

Identifying the Factors Affecting Integrated Care of the Elderly in Iran

Identificación de los factores que afectan la atención integral de las personas mayores en Irán

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Abstract

Objective: The aging of the population has created profound challenges in the economic, social, and health fields, which require to be addressed by elderly care, which varies from country to country both in terms of concentration and method of implementation. This study aimed to identify the factors affecting integrated care for the elderly in Iran.

Methods: This study was an applied study that was performed in combination (qualitative and quantitative). The qualitative part was to compare the condition of old-age care in selected countries of the six regions of the World Health Organization by comparative studies with interviews with 31 health experts, and the quantitative part was to evaluate the old age care program in Iran by a questionnaire between 200 experts and health specialists. Data were analyzed by SPSS21 and LISREL software..

Results: Quantitative analysis of the items showed that the executive management dimension had the highest average with an average of 4.12 and the service provision dimension had the lowest average with an average of 2.26. By exploratory factor analysis, data adequacy (KMO) was equal to 0.983. The amount of common variance between one variable and other variables used in factor analysis was examined whose square of multiple correlations of all items with q1 was equal to 0.532.

Conclusion: The results of the confirmatory factor analysis showed that all dimensional variables were confirmed; therefore, managers and policymakers can make the best decisions by creating an integrated model of aging.

Keywords: Health care delivery, Integrated; Aged, Comparative study.

Resumen

Antecedentes: El envejecimiento de la población ha creado profundos desafíos en los ámbitos económico, social y sanitario, que requieren ser abordados por la atención a las personas mayores, que varía de un país a otro tanto en términos de concentración como de método de aplicación. Este estudio tenía como objetivo identificar los factores que afectan a la atención integrada a las personas mayores en Irán.

Métodos: Este estudio fue un estudio aplicado que se realizó de forma combinada (cualitativa y cuantitativa). La parte cualitativa consistió en comparar el estado de la atención a la tercera edad en países seleccionados de las seis regiones de la Organización Mundial de la Salud mediante estudios comparativos con entrevistas a 31 expertos sanitarios, y la parte cuantitativa consistió en evaluar el programa de atención a la tercera edad en Irán mediante un cuestionario entre 200 expertos y especialistas sanitarios. Los datos se analizaron con los programas SPSS 21.0 y LISREL.

Resultados: El análisis cuantitativo de los ítems mostró que la dimensión de gestión ejecutiva tenía la media más alta, con una media de 4,12, y la dimensión de prestación de servicios tenía la media más baja, con una media de 2,26. Mediante el análisis factorial exploratorio, la adecuación de los datos (KMO) fue igual a 0,983. Se examinó la cantidad de varianza común entre una variable y otras variables utilizadas en el análisis factorial, cuyo cuadrado de las correlaciones múltiples de todos los ítems con q1 fue igual a 0,532.

Conclusiones: Los resultados del análisis factorial confirmatorio mostraron que todas las variables dimensionales se confirmaron; por lo tanto, los gestores y los responsables políticos pueden tomar las mejores decisiones creando un modelo integrado de envejecimiento.

Palabras clave: Prestación de asistencia sanitaria, integrado, envejecimiento, estudio comparativo,

Introduction

The increase in the world's elderly population, especially in developing countries such as Iran, is undeniable¹. Population aging is a process known as population transfer in which mortality and fertility rates decrease and life expectancy increases². Advances in medical knowledge have enhanced the average life expectancy of humans. In developing countries, population aging is occurring more rapidly, and it is predicted that by 2050, 80% of the world's elderly will be concentrated in developing countries³. According to the Eastern Mediterranean Office, in 2025, the elderly population will increase to 8.7% and by 2050 to 15% of the region's total population. The elderly population in Iran will reach more than 10% by 2025 and about 21.7% by 2050⁴.

Despite the increase in the elderly population and the country's changing demographic pyramid, it is still not focused on the needs of this vulnerable group of society, and in-depth studies are felt on their needs⁵. Therefore, planning in this field should be one of the priorities of health policymakers. It must also be acknowledged that population aging poses profound economic, social, and health challenges that require a change in existing structures⁶.

