Integrated Geriatric Health Care Services at the Level of Primary Health Care: A Comparison Study During COVID-19 Pandemic

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Research Article

Keywords: Older adults, Utilization, Integrated geriatric health care services, Primary health care, COVID-19

Posted Date: February 24th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1202945/v1

Abstract

Background

The COVID-19 pandemic has affected the use of integrated geriatric care services for the elderly. This study aimed to evaluate and compare the status of using integrated geriatric health care services for the elderly before and after the COVID-19 pandemic.

Materials and Methods

This cross-sectional study was performed in Kerman, Iran, and consisted of two phases. In the first phase, information on the use of services through the secondary data of the integrated health services system was collected. The second phase was a cross-sectional study conducted among the elderly in Kerman in 2021, and the dimensions of the integrated geriatric health care process were surveyed through a researcher-made semi-structured questionnaire. The study population (n = 200) was selected using systematic random sampling.

Results

Under the influence of COVID-19, the number of older adults who received services from the primary health care system, especially the elderly in the age group of 60 to 70 years, decreased. Care services received due to high blood pressure and diabetes increased, but those in balance assessment showed a significant decrease. The mean of risk screening (P = 0.001) and self-care (P = 0.03) increased significantly in the COVID-19 pandemic compared to those before the onset of the COVID-19 crisis. There was no significant difference (P = 0.025) in health education compared to that before the crisis and the mean of case management and medication dimension was not significantly different.

Conclusion

Considering the decrease in the use of geriatric care during the COVID-19 crisis, policymakers should take the necessary measures, especially for the post-crisis period, emphasizing the dimensions of integrated geriatric care.

Introduction

Today, with the occurrence of population aging phenomenon, especially in developing countries, the nature and type of health services have been affected. It has often increased the use of health services and has changed the management and patterns of utilization of health systems resources (1). One of the suitable systems for providing health services to the elderly, which has attracted attention, is the integrated service system (2). This system has been developed as a tool to improve access, quality, and

continuity of services in a more efficient way, especially for people with complex needs, and as a strategy to transform the current fragmented systems of primary care to provide better care for the elderly in society (3). According to the World Health Organization (WHO), the "integrated geriatric health care system" has been recommended and put on the agenda by many developed countries. This system is so essential that 41% of the elderly reported some problems due to not receiving integrated care (4, 5).

In the integrated care system, the management and delivery of health services should be such that chain customers receive a chain of preventive and curative services according to their needs over time and at different levels of health. This system requires attention to several dimensions that play a role in service delivery structure and processes (7). So far, many variables have been identified in the effectiveness of the integrated care approach. According to several studies, the influential variables in the level of primary care include a clinical information system and a multidisciplinary team, case management, systematic risk screening, medication assessment, geriatric education, and the elderly self-care program (8).

Currently, in most developed countries, such as Canada, Sweden, the United States, and Japan, the integrated care system has been selected to provide care for the elderly because some administrative, political, financial, and clinical problems of fragmented or integrated care systems have led the system towards an integrated (customer-centric) system (4). It is noteworthy that based on the available evidence, the implementation of integrated health care has increased patient satisfaction, improved health and quality of life, and increased access to health care (5).

However, it seems that the use of these services has changed as a result of the COVID-19 pandemic. This disease is currently very prevalent in most countries of the world and has spread rapidly in Iran, and with its high prevalence has affected many people (9). One of the high-risk groups is the elderly, and it seems that old age and underlying diseases are an important factor in increasing hospitalization and mortality due to COVID-19 (10). Thus, the strategy of governments around the world is to target the elderly and try to persuade them to follow public health preventive measures (11).

