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Primary health care management model for the elderly in Iran

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Abstract

Objectives: The objective of this study is to develop a model for managing primary health care (PHC) services for the elderly in Iran.

Methods: This study consists of four main steps. Firstly, comparative research was conducted by reviewing literature and analyzing content from the top 10 countries ranked in the Global Age Watch Insights 2018. Secondly, a questionnaire was developed using items extracted from experts' opinions, which were evaluated for content validity ratio (CVR) and content validity index (CVI). Thirdly, a cross-sectional survey was conducted with 248 participants from April 8th to July 14th, 2021, and the reliability of the data was analyzed using Cronbach's alpha coefficient. Lastly, Bartlett's and KMO tests, the Varimax method, and exploratory and confirmatory factor analysis were applied to select and arrange the items and main themes of the model. The analyses were performed using SPSS version 21 and AMOS 24 software.

Results: The comparative research and literature review yielded a total of 70 items for the model. Through content analysis, CVI, and CVR, the number of items was reduced to 52. After conducting reliability analysis using Cronbach's alpha (0.934) and exploratory and confirmatory factor analysis, the final model consisted of 48 items and five main themes: planning, organization, control, financing, and coordination.

Conclusion: The findings indicate that the designed model has good construct validity. Therefore, managers, policymakers, and health planners can utilize this model for the planning, development, and improvement of PHC services for the elderly.

Keywords: Elderly, Primary Health Care, Management, Construct Validity, Factor Analysis.

Introduction

The quality of healthcare services has improved worldwide, resulting in longer and healthier lives for individuals.[1] However, this has also led to a faster-aging population, particularly in countries such as Iran.[2,3] In Iran, the elderly population is growing at a faster rate than other age groups[4] and is projected to make up 22% of the population by 2050.[1] This could potentially create a demographic crisis for the country,[1] as birth rates have decreased due to various factors.[4] The issue of population aging is a global concern that requires immediate attention.[5,6] The elderly population is more susceptible to physical and mental health issues, and proper care and management are necessary for this natural and inevitable process. Preventive care and specialized services for the elderly are crucial, as they face higher healthcare costs and risks.[5,6]

Different countries have developed various models and approaches to provide primary care for older adults. In the United States, two models that focus on personalized, coordinated, and comprehensive care are the patient-centered medical home (PCMH) and the Program of All-Inclusive Care for the Elderly (PACE).[7,8] In Canada, the Seniors Community Hub brings together primary care providers, specialists, and community organizations to offer integrated and convenient care for older adults with complex needs.[9] Australia has the Comprehensive Primary Care Plus (CPC+) model, which supports primary care practices in improving the quality and patient-centeredness of care for older adults and others through enhanced payment, data feedback, and learning support.[10] In the United Kingdom, the Integrated Care System (ICS) forms partnerships among primary care networks, local authorities, hospitals, and other health and social care providers to plan and deliver coordinated care for older adults and others, with the aim of improving

population health outcomes, reducing health inequalities, and using resources more efficiently.[11] However, Iran lacks well-defined policies specifically for elderly care, and there is no dedicated entity addressing this societal requirement.[12,13] Therefore, it is necessary to develop a specific model and framework for managing elderly health services in Iran's primary care system. As a result, we have designed a PHC management model for the elderly in Iran.

Objectives

The objective of this study is to develop a model for managing primary health care (PHC) services for the elderly in Iran.

Methods

The initial step involved conducting a comparative study on countries that have successfully implemented primary health care services for the elderly. The focus was on identifying the variables associated with the management model of primary health care for older adults. The comparative research specifically included countries that met the entry criteria of being among the top 10 countries in the Global Age Watch Insights 2018 ranking. This ranking evaluates countries based on income, health, education, and employment, as well as the elderly-friendly environments they provide. The top 10 countries in this ranking were Switzerland, Norway, Sweden, Germany, Canada, the Netherlands, Japan, the USA, and the UK.[14] In this phase of the study, these countries were examined in terms of the services they offer to the elderly through comparative research. Comparative research is a method that analyzes the similarities and differences between two or more cases in specific aspects. It can be conducted using quantitative or qualitative approaches and can compare different contexts or time periods.[15]

The objective of this study was to investigate the primary health care services available for older adults in the 10 countries that met the inclusion criteria. A literature review was conducted to gather qualitative data on this topic. After removing duplicate and similar items, a total of 52 unique items were obtained from the initial pool of 70 items.