The current situation of the population of Iran is such that the population has changed from the explosive situation of the child population to the increase of the elderly population. Psychological problems caused by aging cause anxiety and depression as well as feelings of inefficiency and uselessness in the elderly⁷⁻⁹ along with physical problems¹⁰; in this period, the person is isolated, and his social relations are reduced, and in general, it causes many changes in the lifestyle of this group¹¹. Meanwhile, in most societies, the elderly are at the most significant risk of diminishing physical, mental, and cognitive abilities and are more likely to rely on formal or informal support to maintain health, performance, and self-sufficiency^{12, 13}. Old age is associated with chronic and costly diseases. Studies show that the average number of visits to the elderly by doctors is three times, and the number of hospitalizations is five times higher than the number of non-elderly people¹⁴.

Public insurance and the provision of integrated hospital services have improved the satisfaction and quality of life of the elderly with several chronic diseases¹⁵. A study examining health policy trends for the elderly in three European countries, France, the United Kingdom, and Sweden, found that integrated government insurance systems, such as those in Sweden, could design a coherent health model for quality care and improvement. The lives of the elderly are practical¹⁶.

The purpose of the elderly health program is to ensure, maintain, and promote the health of the elderly¹⁷.

Additionally, this program seeks to increase the level of awareness and skills of elderly service providers and increase awareness and coverage of elderly health services. In this regard, strategies such as providing comprehensive health-oriented services (prevention, early diagnosis), control of interfering risk factors at the individual level, and training and counseling are utilized to improve behavior and lifestyle^{18,19}. The World Health Organization (WHO) considers supporting research and education in aging and community care as a basic principle for the new strategy¹⁶.

It is necessary for those involved in the health system to pay serious attention to the aging population and take the necessary measures to face this inevitable fact²⁰. Studies on the health needs and quality of life of the elderly have been conducted in the form of integrated models of the elderly in different countries globally, all of which indicated that meeting health needs increases the quality of life in the elderly population²¹⁻²⁷.

In Iran, although some research studies have been conducted in the field of health care for the elderly, the provision of appropriate models that improve the health indicators of the elderly has been neglected. Therefore, this study aimed to improve the health of senior citizens (elderly) and organize the country's existing health services to study the integrated care of the elderly in selected countries of the six regions of the WHO and provide a model for Iran.

Materials and methods

This study is an applied study conducted in two parts, qualitative and quantitative, in 2019. The qualitative part was employed to compare the status of geriatric care in selected countries of the six regions of the WHO by comparative studies, and the quantitative part was used to evaluate the elderly care program in Iran using a questionnaire.

The qualitative part was performed in three stages. In the first stage, to identify and collect the elderly care program's patterns, the components and factors affecting elderly care in Iran were purposefully studied. Internal and external databases such as Irandoc, Science direct, Iranmedex, Medline, PubMed, Scope, Elsevier, etc., search engines such as Scholar Google, official reports, as well as searching for reputable organizations in this field (NHS, WHO, AHRO, ICAHO) and other documents were reviewed. After ensuring the findings' saturation, using the content analysis method, the findings were coded, classified, and concluded. Finally, the results were collected in a matched manner in the matching matrix, and the variables affecting the geriatric care program were identified. By classifying these variables, the conceptual model of this research

includes seven components (organizational structure, how to provide human resources, financing, equipment procurement, executive management, how to provide services in selected countries, and service package in selected countries) to perform the next steps on which the research was set up.

In the second stage, comparative studies were conducted, and the countries were selected from the six regions of the WHO which had a successful geriatric care program in the health system. To this end, first, by referring to the latest statistics and information published by the WHO to examine the indicators and health data of countries, including high life expectancy, high elderly population, aging mortality rate, having integrated aging care models, leading in the provision of geriatric services, and availability of information as well as six countries from six regions were selected as selected countries. Finally, an adaptive matrix was formed to identify the variables.

In the third stage, the Delphi technique was surveyed and performed by experts on the model obtained from comparative studies, and then the theoretical model was modified and revised according to experts' views. In this regard, 35 experts were purposefully selected from 31 provinces of the country.