Given the high mortality rate among the elderly and the clear goal of governments worldwide, it is reasonable to expect older people to play an active role in preventing COVID-19. On the other hand, the elderly, due to physical, mental, and social health problems, despite the existing limitations, need to receive related care, and delayed care for the elderly can also endanger their health (12). However, there is little information on the status of integrated geriatric care services after the recent crisis and changes in the service delivery process. Therefore, this study aimed to evaluate and compare the status of utilization of integrated health geriatric care services at the level of primary health care before and after the COVID-19 pandemic.

Materials And Methods

This cross-sectional study was performed in Kerman. The research environment included comprehensive government health centers covered by Kerman city, and the research population included the elderly aged 60 years and older who these centers covered. Inclusion criteria included all older adults aged 60 years

and older who have a file in the health center and had used integrated health care services during the last three years.

The present study consists of two phases. In the first phase, information on the use of services was collected through the secondary data of the integrated health services system. The system was created in 2015 for electronic health in Iran. In this system, all information related to households and services provided to them is recorded.

The second phase is a cross-sectional study conducted among the elderly in Kerman in 2021, and the dimensions of the integrated health care process for the elderly were examined through a questionnaire. The samples were selected from the list of all older adults covered by comprehensive health service centers through systematic random sampling. The sample size was considered 200 people according to the formula. Due to the crisis in the COVID-19 pandemic, as the details and contact numbers of the elderly were available in the centers, the data were collected using telephone contact with the elderly and obtaining their consent.

Study data were collected using researcher-made tools. The questionnaire consisted of 30 questions on the process dimensions of integrated geriatric health care, including systematic risk screening, self-care, case management, medication assessment, and health education.

Risk screening was assessed using a 7-item questionnaire to identify vulnerabilities and measures to prevent any problems related to aging. Self-care was evaluated through 8 questions that evaluated the ability of self-care among the elderly in nutrition, physical activity, adequate sleep, and personal hygiene. The case management was assessed with 7 questions about their relationship with the health care provider and how they were treated, and the amount of information they exchanged about health or medications. The medication dimension was assessed with 5 questions from the elderly about access to and regular use of medicines.

The health education was examined with 3 questions about the experience of attending training classes and getting a positive result from the perspective of the elderly. The questions measure the two time periods, before and after the COVID-19 pandemic, to determine how the dimensions of geriatric care have changed from the elderly's perspective compared to the pre-crisis period. Its formal validity was confirmed using the opinions of relevant experts and professors. Cronbach's alpha method was used to assess the reliability, which was confirmed with 0.76.

Results

According to the findings of the negative multiple linear regression, the elderly population in 2019, was 1.16 times higher than that in 2018. In 2020, it was 1.20 times higher than that in 2018, which indicates the growth of the elderly population in Kerman. Also, this rate in the age groups of 60–69 years and 70–79 years was 6.47 and 2.37 times, respectively, higher than that in the age group over 80 years. The number of older adults in rural areas is 0.49 times higher than that in urban areas with more than 20,000

older adults, and this rate in the city with less than 20,000 older adults is 0.37 times higher than that in the city with more than 20,000 older adults (Table 1). Contrary to the increase in the elderly population, the findings of the integrated health system data showed that the number of older adults cared for in the primary health care system, from March 2020 to March 2021, which has been affected by the COVID-19, has decreased compared to previous years. This difference is significant in different age groups and men and women (Table 2).

Table 1
Determining the effective factors on the number of Elderly based on integrated care using Negative Binomial Regression

Variable	Variable levels	Registered	Exp β	p-value
Year	March 2018-March 2019 (ref.)	59666 (33.8)	-	-
	March 2019-March 2020	34984 (19.8)	1.16	< 0.001
	March 2020-March 2021	82100 (46.4)	1.20	< 0.001
Age-group	60–69	92413 (52.3)	6.47	< 0.001
	70–79	52997 (30.0)	2.37	< 0.001
	> 80 (ref.)	31340 (17.7)	-	-

Table 2
Frequency and percentage of the elderly cared for by gender and age groups

Variable		Gender		p-value	Age group			p-value
Item	**Year**	**Male**	**Female**		**60–69**	**70–79**	**> 80**	
care	2018–2019	4103	4284	< 0.001	3949	2488	1950	< 0.001
	2019–2020	3373	3677		3576	2110	1364	
	2020–2021	2576	2798		2409	1896	1069	

Findings obtained from the integrated geriatric health system suggest that the cases of high blood pressure and diabetes have increased during the COVID-19 crisis. However, care for balance assessment among the elderly shows a significant decrease in both men and women and in age groups. But care for depression is not significant despite increasing the care (Table 3).

