Investigating the Factors Affecting the Nutritional Status of Iranian Older Adults: A Literature Review

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ABSTRACT

Introduction: The process of aging can lead to many negative alterations in the body systems. Nutritional status in older adults is an important element that requires special attention. This study aimed to examine the factors effective on nutritional status among elderly people.

Methods: The keywords including nutrition, elders, and Iran were searched in databases including Web of Science, SID, Scopus, and PubMed from 2012 to 2022. Exclusion criteria consisted of case-series studies, letters to the editor, qualitative articles, and reviews.

Results: The search process yielded 10 studies. There were 2441 older adults in this review. The findings showed that the type of diet can affect malnutrition and nutritional status in older adults. Meanwhile, the level of self-efficacy was directly associated with nutritional status. There was no association between awareness behavioral assessment and nutritional status. As well, the important role of demographic variables on nutritional status and malnutrition was proved in most of the studies. Lastly, loneliness has a direct and negative association with malnutrition.

Conclusion: By discovering the factors effective on the nutritional status of older adults, supportive interventions should be designed. Also, this study showed that modern educational interventions are effective in improving the level of nutritional status among older adults.

Keywords: Elders, Iran, Nutrition.

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Introduction

Aging is an integral part of human life, which is caused by human movement and evolution around the axis of time. This universal process begins from the moment of conception and continues throughout life. In other words, all living things experience aging.[1] The aging process accelerates in the third decade of life and gradually limits a person's physical, mental, social, and functional activities.[2] As World Population Prospects claims, the number of older adults is increasing around the world. By 2050, it is predicted that the number of older adults will be 2.1 billion, which is a 56% increase compared with the 901 million older adults.[3] From 2017 to 2050, individuals over 60 years and above will be 65 % higher in Asia, 25% higher in Europe 14% higher in Africa and 11% higher in Latin America and the Caribbean.[4] Various factors play an important role in aging. By 2050, with the increasing trend of the elderly, one out of every five people in the world will be elderly. According to estimates, Iran's elderly population will reach more than 25 million people by 2050. The aging process in Iran will be faster than other population groups.[5] According to the National Policy on Older Persons, older adults are those individuals aged 60 years or above. If 7 percent of the population is aged above 65, it is claimed that a country is aging.[6] The increase in life expectancy and the growth of the elderly population is one of the achievements resulting from the improvement of health, social, and economic conditions, the reduction of mortality, the increase of life expectancy, and the implementation of birth control and population policy.[7]

The effects of aging cause certain changes in the health and functioning of the body's organs, including the digestive system. These alterations include decreased saliva secretion, difficulty in swallowing food, delayed esophageal and gastric emptying, and decreased gastrointestinal motility. On the other hand, the occurrence of chronic diseases, frequent hospitalization, drug use, loneliness, depression, lack of oral and dental hygiene, and low quality of life can affect the nutrition of older adults.[8] 20-30 % of older adults suffer from anorexia. As well, fewer or inappropriate calorie intake can lead to frailty among the aged individuals.[4] Lower and impaired food intake is associated with aging. Asymptomatic gastritis with atrophy is common in aged individuals.[9] Inappropriate nutritional status provides the basis for the occurrence of many diseases such as diabetes, osteoarthritis, cardiovascular diseases, and high blood pressure. In extreme cases, improper nutrition is also related to the mortality of the elderly.[10] Meanwhile, the prevalence of malnutrition in the elderly has been reported from 4% to 50%.[11]

Malnutrition is a widespread phenomenon in older adults with a prevalence rate of more than 60%. Meanwhile, it can have many complications for the elders.[12] On the other hand, no review has been conducted to assess the effective element of nutritional status among older adults in Iran. Therefore, the current study aimed to discover the effective factors and interventions related to nutritional status in Iranian older adults.

Methods

Design

It is a literature review that determines the factors that affect the nutrition of older adults.

Search Methods

PRISMA guidelines were used for collecting the relevant data.[13]

This article reviewed the effective factors on the nutrition of older adults in Iran and identified the elements play important role in the nutrition of elderly Iranians. For the literature searches, the following search terms were entered in the Web of Science, SID, Scopus, PubMed —‘ Nutrition’, ‘elders’, ‘Iran’. The search was limited to the literature published between 2012 and 2022. In total, 908 articles were included. Of these, 551 were excluded because they were not related, and 274 were excluded because they were duplicated papers. Other bases for exclusion were the articles that were not the outcome of interest or

the population interest. As well, the studies that were conducted in countries other than Iran were excluded. Finally, 10 papers were selected as the final literature for analysis. The process is shown in Figure 1.