A small part of this study was conducted to investigate the factors affecting Iran's integrated geriatric care program. For this purpose, the questionnaire of the

integrated geriatric care program components was first designed and validated using the identified quality factors. The prepared questionnaire was then distributed among experts and health specialists in geriatrics, and the dimensions of the integrated geriatric care model were determined using exploratory factor analysis. At this stage, 200 experts and health specialists in geriatrics were randomly selected from 31 provinces.

Finally, the completed questionnaires were entered into SPSS21 software to perform exploratory factor analysis. After confirming/eliminating the practical factors, the obtained data were entered into LISREL software to perform confirmatory factor analysis, extract the mathematical model, and test for better fitting and modeling.

Results

First, by comparing the comparative studies of each dimension of integrated care for the elderly in seven selected countries, including the United States, Japan, Thailand, Egypt, the United Kingdom, South Africa, and Iran. Then, the content analysis by Scott's method was utilized to investigate the practical and essential factors in the integrated care for older people (ICOPE) with a survey of experts (**Table I**). The William Scott formula calculated the reliability of the questions in **table I**, and the agreement coefficient was 85%.

Table I: Practical and essential factors in integrated care of the elderly with a survey of experts.

Factors affecting integrated care for the elderly	Indicator	Confirmation	Practical	Result-oriented	Interactive	Comparative	Predictor	Practical	Total
Does executive management help integrated geriatric care?	Frequency/Percentage	22.63	11.20	7.63	23.27	13.41	22.96	14.95	91.33
Does funding help integrated care for the elderly?	Frequency/Percentage	43.71	29.19	52.22	34.17	52.26	18.15	24.30	93.62
Does the organizational structure contribute to integrated care?	Frequency/Percentage	38.83	19.75	26.57	29.19	37.20	19.59	36.37	91.43
Does the provision of equipment contribute to the integrated care of the elderly?	Frequency/Percentage	48.17	29.22	35.90	29.15	41.32	32.70	29.40	90.21
Does human resource provision contribute to integrated geriatric care?	Frequency/Percentage	28.77	27.16	29.08	36.19	39.85	29.12	28.29	96.30
Does providing services help integrated care for the elderly?	Frequency/Percentage	15.63	19.14	16.33	13.17	18.29	17.75	14.30	90.61
Does the service package help with integrated geriatric care?	Frequency/Percentage	11.69	12.32	11.29	13.10	8.44	16.63	12.03	89.50

By analyzing the quantitative findings of the data obtained from the experts' questionnaire, the results indicate that the executive management dimension had the highest average with an average of 4.12. The service provision dimension had the lowest average with an average of 2.26 (Table II).

Table II: Mean of indicators (dimensions) after exploratory factor analysis.

Dimensions	Experts	
	Mean	SD
Organizational Structure	2.2635	0.9632
Human Resources	3.8242	0.0362
Executive Management	4.1258	0.0236
Providing Services	2.2653	0.2051
Financial Resources	3.8061	0.1212
Service Package	3.1120	0.5241

To initiate the stage of exploratory factor analysis, the adequacy of the data was first measured. The KMO value was equal to 0.983, whose high rate indicates the data for classification. Bartlett test and its corresponding level of significance show that the data matrix is not a single matrix of correlation between variables. The data are capable of factor analysis (Table III).

Table III: Bartlett and KMO test.

Kaiser Meyer criterion for sample volume adequacy		0.983
Bartlett test	Chi-squared	95230.232
	Degrees of freedom	12675
	P-Value	0.000

The share of each item was calculated by combining all items linearly. The amount of common variance

between one variable and other variables used in factor analysis has been examined. This analysis indicates that the square of the multiple correlations of all items with q1 is equal to 0.532.

After factor analysis and rotation by the Varimax method, six factors were finally identified. The first factor's eigenvalue is equal to 14.225, and the sixth factor is equal to 6.854. The share of factors in explaining variance is descending, i.e., the first factor with 14.902 has the largest share in explaining variance. Meanwhile, the sixth factor with 365.7%, had the lowest share in explaining the variance, so that the six extracted factors can explain a total of 67.321% of the variance of the variables.

