Sudan Journal of Medical Sciences
Volume 19, Issue no. 2, DOI 10.18502/sjms.v19i2.14529
Production and Hosting by KnE Publishing

Research Article

Evaluation of Age-Friendliness in Primary Health Care Centers in Sulaimani Governorate, Iraq

Zana Faris Muhammed* and Ali Hattem Hussain

Department of Nursing, College of Health and Medical Technology, Sulaimani Polytechnic University, Kurdistan, Iraq

Abstract

Background: The aging of the global population has increased the demand for primary care of older adult's health disorders. As the first point of contact for healthcare, primary care services should be accessible and adaptable to the needs of older people. This study aims to assess the age-friendliness of healthcare services at the primary healthcare centers (PHCCs) in Sulaimani Governorate, Iraq.

Methods: This cross-sectional descriptive study included all 87 PHCCs in Sulaimani governorate (61 centers in Sulaimani city, 16 in Raparin Administration, and 10 in Garmyan Administration). In each of these health facilities, data were collected regarding the physical, architectural, and clinical age-friendliness of these centers. A modified age-friendly PHCCs toolkit was used as a tool for assessing the PHCCs, and then a scoring system was utilized to estimate the overall friendliness of the PHCCs.

Results: The Sulaimani governorate selected 13 out of 87 PHCCs (14.9%) to be age-friendly; all of them were in Sulaimani city. However, this study found that only 3 out of 87 (3.4%) centers were in the range of the WHO age-friendly recommendations with a score of >75%, while 64 (73.6%) centers were partially age-friendly with a score of 50–74% and 20 (23%) centers were not age-friendly with a score <50%.

Conclusion: Only 3.4% of PHCCs in Sulaimani Governorate were age-friendly, and most of the centers were partially age-friendly. Geriatric doctors and geriatric nurses were not recruited, and geriatric training programs for medical staff were not satisfactory.

Keywords: age-friendly, primary healthcare centers, Sulaimani Governorate, older adults, geriatric services

Corresponding Author: Zana Faris Muhammed; email: Zana.muhammed@spu.edu.iq

Received: 12 November 2023
Accepted: 22 December 2023
Published: 28 June 2024

Production and Hosting by KnE Publishing

Editor-in-Chief:
Prof. Nazik Elmalaika Obaid Seid Ahmed Husain, MD, M.Sc, MHPE, PhD.

1. Introduction

Aging is a natural process that brings special challenges for all. Although the exact definition of old age is a matter of debate, it is generally defined as an individual who is 60 years and older [1]. Progressive improvements in healthcare have improved life expectancy and increased the proportion of the elderly population. The global population over the age of 60 is expected to grow to 1.2 billion by 2025 and 2 billion by 2050 [2]. Moreover, by 2025, nearly 75% of this elderly population will live in developing countries that already have overburdening healthcare systems. In essence, these demographic changes necessitate a shift in international attention to preventive healthcare and the healthcare needs of the elderly [3]. Around the world, lower marriage rates, rising levels of cohabitation, more control over fertility and hence smaller families, increasing levels of singlehood, childlessness, and higher levels of divorce are all contributing to changes in family structures; these changes together with increased urbanization are affecting traditional caregiving dynamics [4]. When compared to the above global situation, the elderly people in Sulaimani governorate are also increasing in number due to relative improvement in the healthcare system, however, the social structure of families is more stable when compared to the Western countries due to the religious and cultural factors that have a positive effect on healthcare giving. However, older adults are facing different kinds of challenges like lack of health assurance system, economic challenges, periods of conflicts, and migration of younger generations abroad; these factors make caring for elderly family members more complex.

