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Functional status of Iranian older adults: a community-based assessment using EASYcare 2010

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Abstract

Background Longer life expectancy has increased the number of older adults who live in societies. This has magnified the necessity of a comprehensive needs assessment to define the problem areas in this vulnerable population. Since there has been a paucity of information, this study was designed to assess the needs of older adult people in Iran.

Methods This cross-sectional study was carried out in 2019, in Varamin, Iran. A multistage sampling method was employed and 970 individuals were included and interviewed via telephone calls to answer the full version of the EASY-Care Standard 2010 instrument, inquiring about the need for support in activities of daily living ('independence'), the 'risk of a breakdown in care' (leading to emergency admission to hospital), and the risk of falls.

Results A total of 970 older adult people (56.7% women and 39.4% rural residents) participated in this study. The greatest need to care for older adults was reported in staying healthy (94.7%), mental health and well-being (94.3%), and accommodation and finance (63.37%). The age group older than 80 had the highest mean score in each of the three scales, including Independence score, Risk of breakdown in care, and Risk of falls. No significant relationship was observed between independence score and gender. The risk of falls, risk of a breakdown in care, and independence score were significantly higher among illiterate, divorced, widowed, and unemployed individuals, as well as older adults with comorbidities and dependent financial status (P: 0.001).

Conclusions This study identifies socioeconomic factors (illiteracy, unemployment, financial dependence) and health factors (comorbidities, depression) as critical determinants of functional decline and fall risk in older Iranian adults. The findings underscore the urgent need for integrated policies addressing education, and financial issues, and promoting mental health services to reduce institutionalization risks and enhance independence among vulnerable populations, particularly women, rural residents, and those aged ≥ 80 .

Keywords Institutionalization, Needs assessment, Activities of daily living, Geriatric, Fall, Independence, Breakdown in care, Frailty, Health policy, Iran

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Background

A global rise in life expectancy has increased the number of older people in society. In view of the rapid decline in fertility in Iran over the last two decades, the population aging process is expected to accelerate [1]. Older age is often associated with the onset of multiple complex health conditions, collectively referred to as geriatric syndromes. (e.g., falls, cognitive decline, incontinence). It is often the consequence of multiple underlying factors, such as frailty [2], and a state of increased vulnerability to stressors [3]. The prevalence of frailty in older adults has been reported to be between 7% and 30% in different population studies [4, 5]. Multiple factors may limit older adults in their ability to function independently, posing a real challenge to the organization of care [6].

To effectively plan sociomedical services tailored to the needs of older adults, it is crucial to evaluate their functional capabilities [6]. By conducting comprehensive assessments, healthcare providers and policymakers can gain insights into the prevalent health issues, social challenges (e.g., isolation, economic status), and care requirements of older adults within a community [7]. This approach allows for the identification of unmet needs, the prioritization of resources, and the development of targeted interventions that address the unique circumstances and vulnerabilities of older individuals. Various tools have been created to assess the functionality of older individuals [2]. The EASY-Care 2010 Standard Questionnaire determines the needs of older adults, with more focus on the quality of life of the older adult person rather than on his/her illness, and takes into consideration the role played by family caregivers as well as community services [8]. This makes it an ideal tool for the Iranian population.

Method

Aims

The present study aimed to implement the EASY-care questionnaire scales to Varamin's older adult population to identify the social, financial, and health needs of older individuals. We specifically assessed items related to independence, risk of falls, and risk of breakdown in care. Also, this study assessed the distribution of social and medical needs of older adults and their associated risk factors. Clarifying the areas of need and their risk factors would enable the policymakers to prioritize and plan the most relevant areas for intervention to address the needs of the elderly.

Design, participants, and setting

This cross-sectional study was conducted in 2019 among the older adults registered with the.

Health Network of Varamin, Iran. The Ethics Committee of Iran University of Medical Sciences approved the study (#IR.IUMS.REC.1397.1149). The study complied with the ethical principles of the Declaration of Helsinki and verbal informed consent was obtained from the participants upon inclusion.

Participants were selected using a multistage stratified sampling method, with five strata based on geographically separated city districts, ensuring proportional representation relative to the population of each district. Individuals aged 60 and above were eligible to participate. The participants received verbal information about the study's purpose and their rights including the option to withdraw and provided informed consent before filling in the questionnaire.

A form was designed to extract the demographic characteristics of the participants from the integrated health system data. Two trained interviewers administered the EASY-Care questionnaire via telephone interviews. A total of 970 participants aged over 60 completed the questionnaire.

Research instrument

The 'EASY-Care' tool, developed in the United Kingdom, the United States, and Europe, has evolved over the years. The current version is a comprehensive threepart questionnaire comprising 49 core questions that assess various domains like physical, mental, social, and environmental aspects of an older person's functioning. EASY-Care integrates questions from established health outcome measures such as the Medical Outcome Scale Short Form 36, Barthel Index of Activities of Daily Living, Duke Older Americans Resources and Services Instrumental Activities of Daily Living (Duke OARS IADL), and items from a former World Health Organization (WHO) multinational survey on the socio-medical status of elderly individuals. A 'not-for-profit' organization in the UK manages and licenses the EASY-Care tool, providing detailed information on the assessment tool through the EASY-Care website [6].

The EASY-care questionnaire allows a comprehensive assessment of the functional and socio-medical needs of older adults. It encompasses seven functioning domains: seeing, hearing and communicating, self-care, mobility, safety, accommodation and finances, maintaining health, mental health, and well-being.

Three summary indexes are calculated which determine an older person's functioning basic and complex life activities. The first index, independence, can take a range of zero to 100 scores, where higher scores indicate greater dependence on others.

The second index is the risk of breakdown in care, which is used to determine the risk of institutionalization. The scale may take zero to 12 points. Higher scores indicate a greater risk of being institutionalized.