After determining the optimal number of factors from the set of factors, using the factor load values after rotation, items were categorized in the extracted factors. For this purpose, only variables whose factor load is higher than 0.3 were considered. Then, the content validity of the variables that make up each of the factors (dimensions) was extracted, and the factor, mean, and standard deviation of the respondents' opinions for the items of each dimension were obtained. Table IV below shows the fit indices of each dimension.

Based on the findings in table IV, the set of fit indicators shows that the collected data generally supports the service package's service structure dimension. Table V shows the confirmatory factor analysis statistics in all dimensions affecting the implementation of integrated care for the elderly in Iran.

Table IV: Mean of indicators (dimensions) after exploratory factor analysis.

Variable	Chi-Squared Relative	P-Value	CFI	NFI	PCFI	RMSEA
Organizational Structure Dimension (First Factor)	19.03	0.122	0.951	0.937	0.817	0.074
Human Resources Dimension (Second Factor)	36.59	0.260	0.959	0.949	0.776	0.041
Financial Resources Dimension (Third Factor)	12.40	0.490	0.987	0.982	0.599	0.000
Executive Management Dimension (Fourth Factor)	11.44	0.530	0.977	0.969	0.711	0.061
Providing Services Dimension (Fifth Factor)	3.870	0.690	0.976	0.970	0.692	0.000
Service Package Dimension (Sixth Factor)	10.61	0.220	0.990	0.985	0.613	0.062

Table V: Confirmatory factor analysis statistics in all dimensions affecting the implementation of integrated care for the elderly in Iran.

Variable	Abbreviation	Parameter Estimation	Impact Factor	P-Value	T-Value	Skewness
Providing Services	V	0.703	0.684	0.000	20.15	0.48
Financial Resources	P	1.000	0.742	0.000	27.53	0.22
Executive Management	D	0.812	0.832	0.000	25.79	0.33
Organizational Structure	R	1.017	0.715	0.000	21.60	0.47
Service Package	M	0.723	0.707	0.000	19.92	-0.17
Human Resources	K	0.771	0.800	0.000	18.07	0.22

Table VI: Fitness indices of the model confirming the pattern of integrated care for the elderly in Iran.

Fit Indicators	Criterion	Values Obtained	Model Fit
Chi-Squared	A lower value of this indicator indicates that the model is more suitable	12563.115	----
P-Value	More than 0.05	0.000	Not Suitable
Chi-Squared Relative	Between 2-5	4.163	Suitable
RMSEA	Less than 0.08 and preferably less than 0.05	0.028	Suitable
CFI	More than 0.9	0.927	Suitable
NFI	More than 0.9	0.945	Suitable
PCFI	More than 0.6	0.661	Suitable

The findings in **table V** show that all model paths based on scale items in the domains are significant, and these values range (T-Value) from 18.07 to 27.53. Also, the executive management factor with a coefficient of 0.832 has the most impact, and the service delivery factor with a coefficient of 0.684 has the lowest weight in the implementation of integrated care for the elderly in Iran.

According to **table VI**, the set of mentioned indicators shows that the model fit was appropriate. Therefore, according to the fit indices of the whole model, it can be mentioned that the above factors can be named as practical factors on the integrated care model of the elderly in Iran. Finally, a confirmatory factor analysis of the integrated care model for the elderly in Iran was performed (**Figure 1**).

