Original Article

Adaptation of Practice Guidelines to Prevent Functional Decline in Hospitalized Elderly in Iran

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Abstract

Background: In Iran, many efforts have been made to improve the Quality of Life (QOL) of the elderly; however, despite the efforts made, there is no practice guideline based on the consensus of experts that can be used to prevent the functional decline of hospitalized elderly. Accordingly, the present study was conducted with the aim of adaptation of a practice guideline to prevent the functional decline of hospitalized elderly. **Materials and Methods:** This study is a developmental study based on the adaptation steps of the practice guideline. First, a search was conducted in 8 databases. The only practice guideline that met the inclusion criteria was then evaluated by the research team using the Appraisal of Guidelines for REsearch and Evaluation (AGREE II) tool. After content analysis of this guideline, the recommendations were categorized in the Canadian Senior Friendly Care (sfCare) Framework and according to the community conditions. Relevant evidence was used to supplement the content. The draft practice guideline was evaluated and modified in two expert panels through the RAND technique. **Results:** The categorized recommendations were developed in the eight chapters of introduction to the prevention of functional decline of the elderly, general practice guideline, organizational support, care processes, physical ecology, emotional and behavioral environment, ethics in care, and evaluation of function. **Conclusions:** To prevent functional decline in hospitalized elderly individuals according to the adaptive practice guideline, the hospital and health team need to be aware of support, care processes, and effective function appraisal to be able to provide care with coherent and coordinated solutions.

Keywords: *Functional decline, Aged, practice guideline*

Introduction

Reaching old age should be considered as one of the major human advances. The elderly undergo extensive physiological changes due to certain life conditions that may cause them some physical and mental disabilities.[1] Aging is a part of the natural process of human life and is a biological phenomenon; thus; it is normal and inevitable.[2] According to the standards of the World Health Organization (WHO), people aged 60 and over are called elderly.[3] In developing countries, the number of individuals aged 60 and over has risen from 382 million in 1980 to 962 million in 2017. The world's elderly population is expected to reach double the current population (2.1 billion) by 2050.[4] In Iran, the population aged 60 and over has increased from 6.2% (1,183,980 people) in 1956 to 9.3% (7,414,091 people) in 2016.[5]

Natural changes in the body of an elderly person cause inactivity and functional decline. Functional decline is a decrease in the ability to perform daily activities of life, which is recognized by changes in physical and cognitive function.[6] This loss of function is due to a decrease in the body's storage capacity in the elderly and exposes them to muscle wasting.[6] This inability to function is the result of the physical effects of illness, and lack of social, financial, and environmental support. In addition, the presence of various mental illnesses including cognitive disorders, delirium, and depression, and the use of various drugs increases the risk of functional decline in the elderly.[7] Another problem associated with the functional decline of the elderly is frequent hospitalizations.[8] Elderly individuals are hospitalized three times more often than younger people.[9] Approximately 10% of the elderly aged 65 and over are hospitalized annually.[10]

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According to the available evidence, the functional decline of the elderly is a challenge for the health care system, as most elderly people who are discharged from the hospital with a disability live alone and need continued help at home.[11] Numerous interventions have been proposed to manage the functional decline of the elderly.[12] An effective way to mitigate the challenges of the functional decline of the elderly is prevention.[13] Prevention of movement problems by minimizing the use of restrictive devices such as catheters and serum sets, encouraging and assisting regular daily mobility,[14] planning aerobic/strength/resistance/endurance/balance exercises, preventing elderly falls, familiarizing the elderly with the environment and equipment used, modifying the nutritional content and improving the serving conditions,[15] and continuous assessment of risk factors for falls[16] are essential measures in dealing with the functional decline of the elderly.