Table 1 Characteristics of study participants

| Characte | ristics | Number (%) (<i>n</i> =970) |
|----------------------------|------------------------|--------------------------------|
| Age (y) | 60–64 | 352(36.3) |
| | 65–69 | 208(21.5) |
| | 70–74 | 198(20.4) |
| | 75–79 | 98(10.1) |
| | ≤80 | 113(11.7) |
| Marital status | married | 686(70.7) |
| | single | 36(3.7) |
| | divorced/widowed | 248(25.6) |
| Educational level | illiterate | 432(44.5) |
| | reading and writing | 179(18.5) |
| | elementary | 224(23.1) |
| | middle and high school | 70(7.2) |
| | diploma and above | 65(6.7) |
| Sex | Female | 550(56.7) |
| | Male | 420(43.3) |
| Health Status | Chronic disease | 796(82.2) |
| | Cigarette smoking | 83(8.6) |
| | Substance use | 25(2.6) |
| | Sleep medications | 146(15.1) |
| | Depression | 82(8.5) |
| Residence | Urban | 591(60.9) |
| | Rural | 379(39.1) |
| Current Occupation Status | Freelance work | 176(18.1) |
| | Retired | 206(27.5) |
| | Unemployed | 80 (8.2) |
| | housekeeping | 441(45.5) |
| Financial Status | independent | 739(76.2) |
| | dependent | 231(23.8) |
| Income | Just Enough | 566(58.4) |
| | Not enough | 266(27.4) |
| | More than enough | 138(14.2) |
| Takes care of someone | | 181(18.7) |
| Someone takes care of them | | 209(21.5) |

The third factor is the risk of falls, which is assessed on a scale of 0-8 points. This index assesses the risk of falls, with scores of 3 or more classified as a high risk of falls.

Data on demographic and socioeconomic characteristics, such as age, sex, place of residence, marital status, educational level, self-perceived poverty level, and health status, such as self-perceived general health status, presence of chronic conditions, and access to medical care, were also collected.

The questionnaire has been validated and adopted across many countries and has deemed acceptable

validity and reliability in Iran and countries with similar cultural backgrounds [7, 9-11].

Statistical analysis

We calculated the sample size with a 95% confidence level, assuming a 60% prevalence of elderly problems and a 0.036 error level [6]. Quantitative and categorical variables were reported as mean±standard deviation (SD) and frequency (percentage), respectively.

Univariate and multivariate regression models were applied to the data from 748 participants to assess the association between sociodemographic factors and the main summary scores were calculated using univariate and multivariate regression models. Univariate analysis provided an initial screening of potential predictors, while multivariate analysis allowed us to control for confounding factors and identify the independent effects of each predictor on the outcomes. All statistical analyses were performed at a 95% (*P*value of ≤ 0.05) significance level using SPSS software version 24.

Result

Participants' characteristics

A total of 970 people participated in this study, 56.7% of whom were women and 39.4% were from the rural population. The mean age of the participants was 68.97 ± 7.35 , and 36.3% of them were in the 60-64 age group. A total of 70.7% of the participants were married, 2.5% were smokers, and 27.5% were retired. A total of 83.2% of the older adults had chronic medical conditions. The most common medical conditions were diabetes mellitus (34.8%) and hypertension (67.4%), (Table 1).

The findings of the EASY-care questionnaire

The mean independence score was 9.05 ± 13.94 , the risk of breakdown in care was 2.78 ± 2.03 (0–12), and the risk of falls was 1.13 ± 1.19 (0–8) (Table 2).

Among the seven domains of independence, the study participants reported that staying healthy (94.7%), mental health and well-being (94.3%), and accommodation and finance (63.37%) were their primary concerns. (Table 3).

The results indicated that the age group older than 80 years had the highest mean score in all of the three indexes: Independence score, risk of breakdown in care, and risk of falls. Therefore, there was a significant relationship between age group and requiring help and support (P < 0.001).

 Table 2
 Participants' mean scores on the main EASY-Care scale indexes

| IndicatCoeficients (coef) | Mean±SD (range) | Min-Max | Participants without any concerns Number (%) |
|----------------------------------|-----------------|---------|--|
| Independence score (0–100) | 10.88±19.65 | 0–97 | 536(55.3) |
| Risk of breakdown in care (0–12) | 3.11±2.37 | 0–12 | 110(11.3) |
| Risk of falls (0–8) | 1.52 ± 1.93 | 0–7 | 470(49) |

| Table 3 | Participants' status | on the main | domains of the EASY-Care indicator | |
|---------|----------------------|-------------|------------------------------------|--|
|---------|----------------------|-------------|------------------------------------|--|

| Domains | Need for help Number (%) | Domain Score Mean (SD) |
|--|--------------------------|------------------------|
| Seeing, hearing, and communicating (0–4) | (41.2) 400 | 0.82±0.57 |
| Looking after yourself (0–13) | (61.4) 611 | 2.05 ± 1.65 |
| Getting around (0–8) | (58.2) 564 | 1.93 ± 1.77 |
| Your safety(0–5) | (27.9) 271 | 0.7±0.35 |
| Your accommodation and finance (0–3) | (35.2) 341 | 0.52 ± 1.06 |
| Staying healthy (0–7) | (86.3) 837 | 1.15 ± 2.4 |
| Mental health and wellbeing (0–9) | (88.7) 863 | 2.26 ± 3.9 |

There was no significant relationship between independence score and sex (P>0.05). However, the risk of falls and risk of breakdown in care were higher among women and there were significant relationships between sex and these two scales. (P<0.001). We also found significant relationships between participants' level of education (i.e.: being illiterate) and marital status (i.e.: being divorced/widowed) with a higher risk of falls, risk of a breakdown in care, and independence scores (P<0.001). Also, the needs scores were significantly higher across all 3 indexes among participants with comorbidities, a dependent financial status, and unemployed individuals (P<0.001).