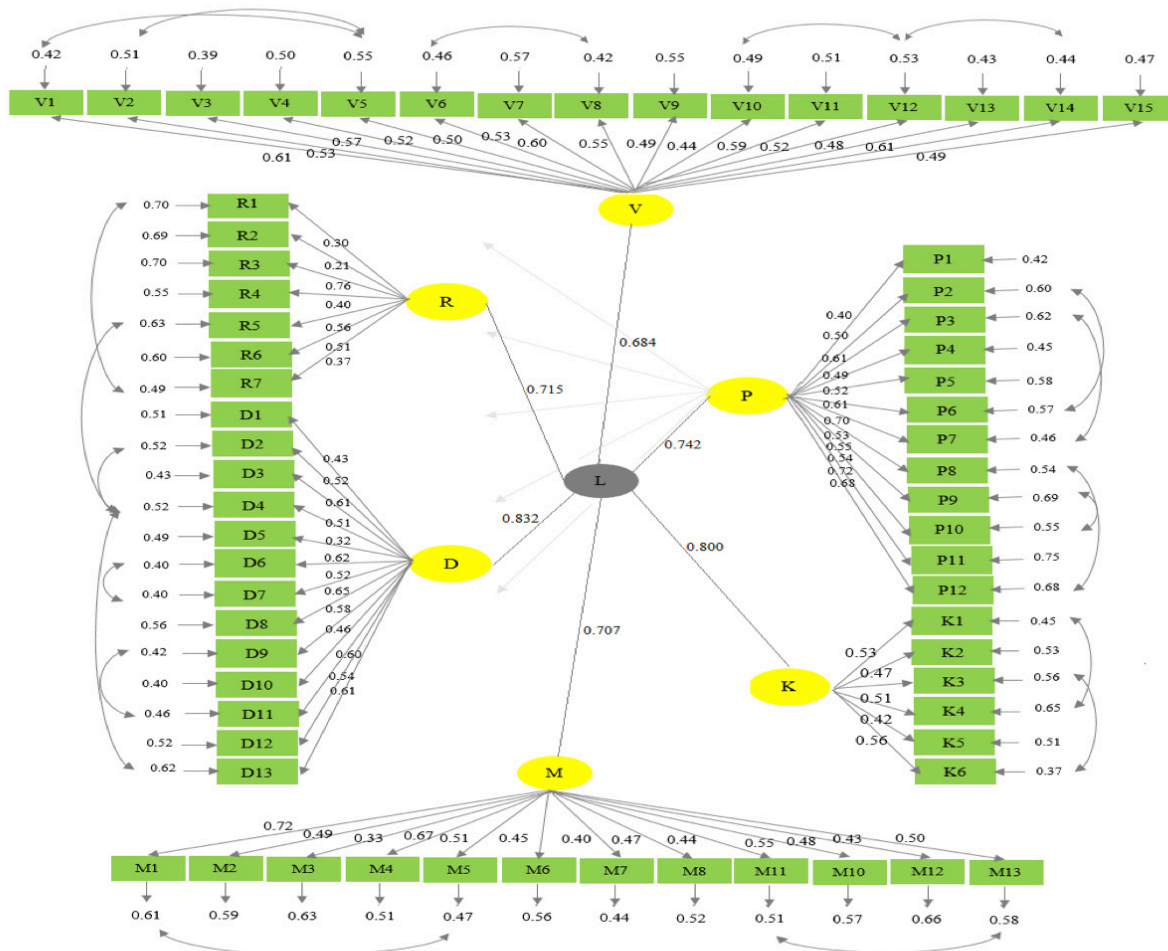
Discussion

Based on the results, the proposed model of this research was extracted and finalized in six stages. In the sixth stage, to validate and extract the final model, the exploratory factors obtained from the fifth stage, using

LISREL software, confirmatory factor analysis method, validation, and final study pattern, were confirmed. Finally, 65 selected variables were loaded on six main dimensions, which formed the final model of integrated care for the elderly in Iran. These dimensions include executive management dimension (0.832), human resources dimension (0.800), financial resources dimension (0.742), organizational structure dimension (0.715), service package dimension (0.707), and service delivery dimension (0.684), respectively.

Pourhadi stated the importance of organizational structure and highlighted how people deal with old age and disability, and dependence in this period has an essential role in caring for them²³. Safdari et al. also stated that in Iran, the executive bodies and institutions responsible for the elderly, within the scope of their current duties and allocated funds, take measures to protect the elderly. However, these measures do not seem to be sufficient²². Rahimi identified five main categories of experience-based services for the elderly. These five categories, including market management, inadequate structure

Figure 1: Factor analysis model and integrated care items for the elderly in Iran based on standardized coefficients..



for care, insufficient resources of care and conflicting environment, maintenance instead of care, peaceful coexistence, and low expectations of the elderly, have been achieved²⁸. In line with this study, these studies have highlighted and discussed the organizational structure dimension. After exploratory factor analysis, confirmatory factor analysis was performed on the loaded variables in the organizational structure dimension. The results of the confirmatory factor analysis also showed that the variables of this dimension were all confirmed. Today, one of society's key issues is developing a suitable organizational structure for the elderly. There are several approaches to an organizational structure whose advantages and disadvantages should be considered.