Inclusion and Exclusion

Inclusion criteria: English or Persian full-text articles that evaluated the factors affecting nutritional status in Iranian older adults. All the types of quantitative articles were eligible.

Exclusion criteria: reviews, qualitative articles, case series, and letters to the editor were not eligible. Normally, studies conducted in countries other than Iran were ignored.

The research question was based on PEO: P (Iranian older adults), E (Exposure to the factors affecting nutritional status), and O (The level of malnutrition in Iranian older adults and the discovered factors associated with nutritional status).

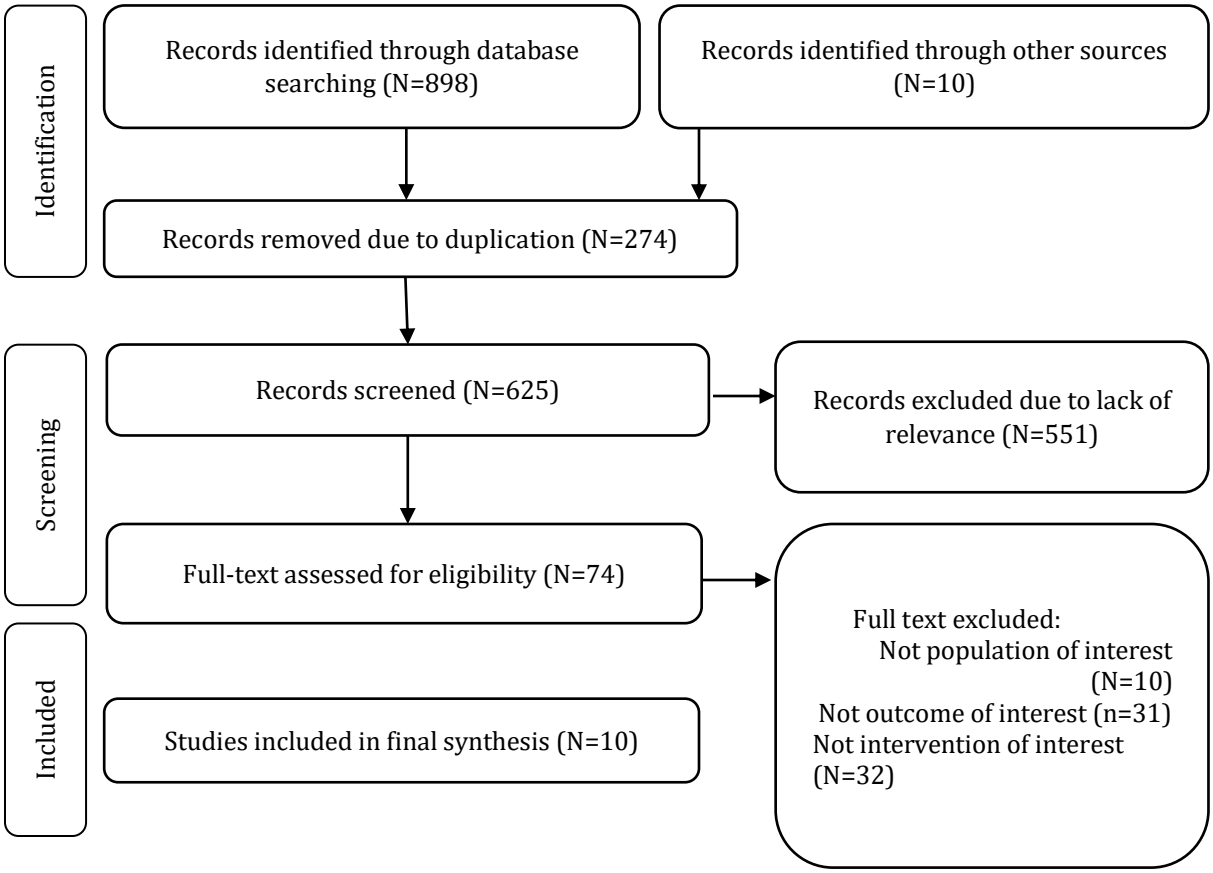

Figure 1. PRISMA Flowchart of selected studies.

Materials Analysis Method

General features related to nutrition in older adults, outcome measures, and main findings were analyzed. The general features included Author, aim, type of study, and sample size were considered as general features. High quality of study was contemplated for the selected papers. The process of study collection and data extraction was conducted by two authors independently. However, the third author was responsible for resolving any disagreement.

Results

Literature Selection

Aim, year, study type, sample size, outcome measure, and main findings are shown in Table 1.

Overall, there were 2441 participants in the included studies. There were nine observational and one interventional study in this review. The findings showed factors such as self-efficacy, gender, loneliness, functional ability, normal cognition, functional ability, normal cognition, smoking, weight, arthritis, sarcopenia, social media, and electronic educational groups. The details are presented in Table 1.