A preliminary survey was created using a set of 52 questions. To assess the validity of the survey, 13 experts in the field of elderly health services management were consulted. The Content Validity Ratio (CVR) and Content Validity Index (CVI) methods were employed for this purpose. The validity of the survey was evaluated using the Lawshe method (CVR) and the Waltz & Bausell method (CVI). The experts were provided with the objectives of the survey and the definitions of the concepts related to the questions. They were then asked to rate each question on a three-point Likert scale: 1. the question is essential; 2. the question is helpful but not essential; and 3. the question is unnecessary. The score for each question was calculated using the CVR formula. Any question with a score below 0.54, based on the Lawshe criterion, was excluded.[16] According to Waltz & Bausell's CVI, the experts were required to determine the degree of relevance of each question using a four-part spectrum: 1. unrelated, 2. need for fundamental revision, 3. relevant but need for revision, and 4. completely relevant.

The number of experts who chose choices 3 and 4 for each question was divided by the total number of experts using this method. If the result was less than 0.7, the question was rejected; if it fell between 0.7 and 0.79, it was revised; and if it exceeded 0.79, it was deemed acceptable.[17] Based on the feedback from the experts, four questions that scored below the required threshold (according to the Lawshe table, the minimum CVR value with 13 experts was 0.54, and the acceptable CVI based on Waltz & Bausell was above 0.79)[17] were eliminated, resulting in a total of 48 questions across six broad themes. These 48 questions formed the foundation of the survey.

The questionnaire's reliability was assessed by administering it to a total of 254 participants, including managers and activists working in departments focused on elderly health. In order to ensure the reliability of the newly-applied questionnaire, the sample size of experts should be 5–10 times the number of questionnaire items.[18] We established certain inclusion criteria for the experts, such as relevant education, over 5 years of management experience in elderly care, and their consent to participate in the study. The questionnaires were distributed to the participants online as an online survey from April 8th to July 14th, 2021, covering all provinces of Iran. The survey consisted of 48 questions categorized into six sections: planning, financing, control, organization, leadership, and coordination. Participants were asked to rate the influence and importance of each item on a 5-point Likert scale, ranging from "very little" to "very much." A majority of the participants, 248 out of 254, completed the questionnaires, resulting in a response rate of 97.64%. The total items of the questionnaire had a Cronbach's alpha of 0.934, and the Spearman-Brown's internal consistency coefficient was 0.968. Prior to conducting exploratory factor analysis (EFA), Bartlett's and KMO test methods were utilized to assess the feasibility of the analysis and determine the adequacy of the sample size.

The Varimax method was employed to rotate the axes. The factor analysis was conducted in two parts: EFA and confirmatory factor analysis (CFA-second order) to validate the presented conceptual model. Following the EFA, five factors and 48 items with a factor loading above 0.35 were extracted.[19]

The initial conceptual model underwent necessary corrections, and the factors extracted from the EFA questionnaire were validated using AMOS CFA. Various fit and goodness-of-fit indices, including chi-square, relative chi-square, mean square error of estimation index, and others, were calculated for all factors. After careful examination of the indicators and expert confirmation with item displacement, the model was finalized, leading to the development of the PHC management model for the elderly in Iran. Data analysis was conducted using SPSS (version 21.0, SPSS Inc, Chicago, IL, USA) and AMOS-24 software.

The study received approval from the research ethics committee of the Islamic Azad University Science and Research Branch (IR.IAU.SRB.REC.1400.159), and written informed consent was obtained from all participants prior to the commencement of interviews. The study was conducted in accordance with the Declaration of Helsinki.

Results

The male participants made up the majority (65.3%) of the research sample. Interestingly, a large portion of them (68%) were married and held advanced degrees such as bachelor's, master's, or doctoral degrees. On average, the participants had over 8 years of management experience [Table 1].

In terms of primary health care (PHC) management for the elderly in Iran, the average score was 190.105. The dimension with the highest average score was organization and leadership (48.15±7.2), while the coordination dimension had the lowest score (14.34±2.77). The average scores for planning, financing, and control were 47.03 (±7.5), 31.63 (±5.24), and 28.85 (±3.98), respectively. The KMO test showed that the matrix was not identical ($p<0.05$). However, the KMO index was above 0.7, and Bartlett's test was significant at a 95% significance level, allowing for factor analysis (chi-square=6096.721, pvalue=0.00, df=693). The EFA results indicated that all questionnaire questions had factor loadings above 0.35, suggesting appropriate loading on the relevant variable. Among the planning, organization, control, financing, and coordination factors, the establishment of planning committees (0.716) and the promotion and development of geriatric medicine (0.716) had the highest factor loadings, while the use of models (plans) for providing services (0.429) had the lowest factor loading [Table 2].