In studies conducted to prevent the functional decline of the elderly, the condition and physical environment of the hospital has also received much attention. The factors considered in this respect are creating a suitable Environment in the hospital, providing adequate lighting, using appropriate flooring,[6] appropriate equipment, and using clear signs.[14] Studies have also emphasized the maintenance of emotional, cognitive, and social health of the elderly because the socialization of the elderly, mental health, and high selfesteem are important signs in the health of the elderly.[6] Therefore, providing the elderly with opportunities to interact with other elderly individuals with similar conditions[15] and involving them in the design and implementation of daily activities is important.[16] Other measures can be performed to assess the ability of the elderly in order to assess their daily function, design an organized rehabilitation program with ongoing monitoring, and set short- and medium-term rehabilitation goals.[17,18]

Although many efforts have been made in Iran to improve the Quality of Life (QOL) of the elderly, the solutions provided do not have a comprehensive and codified plan and the health team does not receive care recommendations from a practice guideline. By accessing an native practice guideline based on the values and culture of the community and its current policies, a consensus can be reached on measures for the prevention of the functional decline of hospitalized elderly.[6] Accordingly, and considering the need for access to a native practice guideline to standardize the actions of and improve the knowledge of health system personnel, the present study was conducted with the aim of adaptation of the practice guideline to prevent the functional decline of hospitalized elderly.

Materials and Methods

This was a qualitative study with developmental study based on the steps of adaptation of the practice guideline.[19] The study was conducted from October 2019 to May 2020. A practice guideline was adapted in five stages to prevent the functional decline of hospitalized elderly individuals. In the first stage, electronic resources were searched in related databases [Table 1] by combining different keywords [Table 2]. The search found 238 articles and a practice guideline related to the subject. In the second stage, evidence was assessed based on the inclusion criteria, including the availability of the full English version, up-to-dateness (over the last 10 years), and the appropriate organization of content based on the objectives of the study. Accordingly, articles that we did not have free access to were excluded. Finally, 43 articles and a practice guideline were selected [Figure 1]. In the third stage, the "Best practice approaches to minimize functional decline in the elderly person across the acute, sub-acute and residential aged care settings" guideline was selected as the baseline practice guideline and was evaluated and approved by the research team using the Appraisal of Guidelines for REsearch and Evaluation Instrument (AGREE II).[20] The Senior Friendly Care (sfCare) framework was used in the structure of the practice guideline. The framework was developed by the Practice Epidemiology and Health Services Evaluation of Melbourne Health, Australia, in 2011 for use in geriatric hospitals and was updated in

Table 1: Search databases

Databases	Number of data
Agency for Healthcare Research and Quality	1
Guidelines International Network	1
The National Institute for Health and Care Excellence (NICE)	2
National Guideline Clearinghouse (NGC)	1
Scottish Intercollegiate Guidelines Network (SIGN)	1
Ministry of Health of New Zealand	1
IranDoc	2
Magiran	3
Elsevior	20
Springer	41
PubMed	67
Proquest	42
Scholar	57

Table 2: Combined keywords in systematic search

Keywords	Combination		
Practice guideline to prevention of functional decline in hospitalized older adults	"Hospitalization"	OR "inpatient"	AND "Functional decline"
	"Older adult"	OR "senior"	
		OR "aging"	
	"Prevention"	OR "control"	
	"guideline"	OR "Practice pathway"	
		OR "Practice guideline"	
		OR "Care plan"	