Some steps have already been taken, with the first contribution to elderly healthcare reform appearing in Canada in 1999 with an approach to hospital care called Elder Friendly Hospitals. This form of care identified the need for special environments and care for hospitalized older people and recognized solvable problems that may arise when hospitals are treating older people [5]. The aging of the global population has increased the demand for primary care for older adult's health disorders, especially for their chronic diseases. As the first point of contact for healthcare, primary care services should be accessible and adaptable to the needs of older people [3]. This initiative led the WHO to create a set of guidelines in 2004 entitled, "Active Aging: Towards Age-friendly Primary Health Care." These guidelines cover areas related to information, education, communication, staff training, and the physical environment of primary care centers. Besides, these guidelines were accompanied by a list of toolkits to make age-friendly primary care centers more functional [6]. The 2004 toolkit was updated by a new version in 2008 which had been implemented in age-friendly primary healthcare centers (PHCCs) [7].

Usually, the PHCC represents the first healthcare facility that introduces medical care for individuals including elderly people. Older people have diverse medical and social needs that can be identified through consultation with PHC staff. However, when older people enter a PHCC, it is often difficult for them to know whom they should consult in the center, the range of services provided, and the cost of these healthcare services. PHCC is an important place to refer patients including elderly ones to secondary healthcare facilities [7]. Assessing the age-friendliness of services in PHCCs is critical to optimizing the health of older people [3]. To the best of our knowledge, there are no previous studies that assess the

PHCCs in terms of centers' environments, health staff adequacy, and services provided in Sulaimani governorate.

Sulaimani Governorate is located in north-eastern Iraq bordering Iran and is a part of the Kurdistan Region of Iraq. Its total area is 20,143.91 km^2 and has an old adult population of approximately 150,000 people, including the Garmyan and Raparin Administration [8]. This study aimed to evaluate the age-friendliness of PHCCs in Sulaimani Governorate, Kurdistan Region of Iraq.

2. Methods

This cross-sectional descriptive study was conducted for a year (August 2021 to August 2022) in all 87 PHCCs in Sulaimani Governorate (61 from Sulaimani city, 16 from Raparin Health Directorate, and 10 from Garmyan Health Directorate). PHCCs' data regarding their age-friendliness were collected using a WHO-modified checklist. The checklist was translated into the Kurdish language and revised by 10 experts related to the field of study; the checklist was evaluated for content validity. It was designed to cover the following PHCC features: building physics, availability and accessibility of services, and recruitment of medical staff. The agreement to perform data collection was taken from the Sulaimani Directorate of Health and the Ministry of Health. In addition, ethical approval was obtained from the Ethics Committee of the College of Health and Medical Technology, Sulaimani Polytechnic University.

All the PHCCs were visited and the services provided for the elderly were assessed according to a scoring system (Table 1). This scoring system was utilized by the Iraq Ministry of Health. The score was calculated according to the checklist questions (74 questions), if for example, one PHCC was positive in 44 questions, its score will be 59% which is obtained from 44/74. The assessment included the suitability of buildings for older people and the extent to which these centers are physically and architecturally age-friendly. The assessment graded basic indicators of clinical services (materials and staff). The obtained data were entered and coded in an Excel sheet and then imported to the SPSS version 23 for analysis.

3. Results

The PHCCs in Sulaimani Governorate are located in three regions: 61 in Sulaimani city, 10 in Garmian Administration, and 16 in Raparin Administration. The results of the current study revealed that public transport options were available for less than half of PHCCs (*n* = 37/87) and were close to the nearby stations in a distance of <50 m in only 33/87 (42.5%). However, car parking at the PHCCs was mostly available (63/87). A ramp with railings or grab bars is required when a main building entrance is above the ground level; however, results of this study revealed that steps before entrances of the PHCCs were available in 28/87 (32.2%), and of these 28 PHCCs had steps, but only 14 of them (14/28) had railings or grab bars. Ramps were present in 83/87 (95.4%) PHCCs and all of them had railings or grab bars with gentle walking slopes in 80/87 (96.3%).