Interestingly, one of the results showed awareness and behavioral assessment are not associated with nutritional status.

Authors, Year, Reference	Aim	Type of Study	Sample Size	Outcome Measure	Main Findings
Rasoulifar et al. (2020) (14)	Investigating the relationship between self-efficacy and factors affecting nutrition in older adults	Cross-sectional	n=250	The Mini Nutritional Assessment Questionnaire	- A significant relationship self-efficacy and age, gender, level of education and marital status of the older adults (P<0.001) - A significant association between self-efficacy and better nutritional status (P<0.001)
Seyedghasemi et al. (2021) (15)	Determining nutritional status and the affecting factors in the elderly	Descriptive-analytical	n=139	The Mini Nutritional Assessment questionnaire	- Gender as the only independent variable in association with malnutrition - Normal nutritional status in 36% of the older adults
Sadeghi Hesari et al. (2020) (16)	Determining the relationship between loneliness and nutritional status of the elderly	Descriptive-analytical	n=440	UCLA loneliness Scale and The Mini Nutritional Assessment questionnaire	- Significant association between loneliness and increased risk of malnutrition (P=0.00) - Significant association between feeling alone and nutritional status (P<0.001) - 63.5% of the participants at

					the risk of malnutrition
Bakhtiari et al. (2020) (17)	Determining socioeconomic and geriatric factors associated with malnutrition	Cross-sectional	n=326	Activities of Daily Living and Instrumental Activities of Daily Living Scale, Mini-Mental State Examination and The Mini Nutritional Assessment questionnaire	- Association of living alone, multiple physical disabilities and chronic disease with malnutrition - Inverse association of functional ability, normal cognition and no fragility with malnutrition
Dehdari et al. (2019) (18)	Investigating the nutritional status of the older adults referred to the nursing homes	Cross-sectional	n=129	Minimal nutrition assessment and anthropometric evaluation by the researcher	- A significant association of gender, age, income, smoking, weight, arthritis, urinary complications, and using mass media with nutrition in the older adults (P<0.05)
Molavi Vardanjani et al. (2018) (19)	Recognizing the level of malnutrition on the older adults and the factors related to it	Descriptive and analytical	n=200	Minimal nutrition assessment	- 27.5 % of the participants at the risk of malnutrition - A significant association between nutrition and factors such as gender, marital status, type of disorder, dental status, location, education level, occupational status, meeting with relatives and economic status (P<0.001)
Hazavehei et al. (2016) (20)	Recognizing the effective factors on the improvement of healthy nutritional behaviors among	Descriptive and analytical	n=150	Self-developed questionnaire	- A significant association of (r=0.292, p=0.002), enabling factors

	elderly				(r=0.30, p=0.001), and behavioral intention (r=0.301, p=0.001) with healthy nutrition in the older adults - No significant association of awareness, behavioral assessment, and abstract norms with nutrition in the older adults - Physicians known as the most effective factor in adherence to the healthy nutrition among the older adults
Hashemi et al. (2015) (21)	Determining the association of sarcopenia with sticking to a particular dietary pattern	Cross-sectional	n= 300	Food Frequency Questionnaire	- Lower odds ratio for sarcopenia in elders adhering to the Mediterranean dietary pattern (P=0.04) - Western dietary pattern was associated with higher prevalence of sarcopenia (P=0.13) - No alteration in sarcopenia with adherence to mixed dietary pattern (P=0.95)
Keshavarzi et al. (2015) (22)	Assessment of the relationship between depression and nutrition in the elders	Cross-sectional	n= 447	Mini Nutritional Assessment, Iranian version of Short Form Health Survey and Iranian version of Geriatric	- Malnutrition in 35.4% of the participants - Lower scores of impaired nutritional status in the Short Form Health

				Depression Scale-15	Survey
Abedi et al. (2014) (23)	Comparison of the effectiveness of two traditional and electronic educational methods of healthy lifestyle for the nutrition of elderly	Quasi-experimental	n= 60	Not Reported	- Higher effectiveness in the electronic educational group (video) compared with the traditional group (book) (T=5.29) - Higher satisfaction in the electronic group (T=1.96)

Discussion

The current study discovered the factors that are effective in the alteration of nutritional status among Iranian elders. As well, an effective intervention to improve the nutritional status was reported. The role of demographic factors, self-efficacy, loneliness, and type of diet should not be underestimated.

