. Future studies are required to address the drawbacks, which were inevitable in our study.

In conclusions, the present study showed that several factors including personal characteristics, self-esteem and mental health of the elderly affect their resilience. Choosing some strategies to modify and improve some of the influencing variables might be effective in increasing the resilience in older adults. Providing some financial support through relatives or governmental and nongovernmental agencies, increasing the familial supports and social activities of older adults, supporting them accessible appropriate treatments for their chronic disorders, establishment of some educational intervention to improve the seniors' capabilities in using appropriate coping strategies and increasing their self-esteem, might not only improve their mental and physical health but also increase their resilience and life satisfaction. Then, the effects of such interventions on the resilience of older adults can be assessed. Our results should be interpreted with considering some limitations such as the subjects' lack of cooperation that made researchers to exclude them from the study. Due to the importance of resilience in older adults, examining the effects of training them on the resilience promoting skills is also recommended.

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### Footnotes

**Authors' Contribution:** All authors had equal roles in this study.

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