Table 3
Frequency and percentage of the elderly care based on different items by gender and age groups.

Variable		Gender (%)		p-value	Age group (%)			p-value	Total (%)
Item	**Year**	**Male**	**Female**		**60–69**	**70–79**	**> 80**		
Depression	2018–2019	143 (26.3)	400 (73.7)	0.998	381 (70.2)	122 (26.0)	40 (7.4)	0.860	543 (25.4)
	2019–2020	177 (26.2)	499 (73.8)		470 (69.4)	149 (22.0)	58 (8.6)		677 (31.7)
	2020–2021	241 (26.3)	676 (73.7)		636 (69.4)	198 (21.6)	83 (9.1)		917 (42.9)
Impaired balance test	2018–2019	229 (35.7)	413 (64.3)	0.009	314 (48.8)	177 (27.5)	152 (23.6)	< 0.001	643 (38.2)
	2019–2020	253 (38.4)	406 (61.6)		262 (39.8)	196 (29.7)	201 (30.5)		659 (39.1)
	2020–2021	111 (29.1)	271 (70.9)		138 (36.1)	130 (34.0)	114 (29.8)		382 (22.7)
Diabetes	2018–2019	1994 (35.4)	3641 (64.6)	< 0.001	3709 (65.8)	1517 (26.9)	409 (7.3)	0.002	5635 (26.7)
	2019–2020	2229 (35.0)	4148 (65.0)		4082 (64.0)	1782 (27.9)	513 (8.0)		6377 (30.2)
	2020–2021	3308 (28.5)	5789 (71.5)		5713 (62.8)	2592 (28.5)	792 (8.7)		9097 (43.1)
High blood pressure	2018–2019	808 (30.6)	1834 (69.4)	< 0.001	1733 (65.6)	649 (24.6)	260 (9.8)	0.030	2642 (24.3)
	2019–2020	1360 (34.1)	2629 (65.9)		2489 (62.4)	1117 (28.0)	383 (9.6)		3989 (36.6)
	2020–2021	1538 (36.1)	2725 (63.9)		2729 (64.0)	1146 (26.9)	388 (9.1)		4263 (39.1)

Also, analysis of cross-sectional study data on the process dimensions of integrated geriatric care before and during the crisis showed that the average risk screening increased significantly compared to the pre-crisis period (P = 0.001). Self-care also increased compared to that in the pre-crisis period (P = 0.03). Health education had a significant decrease compared to that in the pre-crisis period (P = 0.025). However, the mean of case management and medication dimension were not significantly different before and after the onset of the COVID-19 pandemic (Table 4).

Table 4
Difference of Mean (SD) Integrated Health Care Dimension in elderly (N = 200)

Variable	Group	Mean (SD)		t	p-value
		Before	after		
Integrated Health Care Dimension	Risk Screening	28.3(7.8)	33.1(8.5)	– 4.432	< 0.001
	Elderly Self-care	22.4(5.1)	25.8(6.3)	6.741	0.03
	Case Management	19.4(4.4)	18.5(3.9)	0.987	0.32
	Medication Review	17.6(5.6)	17.9(3.3)	1.009	0.11
	Elderly Health Education	9.5(2.1)	5.7(2.5)	5.852	0.025

Discussion

The COVID-19 pandemic has challenged all healthcare systems around the world. This study aimed to evaluate and compare the status of utilization of integrated geriatric health care services at the level of primary health care before and after the COVID-19 pandemic. This study showed that due to the upward trend of registrants during these three years, after the COVID-19 crisis, health care for the elderly has significantly decreased in different age groups and among men and women. It seems that integrated care during the COVID-19 crisis has been influenced by patient screening and patient care. The average risk screening and self-care increased significantly compared to that in the pre-crisis period.