Factors associated with the independence index

According to the univariate regression analyses, older age groups (P-value: 0.000), individuals residing in rural areas (P-value: 0.000, Coef (CI:95%): 7.192(4.693,9.690)), those without sufficient funds (P-value: 0.032, Coef (CI:95%): 3.033(0.262,5.804)), and participants who lived alone (P-value: 0.002, Coef (CI:95%): 5.668(2.150,9.187)) had significantly higher scores on the independence scale, signifying more pronounced dependence on others. Higher education (P-value: 0.000, Coef (CI:95%): -11.649(-16.629,-6.670)), absence of chronic conditions (P-value: 0.000, Coef (CI:95%): -6.107(-9.174,-3.039)), being married (P-value: 0.000, Coef (CI:95%): -6.899(-9.587, -4.211)), not being depressed (P-value: 0.004, Coef (CI:95%): -6.467(-10.902,-2.031)) and individuals who didn't take sleeping pills (P-value: 0.000, Coef (CI:95%): -6.787(-10.226,-3.348)) were associated with decreased dependence. Most of these associations except financial status, marital status, and living status remained significant after adjustment for other associated factors in multivariate models. Table 4 presents the mean independence scale for each variable, including comorbidities, smoking, marital status, job, education, and economic subgroups.

Furthermore, there was an indirect relationship between the independence scale and residence. The rural-residing older adults required more help and support than the older adult population in urban areas (*P*-value: 0.000, Coef (CI:95%): 4.475(2.156,6.794)). There was no significant relationship between the other variables and the independence scale (Table 4).

Factors associated with the risk of falls index

The results of univariate regression indicated a direct and significant relationship between the risk of falls scale with increased age (age > 70, *P*-value < 0.05), being unemployed (*P*-value: 0.000, Coef (CI:95%): 1.060(0.552,1.568)), rural residence (*P*-value: 0.004, Coef (CI:95%): 0.364(0.115,0.613)), not being depressed (*P*-value: 0.000, Coef (CI:95%): -0.911(-1.345,-0.476)), having chronic health conditions (*P*-value: 0.000, Coef (CI:95%): -0.579(-0.881,-0.277))), and not taking sleeping pills (*P*-value: 0.000, Coef (CI:95%): -0.815(-1.152,-0.478)) Not having someone to take care of them and being married showed a protective effect for falls (*P*-value: 0.000, Coef (CI:95%): -1.043(-1.331,-0.755)) and (*P*-value: 0.000, Coef (CI:95%): -0.659(-0.924,-0.394)) respectively).

The results of multivariate regression indicated a direct relationship between the risk of falls scale with age, when the effects were adjusted for other variables. Also, being married (*P*-value: 0.035, Coef (CI:95%): -0.347(-0.671,-0.024)), not having someone who took care of them (*P*-value: 0.000, Coef (CI:95%): -0.725(-1.011,0.438)), having a chronic health condition (*P*-value: 0.050, Coef (CI:95%): -0.290(-0.581, 0.001)), not using sleeping pills (*P*-value: 0.004, Coef (CI:95%): -0.497(-0.834,-0.160)), and not being depressed (*P*-value: 0.004, Coef (CI:95%): -0.640(-1.071,-0.209)),?remained as protective factors after adjustment for other variables. The results of the regression analyses for the risk of falls index including the coefficients and their respective confidence intervals are presented in Table 5.

Factors associated with the risk of breakdown in care

Being older (*P*-value < 0.05), being a woman (*P*-value: 0.000, Coef (CI:95%): 1.347(0.726,1.969)), living in rural areas (*P*-value: 0.038, Coef (CI:95%): 0.323(0.017,0.629)), and being unemployed (*P*-value: 0.000, Coef (CI:95%): 1.347(0.726,1.969)) were significantly associated with a higher risk of being institutionalized. Other risk-factors included loneliness (*P*-value: 0.000, Coef (CI:95%): 0.916(0.493,1.339)), dependent financial status (*P*-value: 0.000, Coef (CI:95%): 0.634(0.301,0.967)

Table 4 Results of the linear regression for the independence index as the outcome(dependent) variable. The mean score of the independence index for each independent variable is presented with the corresponding crude and adjusted Coeficients(coef) and Cls. Significant relationships are shown in bold