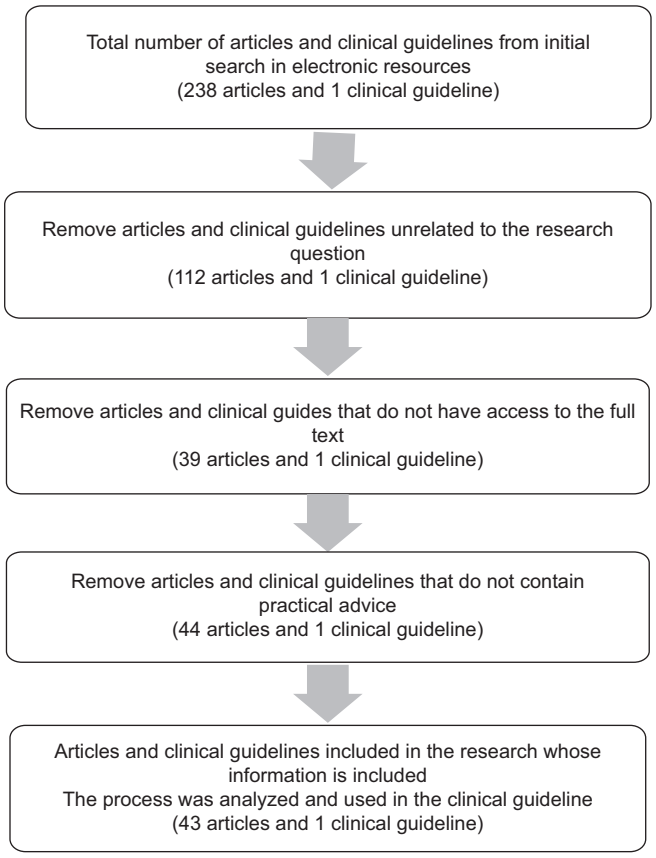

Figure 1: Systematic search matrix template for articles and texts

2017. The sfCare framework includes seven principles and 31 definition phrases in five areas of organizational support, care processes, physical environment, emotional and behavioral ecology, and ethics in practice care and research.[14] The sfCare framework domains were used as a basis for data categorization based on the management of elderly functional decline.

In the fourth stage, the content of the practice guideline was based on qualitative analysis. Content analysis was performed to supplement the recommendations on relevant evidence. The extracted recommendations were categorized into the five areas of the sfCare framework. In the fifth stage, the recommendations were evaluated in two expert panels of 15 specialists (physician and nurse) based on the RAND technique. This technique combines the best practice evidence with expert judgment to determine the appropriateness of a therapeutic care approach that assesses the usefulness of interventions. Based on this, the recommendation receives a score between 1 and 9. A score of 1–2.9 indicates disagreement, 3–6.9 indicates relative agreement, and 7–9 indicates complete agreement of experts on the options.[21] Recommendations that did not receive an appropriate score (7–9) from the experts in terms of usefulness, clarity, relevance, and applicability based on the conditions of Iran were replaced with the suggested options and were re-evaluated in an expert panel. Then, the final classification was done.

Ethical considerations

This study has been approved by the ethics committee of Isfahan University of Medical Sciences, Iran (IR.MUI.RESEARCH.REC.1398.306). Informed consent was obtained from the expert panel members. In all sections of the study, reference was made to the baseline practice guideline and the evidence used.

Results

The practice guideline, entitled "Best practice approaches to minimize the functional decline in the elderly person," was the only practice guideline found in the search as evidence. Relevant evidence and other practice guidelines available on functional impairment in the elderly were used to supplement the recommendations. This guideline was developed by the Regional Geriatric Programs (RPGs) in 2004. Recommendations for this practice guideline are derived from 281 practice trials, meta-analyses, and observational studies that have been evaluated for quality and provided with sufficient evidence, and each recommendation is referred to the relevant source. Recommendations were also approved by the expert panel.[6] One complementary practice guideline was the Preventing Falls and Reducing Injury from Falls Practice Guide, developed by the Ontario Nursing Society, which provides advice on preventing falls and reducing injuries in the elderly. This guideline covers only one of the five areas of prevention of performance decline in the elderly, and thus, could not be used as a basis in this study.[17]

In the qualitative content analysis of practice guidelines and related evidence, 172 codes (recommendations) were extracted into five categories. After reviewing in two expert panels, 19 recommendations were removed because the received a score between 1 and 2.9 on the RAND scale from the panel of experts. Accordingly, the adaptive Practice Guideline was designed in eight chapters. The main recommendations in the guideline are summarized in Table 3.

1. **Introduction to preventing functional decline of the elderly**
   - Changes in old age, decreased performance in the elderly, hospitalization in the elderly, the importance of preventing poor performance among the hospitalized elderly
2. **General practice guideline**
   - Application, target users, and objectives of the practice guide
   - Importance and necessity of localization of practice guidelines
   - How to localize a practice guide
   - Concepts related to practice guidance