Looking at the entrance width of the building, this was sufficient (>1 m) in all the PHCCs 87/87 (100%) assessed, and all were free of obstacles 87/87 (100%) and suitable for wheelchairs in 78/87 (89.7%). The width of the corridors provided suitability comfortable access for wheelchairs in 86/87 (98.9%), and whilst all corridors were obstruction-free (87/87 [100%]), handrails or grab bars were present in only 13/87 (14.9%).

Table 1: Scoring system for assessing age – Friendliness of primary healthcare centers.

Standard score: 74*
Actual score:
Percentage: (Actual score/Standard score*100) =
Age-friendly PHCC (75–100%):
Partial Age-friendly PHCC (50–74%):
Not Age-friendly PHHC (0–49%):

*The 74 represents the total number of the questions in the checklist.

Regarding illumination, rooms, and corridors were adequately illuminated and well-ventilated in 82/87 (94.3%) PHCCs. The seating arrangements were sufficient and comfortable in 80/87 (92%) PHCCs, furniture and fittings were available and comfortable to reduce falls in 83/87 (95.4), the floor was non-slippery and well maintained in 75/87 (86.2%), and wheelchairs were present in 71/87 (81.6%). Toilets of the PHCCs were near waiting halls in 83/87 (95.4%), and toilet entrances were accessible to wheelchairs in 83/87 (95.4%), with the toilet facilities being appropriate in height in 84/87 (96.6%), supplied with water in 84/87 (96.6%), had ventilation in 85/87 (97.7%), and the level of hygiene was good in 83/87 (95.4%). However, toilet grab bars were only present in one PHCC (1/87 (1.1%]), and none of the PHCCs was supplied with alarm systems (0/87). Furthermore, none of them provided Western-style toilets. Only 39.1% of PHCCs provided drinking water, and disposable cups were found in 34.5%.

Regarding the health center interior design, most of them (74/87 [85.1%]) were on one floor, with rooms organized logically in 80/87 (92.5%). However, more than one-third had an aligned reception counter. For emergencies, only 53/87 (60.9%) PHCCs had emergency exits, while fire extinguishers were present in 79/87 (90.8%). These findings are mentioned in Table 2.

Signage was generally not satisfactory in some respects in all PHCCs; the clearly marked emergency exit signs were found in only 32/87 (36.8%) centers, directional signs in 18/87 (20.7%), room numbering signs in 46/87 (52.9%), use of educational pictures in 15/87 (17.2%), signs for identifying personnel (badges) in 11/87 (12.6%), and Braille signage was not found in any PHCC (0/87). However, signage was good in some other respects; the size of signs was suitable in 80/87 (92%), the colors of signs were appropriate for vision in 58/87 (66.7%), the height of signs was good in 86/87 (96.9%), contrast background was appropriate in 78/87 (89.7%), and welcoming tone was available in 84/87 (96.6%). These results are presented in Table 3.

Regarding the medical staff, most of the PHCCs recruit doctors and nurses but none of them have a specialty in geriatrics. Training programs for geriatric nursing were done in only the age-friendly PHCCs (13/87 [14.9%]). Only a few PHCCs had computerized systems (*n* = 3/87 [3.3%]). For referring patients to hospitals, a referral sheet was available in all PHCCs, but the ambulances were found in only 24/87 PHCCs (27.6%). The available clinical diagnostic equipment involved electrocardiography (ECG), X-ray machine, and ultrasound machine; they were present in 48/87, 24/87, and 18/87 PHCCs respectively, however, only 42/48, 16/24, and 12/18 machines, respectively, were operative. Basic laboratory investigations were available in 85.1% of PHCCs, and essential

Table 2: Assessing the infrastructures of primary healthcare centers for elderly in Sulaimani Governorate.