Table 1. Demographic information for respondents of the Questionnaire

Variable		N (%)
Gender	Male	158 (65.3)
	Female	90 (34.7)
Marital Status	Single	82 (32)
	Married	166 (68)
Education Level	Bachelor of Science (BSc)	74 (30)
	Master of Science (MSc)	91 (63.4)
	Doctor of Philosophy (PhD)	83 (33.6)
Age (mean ± SD)		38.496±9.731
Managerial experience, year (mean±SD)		8.157±7.79

The factors that influence PHC management for the elderly were determined through second-order CFA. The standardized coefficients for planning, organization and leadership, coordination, control, and financing were found to be 0.913, 0.897, 0.857, 0.818, and 0.768, respectively [Figure 1].

The reliability of the questionnaire was assessed using Cronbach's alpha values, which ranged from 0.82 for coordination to 0.89 for control. The overall reliability of the questionnaire was 0.93 [Table 3].

Table 2. The factor loading values of the items of each factor of the primary health care management model for the elderly

Factor name	Items of each factor	Factor loading
Factor 1: Planning	Creation of planning committees	0.716
	Raising labor standards	0.641
	Provision of related training for elderly personnel	0.613
	Creating integrated systems for providing elderly services (elderly networks)	0.608
	Evidence-based programs to reduce hospital visits	0.599
	People's social participation through polls and referendums	0.597
	Service leveling	0.566

	Strengthening the role of the family doctor	0.528
	Providing elderly services	0.487
	Coverage based on nationality and citizenship	0.485
	Creating care-related jobs for the elderly	0.353
	Determine access based on patient needs	0.668
	Promotion and development of geriatric medicine	0.668
Factor 2. Organization	Policymaking for the active role of the elderly in society	0.632
	Strengthening communication between the institutions of elderly welfare services and the institutions providing long-term services for the elderly	0.610
	Creation of elderly welfare organizations and departments in the organizational structure of the Ministry of Health to support the elderly	0.609
	Expanding international human rights cooperation for the welfare of the elderly	0.608
	Organization of service delivery by municipalities and seniority departments	0.606
	Creating national support systems to have a good retirement	0.605
	Convenient and convenient access to services in different areas	0.571
	The political attitude of the rulers regarding the reforms of the old age laws	0.555
	The responsibility of the government to create social infrastructure for the elderly	0.515
	Associations for the elderly	0.492
	Proper distribution of personnel	0.456
	Private and public sector cooperation	0.606
Factor 3. Control	Using technology	0.606
	Patient satisfaction survey	0.600
	Patient monitoring at home	0.599
	Evaluation of the performance of personnel providing geriatric services	0.598
	Supervision by old age welfare departments	0.586
	Quotation and rationing of services	0.580
	Self-care and person-centered programs	0.573
	Supervision by municipalities	0.570
	Determine access based on geographic region	0.537
	Using informal caregivers	0.508
	Providing comprehensive elderly services	0.496
Factor 4. Financing	Social insurance coverage for the disabled and retired	0.673
	Allocating subsidies to vulnerable groups	0.647
	Use of municipal and governorate budgets	0.640
	Private and supplementary insurance	0.634
	Transferring employee insurance premiums to medical funds to cover health and medical expenses in old age	0.613
	Allocation of GDP to finance a part of elderly care costs	0.558
	Tax collection	0.549
	Incentive policies	0.377
Factor 5. Coordination	Leveling of care	0.629
	Coordination between insurance companies and units providing services to the elderly	0.493
	Team-based approaches to geriatric care delivery	0.470
	The use of models (plans) for the provision of elderly services in service centers	0.429

Table 3. Reliability analysis with Cronbach's Alpha

Dimensions	Number of questions	Cronbach's Alpha
Planning	12	0.879
Organization	11	0.848
Control	11	0.891
Financing	8	0.841
Coordination	4	0.826
Total	48	0.934