| v | ariable | Independence | Simple Linear Regression | | Multiple Linear Regression | |
|------------------|--------------------|---------------------|--------------------------|---------|----------------------------|---------|
| | | score 0-100 (range) | Coef (CI:95%) | Р | Coef (CI:95%) | Р |
| | | Mean \pm SD | | | | |
| Age group | 60–64 | 5.2 ± 12.6 | | | | |
| | 65–69 | 7.3 ± 16.6 | 2.120(-1.019,5.260) | 0.185 | 2.039(-0.942,5.021) | 0.180 |
| | 70–74 | 12.7±19.9 | 7.458(4.278,10.637) | < 0.001 | 5.077(2.018,8.136) | 0.001 |
| | 75–79 | 15.4 ± 20.5 | 10.229(6.094,14.364) | < 0.001 | 6.554(2.528,10.579) | 0.001 |
| | >80 | 28.3 ± 28.6 | 23.114(19.231,26.996) | < 0.001 | 17.509(13.531,21.489) | < 0.001 |
| Sex | Male | 10.6 ± 20.5 | | | | |
| | Female | 11.1 ± 19.1 | 0.501(-1.998,3.002) | 0.694 | -4.277(-8.081,-0.474) | 0.028 |
| Residence | Urban | 8.1±17.2 | | | | |
| | Rural | 15.3 ± 22.3 | 7.192(4.693,9.690) | < 0.001 | 4.475(2.156,6.794) | < 0.001 |
| Marital status | Single | 15.8 ± 23.4 | | | | |
| | Married | 8.9 ± 17.5 | -6.899(-9.587, -4.211) | < 0.001 | -1.771(-4.896,1.353) | 0.266 |
| Employment | Freelancer | 7.3 ± 15.5 | | | | |
| Status | Unemployed | 19.9±26.7 | 12.638(7.497,17.779) | < 0.001 | 6.524(1.678,11.371 | < 0.001 |
| | Housekeeper | 11.6±19.5 | 4.311(0.911,7.710) | 0.013 | 4.381(0.113,8.649) | 0.044 |
| | Retired/Government | 9.3±19.1 | 1.983(-1.701,5.669) | 0.291 | 2.512(-0.889,5.912) | 0.148 |
| | Job | | | | | |
| Chronic Health | Yes | 12.1 ± 20.7 | | | | |
| Conditions | No | 6±13.7 | -6.107(-9.174,-3.039) | < 0.001 | -3.074(-5.886,-0.262) | 0.032 |
| Smoking | Yes | 7.5 ± 15.1 | | | | |
| | No | 11.2 ± 20.1 | 3.694(-0.729,8.118) | 0.102 | 4.462(0.167,8.758) | 0.042 |
| Educational | Illiterate | 16.2 ± 22.7 | | | | |
| Level | Reading/writing | 8.2 ± 17.9 | -8.058(-11.374,-4.742) | < 0.001 | -6.148(-9.202,-3.093) | < 0.001 |
| | Elementary | 6.6 ± 15.3 | -9.718(-12.797,-6.638) | < 0.001 | -4.809(-7.753,-1.864) | 0.001 |
| | High school | 4.2 ± 13.1 | -12.096(-16.918,-7.273) | < 0.001 | -5.633(-10.147,-1.119) | 0.015 |
| | Diploma and higher | 4.6 ± 11.3 | -11.649(-16.629,-6.670) | < 0.001 | -7.855(-12.707,-3.003) | 0.002 |
| Financial status | Enough | 10.1 ± 19.3 | | | | |
| | Not enough | 13.1 ± 20.5 | 3.033(0.262,5.804) | 0.032 | -0.110(-2.785,2.565) | 0.936 |
| Living | cohabiting | 10.1 ± 19.1 | | | | |
| | alone | 15.7 ± 22.5 | 5.668(2.150,9.187) | 0.002 | 0.423(-3.505,4.350) | 0.833 |
| Someone takes | Yes | 20.9 ± 27 | | | | |
| care of them | No | 8.1 ± 15.9 | -12.902(-15.788,-10.106) | < 0.001 | -9.670(-12.435,-6.905) | < 0.001 |
| Takes care of | Yes | 10.1 ± 17.9 | | | | |
| someone | No | 11.1 ± 20.1 | 0.963(-2.223,4.150) | 0.553 | 2.635(-0.207,5.478) | 0.069 |
| Substance use | Yes | 12.8 ± 22.4 | | | | |
| | No | 10.8 ± 19.6 | -1.925(-9.744,5.893) | 0.629 | -5.100-12.418,2.217) | 0.172 |
| Using sleeping | Yes | 16.6 ± 23.4 | | | | |
| pills | No | 9.9±18.7 | -6.787(-10.226,-3.348) | < 0.001 | -3.807(-7.061,-0.553) | 0.022 |
| Financial status | independent | 9.2 ± 18.4 | | | | |
| | dependent | 16.1±22.4 | 6.759(3.882,9.637) | < 0.001 | 1.629(-1.408,4.665) | 0.293 |
| Depression | Yes | 16.8±26.2 | | | | |
| | No | 10.3 ± 18.9 | -6.467(-10.9022.031) | 0.004 | -5.181(-9.339,-1.022) | 0.015 |

) and being illiterate (*P*-value: 0.000, Coef (CI:95%): 0.634(0.301,0.967)). We also found being married (*P*-value: 0.000, Coef (CI:95%): -0.938(-1.262,-0.615)), having someone who takes care of them (*P*-value: 0.000, Coef (CI:95%): -1.465(-1.815-1.115)), absence of chronic health conditions (*P*-value: 0.000, Coef (CI:95%): -1.144(-1.510,- 0.778)), not being depressed (*P*-value: 0.000, Coef (CI:95%): -1.633(-2.161,-1.105)), and not taking

sleeping pills (*P*-value: 0.000, Coef (CI:95%): -1.356(-1.766, -0.947)), were protective of the risk of a breakdown in care. The respective *p*-values and coefficients with confidence intervals for both univariate and multivariate regression analyses are presented in Table 6. In multivariate models, the significant associations persisted for age (*P*-value < 0.05), chronic health conditions (*P*-value: 0.000, Coef (CI:95%): -0.681(-1.027,-0.333)), **Table 5** Results of the linear regression for the risk of falls as the outcome(dependent) variable. The mean score of the risk of falls scale for each independent variable is presented with the corresponding crude and adjusted Coeficients(coef) and Cls. Significant relationships are shown in bold