In a similar study by Michalowsky et al. (2020) in Germany, the findings showed that diabetes, dementia, depression, cancer, and stroke assessment and diagnosis decreased during quarantine (13). In another study in Singapore, the use of health services by the elderly decreased by 23% after the COVID-19 crisis (14). Other similar studies showed a significant reduction in receiving various health care services among the elderly after the crisis (15–16). This reduction seems to be related to the perceived risk and increased elderly concern caused by the COVID-19. Since the publication of the results of the first studies on the incidence and mortality of COVID-19 among the elderly (17, 18), concerns in this group have increased. A study showed that 70% of older people were severely concerned about the COVID-19 (19), which puts their mental health at risk (20).

In contrary to similar studies, in this study, care for diabetes and high blood pressure increased during the quarantine. Despite COVID-19 restrictions, care for high blood pressure and diabetes still seems to be considered by the elderly because of its importance. Care for diabetes, and high blood pressure has a special place in Iran's primary health care system. A part of the care for diabetes and high blood pressure, especially regarding the access and consumption of medicine through telephone calls, has been done, which may be the increase in statistics. In similar cases in Belgium and Germany, the telehealthcare system in this area has improved the use of health services during quarantine (21, 22).

As shown in this study, risk screening and self-care significantly increased during quarantine. Risk screening by a case manager is one of the most effective processes of the integrated geriatric care system at the primary health level, which has played an important role in better managing the conditions of this period during the COVID-19 pandemic. However, in the present study, there was a significant decrease in the dimension of health education after the crisis. At the same time, the level of participation of the elderly in the training classes of primary health care centers and the usefulness of practical materials are fundamental and require the primary attention of policymakers and service providers. As health education in health centers require the least facilities, and due to cyberspace and telecommunications, it can have the highest health outcomes for the elderly and increase self-care in the elderly.

This study also had some limitations. Some of these limitations include access to integrated health system data and data collection under the conditions and limitations of the COVID-19 pandemic. Also, the information recorded in the health system may be less accurate in some cases.

Conclusion

Given the reduced use of geriatric care due to the recent crisis, policymakers need to address this issue regarding the increasing concern of older people about using health services during the COVID-19 pandemic. For this purpose, the development of remote care services in this area will bring better results. On the other hand, prolonging the pandemic period seems to increase the adverse effects on geriatric care that should be considered. Regarding the dimensions of integrated geriatric care, attention should be paid to health education in all physical, mental, and social dimensions. The use of some essential services such as services related to mental health, healthy lifestyle, and reducing the risks of imbalance should also be promoted with effective solutions.

Declarations

Ethics approval and consent to participate

All method were carried out in accordance with relevant guidelines and regulations. All subjects were explained about the purpose of this survey and those willing to participate were included in the survey. All of the participants signed free and informed consent forms. Ethical approval was obtained from the Ethics committee of the Kerman University of Medical Sciences (Ethical code: IR.KMU.REC.1400.046).

Consent for publication

Applicable

Availability of data and materials

The datasets used and analysed during the current study available from the corresponding author on reasonable request.

Competing interests

The authors' declare that they have no competing interests.

Funding

Not applicable.

Authors' contributions

Conceptualization, supervision, methodology: Vahid Rashedi and Vahidreza Borhaninejad; writing-original draft, investigation: All authors; writing- editing & review, funding acquisition, resources: Vahidreza Borhaninejad.

Acknowledgements

We would like to acknowledge the staffs of PHCs in Kerman for their kind cooperation in this study.

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