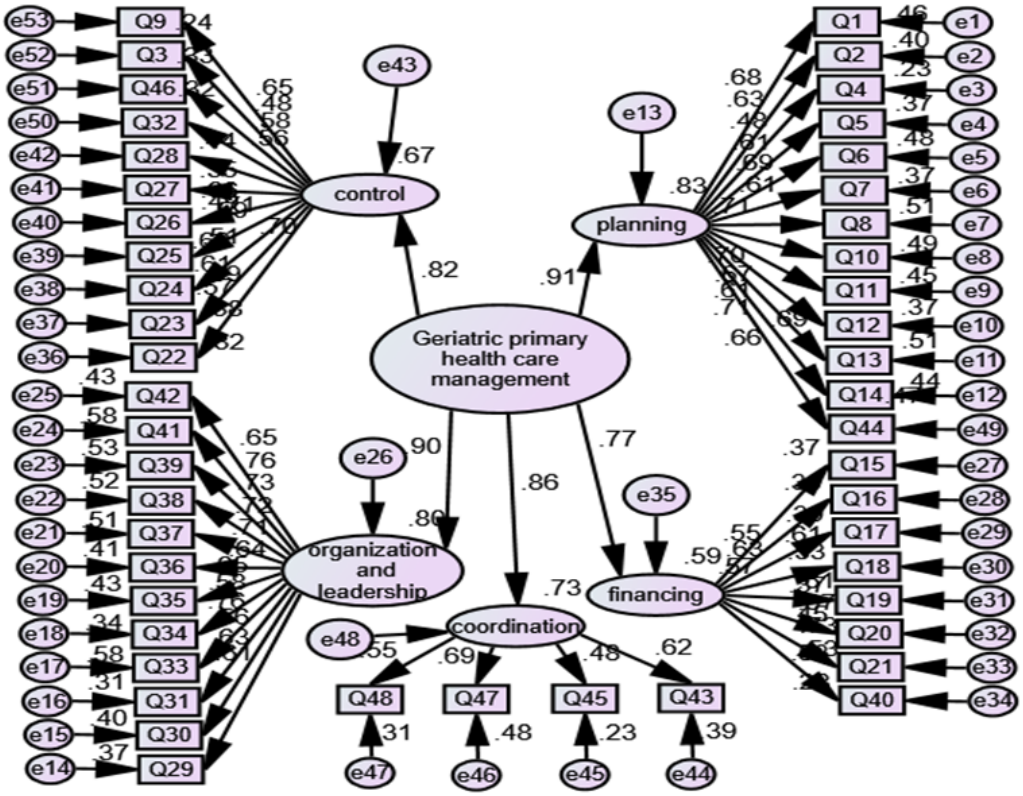

Figure 1. Second-order and confirmatory factor analysis model of the factors and items of primary health care management for the elderly based on standardized coefficients

The fit indices of the PHC Management Model were evaluated to determine its adequacy. CMIN/DF (the test statistic divided by the degree of freedom) was 1.855, suggesting a satisfactory match. Furthermore, fit indices such as the root mean square of the residuals (0.04), goodness of fit index (0.75), adjusted goodness of fit index (0.73), normed fit index (0.69), relative fit index (0.68), increased fit index (0.83), Tucker-Lewis index (0.82), comparative fit index (0.83), and root-mean-square error of approximation (0.06) all showed acceptable values [Table 4].

The final model for PHC management for the elderly in Iran was deemed suitable across five areas: planning, financing, organization and leadership, control and coordination, and its fit [Figure 2].

Discussion

The objective of this research was to identify the various aspects of primary healthcare (PHC) management for the elderly population in Iran, with a specific focus on comprehensiveness. This study is the first of its kind to attempt the development of a PHC management model in Iran. Through our investigation, we were able to identify 48 different components within 5 main themes: planning, organization, control, financing, and coordination, all of which contribute to the PHC management model for older adults in Iran. Our findings are consistent with Mannuanprang et al.'s suggested healthcare management model, which incorporates planning as one of its six core sections.[20] As the needs and challenges of healthcare evolve, it is crucial for PHC to adapt accordingly. Therefore, it is essential to have individuals with exceptional skills and knowledge involved in the planning and design of an effective PHC system.[21] It is logical to consider the improvement of labor standards as part of the planning process, as it falls within the broader framework of the PHC management model for the elderly. The experts who participated in this study emphasized the importance of enhancing the role of family physicians within the current model, which is consistent with the findings of Elliot et al.'s study.[22]