| variable | | Mean ± SD | Mean ± SD Simple Linear Regression | | Multiple Linear Regression | |
|----------------------------|------------------------|---------------|------------------------------------|---------|----------------------------|---------|
| | | Falls(0–8) | Coef (CI:95%) | Р | Coef (CI:95%) | Р |
| Age group | 60–64 | 1.1±1.6 | | | | |
| | 65–69 | 1.3 ± 1.7 | 0.194(-0.123,0.512) | 0.203 | 0.197(-0.111,0.506) | 0.209 |
| | 70–74 | 1.8 ± 2 | 0.759(0.438,1.082) | < 0.001 | 0.639(0.323,0.956) | < 0.001 |
| | 75–79 | 1.5 ± 2.1 | 0.445(0.027,0.863) | 0.037 | 0.224(-0.192,0.642) | 0.291 |
| | >80 | 2.9 ± 2.4 | 1.819(1.427,2.212) | < 0.001 | 1.512(1.099,1.923 | < 0.001 |
| Sex | Male | 1.5 ± 1.9 | | | | |
| | Female | 1.6 ± 1.9 | 0.097(-0.148,0.343) | 0.437 | -0.016(-0.411,0.377) | 0.934 |
| Residence | Urban | 1.4 ± 1.8 | | | | |
| | Rural | 1.7 ± 2.1 | 0.364(0.115,0.613) | 0.004 | 0.205(-0.34,0.445) | 0.094 |
| Marital status | Single | 1.9 ± 2.1 | | | | |
| | Married | 1.3 ± 1.8 | -0.659(-0.924,-0.394) | < 0.001 | -0.347(-0.671,-0.024) | 0.035 |
| Employment Status | Freelancer | 1.3 ± 1.8 | | | | |
| | Unemployed | 2.4 ± 2.4 | 1.060(0.552,1.568) | < 0.001 | 0.453(-0.048,0.955) | 0.077 |
| | Housekeeper | 1.5 ± 1.9 | 0.227(-0.108,0.563) | 0.185 | -0.475(-0.489,0.394) | 0.833 |
| | Retired/Government Job | 1.4 ± 1.9 | 0.138(-0.225,0.503) | 0.455 | -0.014(-366,0.338) | 0.937 |
| Chronic Health Conditions | No | 1.6 ± 1.9 | | | | |
| | Yes | 1.1 ± 1.6 | -0.579(-0.881,-0.277) | < 0.001 | -0.290(-0.581, 0.001) | 0.050 |
| Smoking | Yes | 1.4 ± 1.8 | | | | |
| | No | 1.5 ± 1.9 | 0.172(0.263,0.609) | 0.436 | 0.294(-0.151, 0.739) | 0.195 |
| Education | Illiterate | 1.9 ± 2.1 | | | | |
| | Reading/writing | 1.2 ± 1.8 | -0.632(-0.964,-0.300) | < 0.001 | -0.391(-0.707,-0.074) | 0.016 |
| | Elementary | 1.2 ± 1.7 | -0.629(-0.938,-0.321) | < 0.001 | -0.154(-0.459,0.151) | 0.321 |
| | High school | 0.9 ± 1.4 | -0.998(-1.481,-0.515) | < 0.001 | -0.403(-0.870,0.065) | 0.091 |
| | Diploma and higher | 1.7 ± 1.9 | -0.208(-0.707,0.290) | 0.413 | 0.158(-0.344,0.661) | 0.536 |
| Financial status | Enough | 1.4 ± 1.9 | | | | |
| | Not enough | 1.8 ± 2.1 | 0.392(0.120,0.664) | 0.005 | 0.186(-0.903,0.464) | 0.186 |
| Living Conditions | cohabiting | 1.5 ± 1.9 | | | | |
| | alone | 1.9 ± 2.1 | 0.392(0.045,0.740) | 0.027 | -0.211(-0.617,0.196) | 0.309 |
| Someone takes care of them | Yes | 2.3 ± 2.3 | | | | |
| | No | 1.3 ± 1.7 | -1.043(-1.331,-0.755) | < 0.001 | -0.725(-1.011,0.438) | < 0.001 |
| Takes care of someone | Yes | 1.5 ± 1.9 | | | | |
| | No | 1.5 ± 1.9 | 0.024(-0.289, 0.337) | 0.880 | 0.200(-0.942,0.494) | 0.182 |
| Substance use | Yes | 1.8±2.1 | | | | |
| | No | 1.5 ± 1.9 | -0.246(-1.016,0.523) | 0.529 | -0.456(-1.214,0.301) | 0.237 |
| Using sleeping pills | Yes | 2.2 ± 2.2 | | | | |
| | No | 1.4 ± 1.9 | -0.815(-1.152,-0.478) | < 0.001 | -0.497(-0.834,-0.160) | 0.004 |
| Financial status | independent | 1.4 ± 1.8 | | | | |
| | dependent | 1.9±2.2 | 0.562(0.278,0.847) | < 0.001 | 0.105(-0.208,0.420) | 0.501 |
| Depression | Yes | 2.4 ± 2.3 | | | | |
| | No | 1.4 ± 1.9 | -0.911(-1.345,-0.476) | < 0.001 | -0.640(-1.071,-0.209) | 0.004 |

education (ability to read and write, (*P*-value: 0.000, Coef (CI:95%): -0.541(-0.918,-0.164)), not having someone who takes care of them (*P*-value: 0.000, Coef (CI:95%): -1.083(-1.424,-0.742)), not using sleeping pills (*P*-value: 0.000, Coef (CI:95%): -0.746(-1.147,-0.344)), and not being depressed (*P*-value: 0.000, Coef (CI:95%): -1.201(-1.714,-0.688)).

Discussion

Main findings

This study assessed the functional status and care needs of 970 older adults in Varamin, Iran, using the EASY-Care 2010 Standard Questionnaire. The findings revealed that the greatest needs among participants were in maintaining health (94.7%), mental health and well-being (94.3%), and accommodation and finance (63.4%). Older adults aged 80 and above exhibited the highest levels of **Table 6** Results of the Linear regression for the risk of breakdown in care as the outcome(dependent) variable. The mean score of the risk of breakdown in care scale for each independent variable is presented with the corresponding crude and adjusted Coeficients(coef) and Cls. Significant relationships are shown in bold