Table 3: Most adaptive practice guideline recommendations

Organizational support
Support, improved quality and, performance of the elderly
Caring and support of the elderly as an organizational priority
At least one elderly-friendly caregiver in the hospital
Implementation of standards and indicators related to elderly care
Training of the health team in interventions related to functional decline
Access of the health team to the practice guideline to prevent functional decline
Care processes
Prevention of movement problems
Minimize bed rest time
Minimize the use of restrictive devices such as catheters and serum sets
Encourage and help with regular daily mobility
Easy access to mobility aids
Avoid using restrictive drugs as much as possible
Pain relief as a barrier to mobility
Planning to do aerobic exercise
Preventing the elderly from falling
Continuous assessment of risk factors for falls
Elderly vision assessment and, if necessary, referral to a specialist
Suitable ambient light at night
An aware presence at the elderly bedside
Familiarize the elderly with the environment and equipment needed
Evaluation of side effects of drugs used by the elderly in terms of drowsiness
Improving the nutritional content and improving the serving conditions
Provide sufficient fluids according to the patient's condition and according to the doctor's opinion
Provide adequate food in accordance with the elderly's taste and doctor's instructions
Daily review of NOT PER ORAL orders and revision of the elderly diet
Include snacks between main meals
Intervention in side effects that reduce appetite
Intervention to relieve nausea
Improve the position and place of serving food
Physical environment
Creating a suitable hospital structure to support the safety of the elderly
Use suitable flooring to prevent light reflection
Insert large entrance doors
Check the correct operation of the flat brakes
Adjust the appropriate height for the bed
Provide a bedside chair with a suitable height
Considering the appropriate equipment to create comfort
Adjust the serum base and attachments to a suitable position
Check the safety status of restrictors or flat railings
Existence of suitable equipment such as a stool to get out of bed
Put the right slippers next to the bed
Make alarm available
Consider appropriate equipment to create sensory comfort
Use signposts clearly
Provide adequate lighting

Contd....

Table 3: Contd...

Use visual aids and hearing aids
Reduce noise through reduction of use of flat-top pagers, use of headphones and earphones
Emotional and behavioral environment
Help maintain social interactions
Shorten the isolation time of the elderly if possible
Use interactive resources such as the presence of friends and relatives
Plan for family members to be present at the elderly bedside at appropriate times
The physical presence of health team members at the elderly bedside without intervention and only to visit and talk to the elderly
Involve the elderly in the design and implementation of activities
Use soothing speech, such as complimenting the elderly person on his or her preferences during care
Listen empathetically to the elderly
Refer the elderly individual to a psychologist to discover their concerns and express their feelings
Teaching the elderly to use communication devices such as mobile phones and the Internet
Help maintain independence in selfcare
Assess the needs of the elderly with the support of the elderly and family
Elderly physical assessment to assess daily functioning ability
Set short-term and medium-term rehabilitation goals before discharge
Encourage the elderly to do personal or independent work, if possible
Encourage the elderly to be creative in selfcare, such as putting essential items in a handbag to reduce dependency
Education on how to use drugs, their side effects, and medication care
Provide the necessary training on selfcare methods such as monitoring blood sugar and blood pressure at home and receive feedback from the elderly to manage the situation
Training to work with various devices, including blood sugar control device and blood pressure monitor
Provide the necessary training on the consumption of appropriate food groups at home to prevent weakness
Provide training on strength and balance exercises to the elderly
Designing the living environment of the elderly in accordance with his abilities, including placing handles, ramps, tables and cabinets with appropriate height and .
Follow up on the rehabilitation needs of the elderly 2-3 months after discharge from the hospital
Ethics in care and research
Respect for the individual independence of the elderly
Provide decision-making opportunities for the elderly in choosing treatment/palliative options
Assess the full awareness of the elderly and obtain an informed consent from them
Introducing the right of autonomy to the elderly and the effect of using it on increasing the efficiency of treatment
Telling the truth to the elderly about the condition and prognosis of the disease
Benefits of the care and treatment of the elderly
Feeling responsible for the elderly
empathetic dialogue with the elderly
Lack of harm in care and treatment of the elderly
Evaluation of side effects of drugs used by the elderly in terms of drowsiness and the possibility of falls
Assess the patient's interest in receiving education
Refraining from research or treatment activities that do not benefit the elderly or impose unnecessary suffering on them
Observe justice in the care and treatment of the elderly
Lack of age-related discrimination in the care and treatment of the elderly
Fair distribution of health resources and services

- Familiarity with the content of the practice guide and how to use it

3. Organizational support

- Support, improvement of the quality of that, and improvement of the performance of the elderly

4. Care processes

- Prevention of movement problems
- Prevention of the elderly from falling

- Improvement of the content of the food provided and serving conditions

5. **Physical environment**
   - Creating an appropriate hospital structure to support the safety of the elderly
   - Considering appropriate equipment in order to create mobility for the elderly
   - Considering appropriate equipment to create sensory comfort for the elderly
6. **Emotional and behavioral ecology**
   - Helping them maintain social interactions
   - Helping them maintain independence in selfcare
7. **Ethics in care and practice research**
   - Respect for the individual independence of the elderly
   - Benefits of the care and treatment of the elderly
   - Lack of any harm in the care and treatment of the elderly
   - Observing justice in the care and treatment of the elderly
8. **Evaluation of the functional decline of the hospitalized elderly**
   - Application of the performance evaluation formula for hospitalized elderly.