One of the findings showed that Body Mass index (BMI) and nutritional status are related together. Other studies have also shown that malnutrition is associated with lower BMI.[24] It is proved that malnutrition mainly happens in individuals with lower BMI.[25] Despite the existence of a relationship between BMI and the risk of malnutrition in the elderly, this finding cannot confirm that body mass index is the only effective factor in the prevalence and risk of malnutrition. A set of demographic and contextual factors are relevant in the screening of malnutrition that should not be ignored.[25] For instance, the prevalence of malnutrition in the elderly is higher during hospitalization.[26] Factors such as age, gender, income, and education level have a significant relationship with the nutritional status of the elderly. For example, younger adults are less likely to be malnourished.[27] However, one of the included studies in this review showed the prevalence of malnutrition is lower in older adults.[14] Another included study proved that age is not correlated with nutritional status.[16] This is probably owing to the increased attention and care given to the elderly compared to the younger elderly. Hence, they are less likely to be malnourished. A study in Spain showed that malnutrition is lower in younger adults.[28] Meanwhile, it is claimed that Aging does not cause malnutrition by itself. Hence, aging is not a risk factor and it is the presence of many diseases and drugs during this period that can lead to malnutrition.[29] With regard to the differences in gender, it should be noted that the physical and mental performance of women diminishes in line with their aging. It is due to hormonal changes caused by menopause, sex discrimination related to culture or heavy physical activities, and mental pressure more than their capacities.[30] The findings of this review showed that ethnicity does not affect the level of malnutrition.[15] This finding is not in line with the findings of a study In Pakistan as the level of malnutrition varied from 18-30% based on the healthcare services.[31] Regarding educational level, the elders with academic backgrounds were less exposed to malnutrition. As well, illiteracy has been considered as a risk factor for malnutrition.[32]

The prevalence of malnutrition varied in the included studies. Similarly, other studies conducted in Iran showed that the level of malnutrition is 4.8%.[33] In another Iranian study, 19.6% of the elderly subjects were malnourished.[34] Another Iranian systematic review reported that the prevalence of malnutrition in free-living elderly is 3-10.6%. As

well, it was 3.2–53.6% in the Iranian nursing homes.[35] Meanwhile, the level of malnutrition is reported higher in other countries. For instance, it was reported that 20.8% of subjects were malnourished in Germany.[36] In this line, an Indian study showed that 17.9% of older adults were malnourished.[37] The variation in the assessment tools and demographic variables may lead to different rates of malnutrition.[38]

Another important finding showed that there is an inverse relationship between the feeling of loneliness and the nutritional status of the elderly. This is in line with the findings of another study which showed social isolation and subjective loneliness should be recognized as two risk factors for malnutrition in the elders.[39] As well, feeling alone can increase the rate of malnutrition in older adults.[40] It is because the experience of loneliness in the elderly increases vulnerability to stressors due to the reduction of physiological reserves, impairment in the ability to maintain homeostasis, and disorders in various parts of the body system.[41] However, a study showed that feeling loneliness is not associated with nutritional status. This study was conducted on the rural older adults and it is probably the reason behind this difference.[42] In this line, a systematic review proved that there is little evidence to confirm the effect of factors such as loneliness, physical activity levels, smoking, and psychological distress on nutritional status.[43] Additionally, another systematic review showed that there is no association between loneliness and malnutrition, which is not in line with the findings of the current study.[44]

Another important factor is related to food insecurity and the policies related to it. A study in Iran showed that food security should be a priority in policy decisions for vulnerable populations such as the elderly.[45] The prevalence of food insecurity in Iranian older adults has been reported 56.1%. Besides, depression was directly associated with food insecurity.[46] However, another study conducted on elderly people in Iran proved that the prevalence of food insecurity is 60.7%.[47] Factors such as lower educational level, lower income, residence in rural regions, and hypertension and lipid disorders.[48] Interventions such as food help, regular monitoring, increasing awareness, and insurance can be effective in controlling food insecurity.[49]

Limitations

Qualitative studies were not included in this study. Therefore, some other factors presented by Iranian older adults may be ignored. As well, there was no access to the full text of some articles. Although there were some limitations, many effective factors and an effective intervention were introduced for controlling the nutritional status of the elderly.

Conclusion

The elderly individuals with higher self-efficacy have an appropriate nutritional status. Demographic factors such as age, gender, marital status, and level of education are directly associated with nutritional status. The important role of type of diet cannot be underestimated. Meanwhile, taking advantage of various interventions can improve the level of nutritional status in older adults. Some studies also emphasized the effect of loneliness on malnutrition.

It is recommended to provide free services such as holding classes, monitoring nutritional status, and focusing on chronic conditions. As well, self-report tools can be effective in controlling nutritional status. Because most of the older adults are retired, social and governmental organizations play an important role in shaping and leading their nutritional status. In this regard, the related organizations should be involved.

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