| v | ariable | Risk of breakdown in | Simple Linear Regression | | Multiple Linear Regression | |
|------------------|--------------------|----------------------|--------------------------|---------|----------------------------|---------|
| | | care (0–12) | Coef (CI:95%) | Р | Coef (CI:95%) | Р |
| | | Mean ± SD(range) | | | | |
| Age group | 60–64 | 2.5 ± 1.9 | | | | |
| | 65–69 | 2.9 ± 2.2 | 0.419(0.025,0.812) | 0.037 | 0.414(0.455,0.781) | 0.028 |
| | 70–74 | 3.4 ± 2.5 | 0.906(0.508,1.304) | < 0.001 | 0.723(0.345,1.101) | < 0.001 |
| | 75–79 | 3.4 ± 2.2 | 0.856(0.338,1.374) | 0.001 | 0.589(0.092,1.085) | 0.020 |
| | >80 | 4.5 ± 3.1 | 2.012(1.526,2.498) | < 0.001 | 1.641(1.151,2.132) | < 0.001 |
| Sex | Male | 2.8 ± 2.5 | | | | |
| | Female | 3.3 ± 2.3 | 0.525(0.225,0.825) | 0.001 | 0.292(-0.037,0.623) | 0.082 |
| Residence | Urban | 2.9 ± 2.3 | | | | |
| | Rural | 3.3 ± 2.5 | 0.323(0.017,0.629) | 0.038 | 0.129(-0.157,0.415) | 0.377 |
| Marital status | Single | 3.8 ± 2.5 | | | | |
| | Married | 2.8 ± 2.3 | -0.938(-1.262,-0.615) | < 0.001 | -0.214(-0.599,0.172) | 0.277 |
| Employment | Freelancer | 2.7 ± 2.2 | | | | |
| Status | Unemployed | 4.1 ± 2.8 | 1.347(0.726,1.969) | < 0.001 | 0.396(-0.201,0.994) | 0.193 |
| | Housekeeper | 3.2 ± 2.3 | 0.517(0.106,0.928) | 0.014 | -0.326(-0.853,0.201) | 0.225 |
| | Retired/Government | 2.9 ± 2.5 | 0.144(-0.301,0.590) | 0525 | -0.123(-0.543,0.296) | 0.564 |
| | Job | | | | | |
| Chronic Health | Yes | 3.3 ± 2.4 | | | | |
| Conditions | No | 2.2 ± 1.9 | -1.144(-1.510,- 0.778) | < 0.001 | -0.681(-1.027,-0.333) | < 0.001 |
| Smoking | Yes | 2.8 ± 2.1 | | | | |
| | No | 3.1 ± 2.4 | 0.335(-0.198,0.870) | 0.218 | 0.454(-0.075,0.984) | 0.093 |
| Education | Illiterate | 3.6±2.6 | | | | |
| | Reading/writing | 2.7 ± 2.3 | -0.903(-1.308,-0.498) | < 0.001 | -0.541(-0.918,-0.164) | 0.005 |
| | Elementary | 2.8±2.1 | -0.838(-1.214,-0.462) | < 0.001 | -0.168(-0.532,0.194) | 0.362 |
| | High school | 3.3 ± 2.4 | -1.324(-1.913,-0.735) | < 0.001 | -0.515(-1.073,0.041) | 0.069 |
| | Diploma and higher | 2.7 ± 2.2 | -0.977(-1.585,-0.368) | 0.002 | -0.501(-1.100,0.097) | 0.101 |
| Financial status | Enough | 2.9 ± 2.3 | | | | |
| | Not enough | 3.6 ± 2.4 | 0.634(0.301,0.967) | < 0.001 | 0.292(-0.037,0.622) | 0.082 |
| Living | cohabiting | 3±2.3 | | | | |
| Living | alone | 3.9 ± 2.5 | 0.916(0.493,1.339) | < 0.001 | 0.221(-0.263,0.705) | 0.371 |
| Conditions | | | | | | |
| Someone | Yes | 4.3 ± 2.9 | | | | |
| takes care of | No | 2.8±2.1 | -1.465(-1.815-1.115) | < 0.001 | -1.083(-1.424,-0.742) | < 0.001 |
| them | | | | | | |
| Takes care of | Yes | 3.1 ± 2.2 | | | | |
| someone | No | 3.1 ± 2.4 | -0.030 (-0.414,0.354) | 0.878 | 0.198(-0.153,0.549) | 0.268 |
| Substance use | Yes | 3.6 ± 2.5 | | | | |
| | No | 3.1 ± 2.4 | -0.457(-1.400,0.486) | 0.342 | -0.866(-1.768,0.037) | 0.060 |
| Using sleeping | Yes | 4.3 ± 2.6 | | | | |
| pills | No | 2.9±2.3 | -1.356(-1.766, -0.947) | < 0.001 | -0.746(-1.147,-0.344) | < 0.001 |
| Financial status | independent | 2.9±2.3 | | | | |
| | dependent | 3.7±2.4 | 0.770(0.422,1.118) | < 0.001 | 0.031(-0.343,0.406) | 0.869 |
| Depression | Yes | 4.6±2.8 | | | | |
| | No | 3±2.3 | -1.633(-2.161,-1.105) | < 0.001 | -1.201-1.714,-0.688) | < 0.001 |

dependence, risk of falls, and risk of breakdown in care, highlighting the vulnerability of the oldest age group. Key factors associated with increased dependence, fall risk, and care breakdown included older age, rural residence, lower education levels, being divorced or widowed, unemployment, financial dependency, and the presence of chronic health conditions. Notably, women had a higher risk of falls and care breakdown, though no significant gender difference was observed in independence scores. Protective factors such as higher education, being married, and having social support were associated with reduced dependence and lower risks of adverse outcomes. These findings underscore the complex interplay of sociodemographic, health, and environmental factors in shaping the functional status of older adults and emphasize the need for targeted interventions to address these challenges.

Independence

The mean score for independence was 9.05 ± 13.94 , indicating that many older adults in Iran may be dependent on others for certain activities of daily living. This finding is consistent with previous research on older adults in developing countries and highlights the importance of interventions to support independence and self-sufficiency among older adults in Iran [12].

Several demographic and psychosocial factors are intricately linked to levels of dependence among older adults. Increased age is a significant contributor, as the physiological changes that accompany aging can impair both mobility and cognitive function [13]. Additionally, individuals residing in rural areas may experience heightened dependence due to limited access to healthcare services and helpful technologies [14]. Financial constraints further exacerbate this issue, as economic hardships can restrict access to essential resources necessary for independence.