Service leveling, the provision of services to the elderly through a leveling plan, coverage based on nationality and citizenship, and determining access based on patient needs are four sub-categories within the planning area. These sub-categories are primarily associated with service leveling and referral systems. A recent evaluation of the global service leveling system, based on indicators from the World Health Organization (WHO), recognized that the primary healthcare (PHC) sector would not be effective without appropriate service leveling.[23]

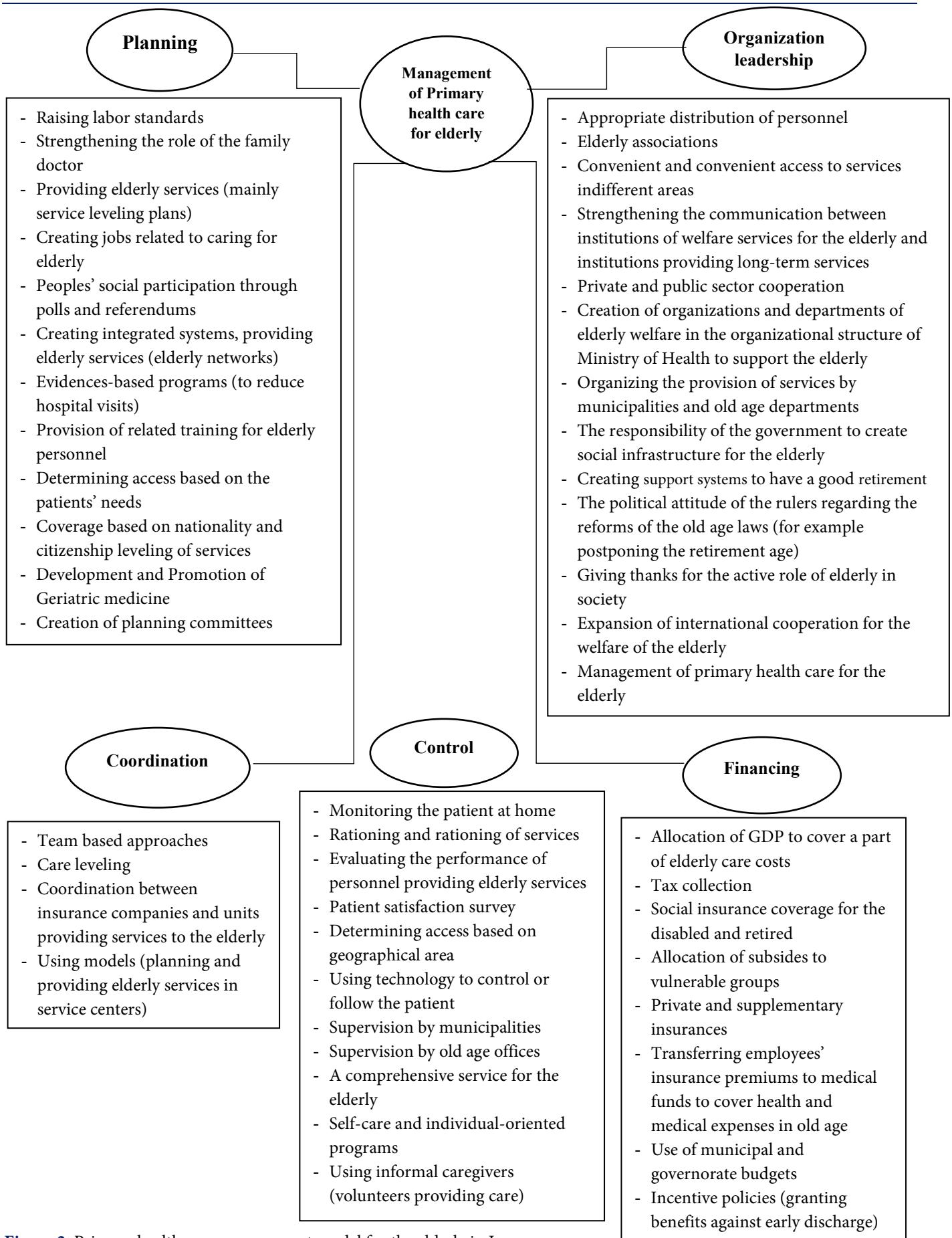

Figure 2. Primary health care management model for the elderly in Iran

The PHC management model includes various elements, such as creating job opportunities in the care sector for the elderly, engaging them through surveys, and establishing integrated systems and planning committees specifically for the elderly. When constructing a framework for an acute care model for the elderly, it is important to consider their opinions and preferences in order to enhance service delivery. Additionally, expanding choices for the elderly, involving them and their families in the planning and evaluation processes, and improving working conditions for those providing elderly care are crucial aspects to be considered. These concepts encompass the decisions made by experts in the field.[24]