Discussion

In the present study, an adaptation of the practice guideline to prevent the functional decline of the hospitalized elderly was performed. Considering that the results of this study will be useful in improving function in elderly-friendly hospitals, the draft practice guideline was based on the sfCare framework in five areas. The first area was organizational support. This area was classified as supporting hospitals, organizations, and associations, improving the quality of that and improving the function of the elderly. The implementation of standards and indicators of elderly care, the use of interdisciplinary cooperation, the training of the health team in interventions related to the functional decline of the elderly, which were considered in this study, have been emphasized in several practice guidelines and studies on staff training.[16,22,23]

The second area was care processes. This area was divided into the sections of prevention of mobility problems, prevention of falls, and modification of nutritional content and improvement of food serving conditions. Beauchamp *et al*.[24] also noted the importance of regular aerobic activity and short-term exercise programs in reducing the risk of functional limitations and disability in old age. Moreover, physical activity and improving muscle strength by reducing the risk of falls in the elderly was effective in preventing their functional decline.[16] In the study by Volkert, the relationship between nutrition and muscle mass, strength, and effective physical function was reported.[25]

The third area was emotional and behavioral ecology. This area was divided into the two parts of helping to maintain social interactions and maintaining independence in elderly selfcare. Other practice guidelines include shortening the isolation time of the elderly, providing opportunities to interact with other elderly individuals with similar conditions,[15] and involving the elderly in the design and implementation of activities.[17] They also emphasize the involvement of the elderly in the design and implementation of activities and the setting of short- and medium-term rehabilitation goals with the elderly individual's family before discharge to return to daily activities.[18]

The fourth area was ethics in practice care and research. This area was divided into the four sections of respect for individual independence, profitability in care and treatment, nonharm, and observance of justice in the care and treatment of the elderly.[26] Abbasi *et al*.[27] also emphasized the provision of services based on health needs regardless of race, religion, gender, or financial ability of the elderly, as well as behavior appropriate to the conditions and needs of the elderly.

The fifth area was physical environment. This area was classified into the three sections of creating a proper structure in the hospital, appropriate equipment to provide sensory comfort, and mobility of the elderly. Other studies have considered the role of appropriate structure and equipment in preventing falls and functional decline in the elderly,[16,22] the results of which are consistent with the findings of this study.

After evaluating and summarizing the opinions of experts based on the RAND technique, an adaptive practice guideline was developed. Bell *et al*.[21] also described the agreement method as a very good approach for measuring the quality of care in medical centers, especially in areas where high-quality evidence is not available. In analyzing the opinions of experts, some of the recommendations in the area of organizational support were questioned in terms of feasibility. Factors such as lack of necessary infrastructure, funding, and prioritization of actions by CEOs were effective factors in these doubts. In the study by Munn and Qaseem, organizational and cultural differences, the introduction of specialized disciplines in the provision of health services, the need for multiple resources, individual characteristics of health care providers, beliefs and values of the target population, acceptance of recommendations by health care workers and patients have been mentioned as determining factors in the ability to apply the recommendations of practice guidelines,[28] which is in line with the present study findings. One of the limitations in the present study was the omission of some evidence due to the lack of access to the full text of some articles and practice guidelines. It is recommended that the adaptive practice guideline be piloted and updated in future studies.

Conclusion

Due to the increase in the elderly population, and consequently, the increase in their hospital visits, it is

necessary to pay special attention to the problems of their functional decline. There is much potential in hospitals, and changes can be made in the way support and care are provided to help prevent the functional decline of the elderly. In this regard, due to the lack of adequate training of health system staff and lack of access to an adaptive practice guideline that can provide consistent and coordinated recommendations to prevent the functional decline of the hospitalized elderly, the need for this practice guideline was revealed. In this study, an adaptive practice guideline was developed and it is hoped that it will increase the awareness of and improve the performance of health system staff in order to prevent the functional decline of the hospitalized elderly.

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Conflicts of interest

Nothing to declare.

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