Mental health also played a critical role; conditions such as depression can severely impact an individual's ability to engage in daily activities, leading to greater dependence. Furthermore, certain living arrangements, particularly those characterized by isolation or a lack of supportive family structures, contribute to increased reliance on others for care [15].

In contrast, several factors were associated with lower levels of dependence. Higher educational attainment may be correlated with improved health literacy and better access to resources, enabling individuals to navigate their care needs more effectively [16]. The absence of chronic conditions was another significant factor; individuals without such health issues typically maintain higher levels of independence. These are in line with previous studies. Moreover, being married can provide essential emotional support and practical assistance, further reducing dependence on external care. Together, these dynamics illustrate the complex interplay of personal and social factors influencing independence among older adults.

The risk of breakdown in care

The risk of breakdown in care had a mean score of 2.78 (\pm 2.03), indicating potential vulnerabilities in the caregiving system. The risk of breakdown in care among older adults was closely linked to several interrelated factors. Age and gender play significant roles; older adults, particularly women who tend to live longer, face unique health challenges that increase their vulnerability. Rural living conditions and unemployment further exacerbate these vulnerabilities, making it more difficult for individuals to access consistent care. Chronic conditions and depression also heightened the likelihood of requiring more intensive care services, as these health issues can complicate daily functioning and overall well-being [17]. Additionally, financial status is a critical determinant; economic limitations can severely restrict access to quality care options, leaving many without the necessary support [18].

The risk of falls

Conversely, certain protective factors can mitigate the risk of care breakdown. As indicated in our as well as previous research, education levels often correlate with better health literacy and resource access, while marital status can provide essential emotional and practical support. Furthermore, having a robust social support system is crucial in enhancing resilience against care disruptions [19]. Together, these insights underscore the complex interplay of risk and protective factors that influence the stability of care for older adults, highlighting the need for targeted interventions to address these challenges effectively.

The risk of falls averaged 1.13 (±1.19), reflecting a concerning trend in fall incidents among this demographic group. The analysis revealed several critical factors that influenced the risk of falls among older adults. As individuals age, the likelihood of experiencing falls increases, primarily due to declining physical capabilities that come with advanced age. Additionally, unemployment can exacerbate this risk; a lack of engagement in work-related activities may lead to decreased physical fitness and diminished social interaction, both of which are vital for maintaining balance and coordination [20]. One study from Pakistan assessed the factors associated with the risk of falls among the Muslim older community. The results showed that cognitive impairment, decreased vision, gait problems, and lack of exercise contributed to a higher risk of falls. They emphasize the value of physical activity, as in saying Salat, in decreasing the risk of falls in older adults [21] Living in rural areas also contributes to fall risk, as these environments frequently lack adequate safety measures and access to healthcare resources that can help prevent falls. Furthermore, mental health issues such as depression, along with chronic conditions, significantly heighten the risk of falling by affecting both physical stability and cognitive function. The use of certain medications can further complicate matters, as they may impair balance or cognition, increasing the likelihood of fall incidents [22]. A previous study in Iran similarly showed that comorbidities, depression, and being female

were associated with higher risks of falls; whereas physical activity was a protective factor [10].

However, some protective factors helped mitigate these risks. Having strong social support networks and being married provides emotional and practical assistance, which can enhance safety and reduce the chances of falls [23]. Together, these insights underscore the importance of addressing both risk factors and protective elements to improve safety for older adults.

Sociodemographic determinants of needs

In a study that applied the EASY-Care in 2018, Tobis et al. showed that the scores of all three summarizing indexes were comparable in men and women, and higher in older age, similar to the findings of our study [24]. They were also higher in those who were single compared with married individuals. Similarly, unmarried participants, including widowed, divorced, and single individuals, required more support according to our study findings.

The findings of another study published in 2019, showed that the mean scores were all higher in women than in men, indicating a lower degree of independence but a higher risk of breakdown in care and falls among women. However, our study results suggested that there was no relationship between gender and independence score, although there was a significant relationship between gender and each of the two other scales. Specifically, female participants had a higher risk of falls and breakdown in care. In addition, the mean scores were higher among rural residents, participants who were not currently married, and those who perceived themselves as poor. Similar to our study results [25].

A study by Talarska et al. (2018) indicated that individuals typically required partial support in areas such as mental health, health maintenance, mobility, and communication. In the present study, a notably higher need for support was identified in mental health, health maintenance, and accommodation and finance. Additionally, three EASY-Care Standard 2010 scales were correlated with participants' education levels. The fact that older adults in Iran may require more support in these areas compared to the findings of previous studies highlights the unique challenges that older adults in Iran may face in accessing and maintaining health and well-being [26].

Another study by Talarska et al. in 2017 identified the greatest need for assistance among older adults in areas such as mental health and well-being (100%), health maintenance (99.0%), mobility (63.0%), and communication (47.5%). While a relationship was observed between the risk of falls and age, no correlation was found between the risk of falls and sex or type of residence [27]. According to a 2018 study by Talarska et al., partial support was typically required for mental health and well-being (59.0%), staying healthy (29.0%), getting

around (22.0%), and seeing, hearing, and communicating (22.0%). In our study, partial support was required for staying healthy (94.7%), mental health and well-being (94.3%), and accommodation and finance (63.37%) [26].

Our study found that depressed older adults scored significantly higher on all three assessment scales. Similarly, an implementation of EASY-Care in Turkey revealed that participants with depression had higher EASY-Care scores, indicating they were more dependent and at greater risk of care breakdown and falls compared to those without depression [9]. The Talarska study also revealed that depression increases the risk of falls [6, 26]. These findings showcase the significance of depression in the needs of older adults in the Middle East. Some other studies have shown that the rates of depression were as high as 74% among older people from Iraq, considerably higher than our findings in Iran [28]. The underlying reason may lie in the social and political adversities currently going on in Iraq. Also, a systematic review showed a lack of healthcare availability and a high rate of violence against the elderly in Iraq [29] Lack of physical activity can be another culprit of high depression rates [28]. A study in Afghanistan showed that about half of adults had sedentary behavior and the rates were higher among women and in older individuals [10].