The final PHC management model for the elderly in the planning field focuses on enhancing geriatric medicine, providing specialized training for geriatric staff, and implementing evidence-based programs aimed at reducing hospital visits for the elderly. These aspects have been emphasized in similar studies and evidence.[25]

In our model, the organization is considered a vital component, as emphasized in previous research.[20,25] One aspect of this entails improving the connection between welfare institutions and long-term service providers. The global recognition of the significance of long-term care for the elderly has led to the establishment of organizations and departments dedicated to elderly welfare within the Ministry of Health. Additionally, the structuring of service delivery by municipal bodies and elderly departments has been examined in this study. Similar papers have also acknowledged the involvement of governments and municipal bodies in structuring healthcare delivery, supporting the elderly, and establishing welfare organizations and departments for the elderly within the health system.[27,28] Our model emphasizes the government's responsibility to develop social infrastructure for seniors, create national support systems for a comfortable retirement, and formulate policies for seniors' active participation in society. It also highlights the importance of political leaders' commitment to reforming laws related to aging. The report discusses the unique circumstances of the elderly and the benefits of having a diverse workforce in terms of age. International cooperation for the welfare of the elderly is another aspect included in our model. Collaboration between the private and public sectors, involvement of aging associations, equitable distribution of personnel, and easy access to services across different sectors are additional elements within the organization theme. Access is recognized as a fundamental principle in achieving major health system objectives.[29] The World Health Organization's operational framework for primary healthcare emphasizes the significance of partnering with private sector providers.[29]

The World Health Organization (WHO) and other research underline the significance of supporting associations and communities. The concept of control encompasses various subthemes, including the use of technology, patient satisfaction surveys, home-based patient monitoring, service allocation and rationing, self-care, and person-centered programs.[20,30] These subthemes have been highlighted in similar studies, such as the monitoring of elderly individuals in their homes,[31] the integration of health and social services, standard care, communication, coverage, coordination, workforce management, supplies and equipment, formal and financial support, technological support and service continuity, service rationing, evaluation of the performance of geriatric service providers and analysis of health service satisfaction.[32,33] Although financing had a low coefficient in the factor analysis of the elderly healthcare model, it remains crucial. Economic considerations and affordability must be considered when providing elderly care. Kalantari suggested the role of long-term insurance or enhanced affordable services. Allocating taxes and subsidies could also strengthen funding for elderly health in addition to existing methods.[34] In our study, coordination is a theme that encompasses team approaches, levels of care, model use, and payer-provider coordination. Similar research[27,28,30,35] corroborates these points as well.

Conclusions

The study's results indicate that the tool designed has good construct validity. The questionnaire is categorized into five areas: planning, organization and leadership, financing, control, and coordination. This tool is suitable for managing, developing, and monitoring PHC services for the elderly in Iran. One of the benefits of this model is its compatibility with Iran's health system structure, which allows it to cater to the needs of the elderly. As a result, policymakers, managers, and health planners can utilize this questionnaire to plan, develop, and enhance PHC services for the elderly, leading to the fulfillment of their health requirements and an improvement in their quality of life. Given the significance of PHC for the elderly and the novelty of this tool, we anticipate that the study's findings will encourage further research in the field of PHC management

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Competing interests

The authors declare that they have no competing interests.

Abbreviations

World Health Organization: WHO;
Primary Health Care: PHC;
Integrated Care System: ICS;
Exploratory Factor Analysis: EFA.

Authors' contributions

SN, LR, and KH: analysis and interpretation of results, SN, LN, and LR: draft manuscript preparation. All authors read and approved the final manuscript. All authors take responsibility for the integrity of the data and the accuracy of the data analysis.

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Availability of data and materials

The data used in this study are available from the corresponding author on request.

Ethics approval and consent to participate

This study was ethically evaluated and approved by research ethic committee of Islamic Azad University (Code: IR.IAU.SRB.REC.1400.159). The study was conducted in accordance with the Declaration of Helsinki. All participants signed an informed consent form.

Consent for publication

By submitting this document, the authors declare their consent for the final accepted version of the manuscript to be considered for publication.

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