The human resources component has also been extracted and considered in this study. Samaram Amin Aghayi, in this regard, also states that in Iran, industrial development is still moving alongside traditional culture. Thus we need economic and cultural contexts to use resources, especially human resources, in inclusive support programs²⁹. Analysis of the present study's findings indicates that the use of human resources in integrated geriatric care should train family members or elderly caregivers, and periodic training should be provided to general practitioners, nurses, and geriatricians. Also, organizational resource planning is a crucial indicator of integrated care for older people (ICOP).

Financial resources are essential because the resources available in geriatric health care are scarce, but their demand is continuously increasing. The non-payment of insurance claims has faced many problems in the health sector³⁰. Shoaei and Nejati consider the existence of a strong and diverse social security system in the United States to be the most prominent finding in comparing the two aging systems in Iran and the United States³¹. The financial resources of the variables of this dimension were all approved, and since the main problem in providing health care services lies in its economic problem, and the centers providing health care services are one of the most essential and costly units in any country, the need for health insurance is required with a wide range of insurance policies.

Studies have shown alignment with the results of this study in terms of executive management. Samaram and Amin Aghayi, in a study, stated that that the most essential reason to present administrative policies in Iran is the limitations of facilities in supporting the elderly²⁹. Eamer et al. also mentioned that improving executive management will reduce the length of recovery and hospitalization and reduce treatment costs²⁴. The results of the confirmatory factor analysis show that the variables of this dimension were all confirmed. According to the results of similar studies and in line with the present research, it can be stated that empowerment and self-efficacy of the elderly, social support programs, collection of demographic data on the elderly, adaptation of the elderly home environment,

telemedicine, city and pharmacy in the elderly and coordination between elderly health-related organizations are among the activities that should be considered in executive management and well-considered in strategic and operational planning for the elderly.

In terms of providing services based on need assessment, the need for the elderly has had the most significant impact. The results of the confirmatory factor analysis also showed that the variables of this dimension were all confirmed. Asefzadeh and Ghodoosian stated that the greatest need of the elderly in the care of cardiovascular diseases, surgeries, infectious and internal and eye diseases that need to be considered before organizing services³². Spoorenberg et al. also stated that to measure the effectiveness of service delivery, it is important to measure the how of using health services, costs, and quality of care²⁷. According to what was stated, first, the needs of the elderly should be identified, and then based on the needs, various resources, including human, economic, and physical, should be provided. Furthermore, appropriate software, including the structure and executive management, should be considered and designed based on experts' views.

In the service package component, screening tests and examinations for communicable diseases of the elderly had the highest factor, but the variables of this dimension were all approved. In all studies, there has been a strong emphasis on identifying types of services. Veras et al. stated that geriatric services include prevention, treatment, rehabilitation, long-term care, and palliative care, which were identified after comprehensive assessments of the elderly²⁶. Spoorenberg et al. also identified four key elements: self-management support, service delivery system design, decision support, and clinical information systems for integrated geriatric care²⁷.

Conclusion

According to the findings of the study, all dimensions were confirmed. Therefore, among the practical solutions, according to the designed model, it is possible to formulate an appropriate organizational structure according to the needs assessments; utilization of human resources in integrated geriatric care with the benefit of family members or home caregivers, periodic training of general practitioners, nurses and geriatricians, organizational resource planning as critical indicators of integrated geriatric care, empowerment and self-efficacy of the elderly, creation Social support programs, collection of demographic data on the elderly, adaptation of the elderly home environment, telemedicine, city and pharmacy friendly to the elderly, coordination between organizations related to elderly health, needs assessment including human, economic and physical resources and development of appropriate software including the structure and executive management.

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