Cultural and practical implications

Essentially, our findings suggest that older adults in Iran may require partial support for various health and well-being needs. Participants identified staying healthy, mental health, and accommodation/finance as their top priorities. This aligns with findings that emphasize the importance of holistic well-being, where physical health, mental resilience, and financial stability play crucial roles in enhancing quality of life for older adults [30].

Our findings, when compared to previous research on older adults in developed countries, revealed significant differences in the health and well-being needs of older adults in Iran [31]. The findings highlighted that mental health and well-being, health maintenance, and physical independence were key areas of concern for older adults in Iran, with rural residents and single individuals being at higher risk for loss of independence, falls, and breakdowns in care. Furthermore, sociodemographic factors such as age, gender, marital status, and education were found to have significant impacts on health outcomes. Thus, it is important to discuss the mechanisms and contributing factors to these associations and to consider them when designing interventions.

Importantly, cultural factors may exacerbate vulnerabilities among Iranian older adults. For instance, widowed women face greater limitations in remarriage compared to men, potentially increasing their susceptibility to loneliness [32]. As women age, their traditional responsibilities often expand to include caring for children and grandchildren, as well as managing household chores. In contrast, men's responsibilities typically decrease with retirement and age [32]. In this cultural setting, women's financial stability is affected by traditional gender roles. Historically, women were expected to be homemakers and often didn't receive pensions. While new national programs are starting to offer retirement insurance to housewives, this support wasn't available to older generations. Furthermore, women in rural areas often share work outside the home without being formally recognized as workers, which means they are unpaid and don't qualify for pensions.

Financial issues have consistently been associated with adverse health outcomes and increased dependence of older adults in developing countries [15, 33]. One important area of addressing this concern among the elderly is insurance coverage. The Iranian parliament has reported that about 25% of Iranian older adults are not covered by any healthcare insurance. Additionally, most basic insurance plans do not adequately cover costs of conditions associated with aging, especially home-care facilities [34]. These factors coupled with the inflation rates in Iran highlight the importance of designing interventions to support adequate insurance coverage for treatment as well as rehabilitation services among older adults in Iran.

Our findings showed an association between being illiterate and increased needs in all domains. These findings are in line with an implementation of the tool in Turkey [9]. Interventions aimed at improving literacy, particularly in rural areas, appear necessary. Enhancing literacy could prevent adverse age-related events by fostering independence and access to health information, potentially reducing unemployment [9, 16]. Meanwhile, public education tailored for individuals with low literacy levels may also be essential to mitigate the effects of inadequate education on this vulnerable population [35].

Depression and loneliness play significant roles in compromising older adults' general health, increasing dependence, the risk of falls, and breakdowns in care as evidence by the current and other studies [36]. Therefore, community-based multi-component programs addressing the specific needs of older adults, such as social support groups and exercise programs, are recommended to improve both physical and mental health among Iranian older adults [31, 37–39]. These programs should specifically target rural areas, women, and individuals experiencing loneliness, as these groups are at higher risk of falls and institutionalization. Screening for and treating depression can also enhance the quality of life for older individuals.

Healthcare providers should receive training in their continuing medical education programs regarding factors associated with adverse events in this population. Specifically, they require education on detecting and treating depression, as well as minimizing the use of sleeping pills [40].

These findings underscore the need for improved healthcare policies in Iran to support the health and wellbeing of older adults. By prioritizing mental health, addressing socioeconomic disparities and cultural factors, promoting social support, implementing fall prevention strategies and integrating healthcare and social services, as well as improving insurance coverage to tackle financial problems, we can create a more supportive and inclusive environment for our elderly population.

This study, despite its contributions to the understanding of older adults' health and well-being needs in Iran, may have some limitations. First, the sample was drawn from only one city, Varamin, which may limit the generalizability of the results to other regions of Iran with different cultural and socioeconomic statuses. Second, self-reported information on socioeconomic characteristics and health status may have introduced some bias, as participants may have under- or over-reported certain aspects of their health status or circumstances. This could have resulted in an inaccurate assessment of the true health needs and challenges of older adults in Iran.

Conclusion

The findings reveal significant associations between socioeconomic factors, health status, and functional well-being, highlighting key areas for policymakers and healthcare providers to prioritize. Specifically, addressing illiteracy, unemployment, financial dependence, and lack of social support is crucial for reducing the risk of falls, preventing breakdown in care, and promoting independence among older adults. Given the protective effect of not being depressed and not using sleeping pills, integrated mental health services and careful medication management should be essential components of geriatric care. Furthermore, tailored programs are needed to address the unique needs of older women and rural residents, who face a disproportionately higher risk of adverse outcomes.

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Author contributions

F.G.: Collected data, contributed to the analysis. M.S.: Analyzed data, contributed to study design, and supervised the research process.M.K.: Drafted the manuscript and conducted a comprehensive literature review to support the study's context.F.B.: Interpreted data, reviewed literature, created tables, and contributed to writing and revising the manuscript.H.R.B.: Supervised and coordinated all aspects of the research project, contributed to writing, and ensured adherence to research guidelines.All authors read and approved the final version of the manuscript.

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Data availability

All data generated or analysed during this study are included in this published article.

Declarations

Ethics approval and consent to participate

The Ethics Committee of Iran University of Medical Sciences approved the study (#IR.IUMS.REC.1397.1149). The study complied with the ethical principles of the Declaration of Helsinki and verbal informed consent was obtained from the participants upon inclusion.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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