1.	**Properties items***		
2.		**Number**	**Percentage**
3.	**Access to the Primary Health Care Center (n = 87)**		
4.	HC is served by public transportation	37	42.5
5.	Closest station < 50 m	33	37.9
6.	Parking existence	63	72.4
	Walking assistance features—Wheelchairs and grab bars (n = 87)		
1.	Before the entrance, are there steps?	28	32.2
2.	Do steps have railings or grab bars?	14/28	50
3.	Is there a ramp?	83	95.4
4.	Does the ramp have railings or grab bars?	87	100
5.	Does the ramp have a gentle slope?	80	92
6.	Entrance—Width around (1 m)	87	100
7.	Entrance—Accessible to wheelchair	78	89.7
8.	Entrance—Landing area free of obstacles	87	100
9.	Corridors have minimum unobstructed width for wheelchair	86	98.9
10.	Corridor/pathway obstruction-free	87	100
11.	Corridor/handrails or grab bars	13	14.9
12.	Rooms and corridors well-lit and ventilated	82	94.3
13.	Sitting arrangement is enough and comfortable	80	92
14.	Furniture and fittings are well-organized to reduce falls	83	95.4
. 15.	Floor is non-slippery and well-maintained	75	86.2
16.	Spare wheelchairs	71	81.6
17.	Toilets—Near waiting hall	83	95.4
18.	Toilets—Entrance accessible to wheelchair	83	95.4
19.	Toilets—Grab bars	1	1.1
20.	Toilets—Are all properties in appropriate level	84	96.6
21.	Toilets—Alarm system	0	0
22.	Toilets—Water available	84	96.6
23.	Toilets—Clean	83	95.4
24.	Toilets—Ventilator	85	97.7
25.	Drinking water available	34	39.1
26.	Disposable cups available	30	34.5
	Healthcare center layout (n = 87)		
1.	Rooms organized logically	80	92
2.	Reception counter near entrance and identifiable	32	36.8
3.	Emergency exit exist	53	60.9
4.	Fire extinguishers available	79	90.8
5.	Healthcare centers with one floor	74	85.1

medications existed in 95.4% of them. Basic regular clinical screening examinations for the

Table 3: Summary of signage at healthcare facilities in Sulaimani Governorate.

	Items	Number	Percentage
	Characters and background are matte/non-glare finish	78	89.7
	Characters contrast with background	74	85.1
	Simple and understandable. Only keywords	76	87.6
	For manual boards, black felt signs on white/light yellow, on a non-glossy background	65	74.7
	Welcoming tone	84	96.6
	Identifying signs inside building for accessible areas	75	86.2
	Clearly marked emergency exits	32	36.8
	Directional signs at points of change of direction	18	20.7
	Identifying signs outside building	87	100
	Guiding signs outside building on routes	38	43.7
	Understandable room numbering	46	52.9
	Familiar pictures to community are used to increase effectiveness	15	17.2
	Increasing effectives and emphasize key points by color	58	66.7
	Billboard for directions	39	44.8
	Braille signage	0	0
	Placement of all signs at eye level	86	98.9
	Sizes of letters of all signs are good	80	92
	Personnel are easily identifiable through badges	11	12.6

elderly were conducted in a few PHCCs (7/87 [8%]). The number of healthcare centers that make home visits was 17/87 (19.5%). Discount was not available for all of them (10/87 [11.5%]). These results are detailed in Table 4.

Sulaimani governorate selected 13 out of 87 PHCCs (14.9%) to be age-friendly; all of them were in Sulaimani city, and none of the 13 age-friendly PHCCs were in Garmian or Raparin Administration However, this study found that only 3/87 (3.4%) of them were in the range of the WHO age-friendly PHCCs recommendations with a score of >75%, while 64/87 (73.6%) were partially age-friendly with scores of 50–74% and 20/87 (23%) were not age-friendly PHCCs with a score <50%. These findings are presented in Table 5.

The assessment of the mean score of the PHCCs in the three regions of Sulaimani Governorate revealed a 57.55% score for Sulaimani city while the score for Garmian and Raparin were similar. In addition, there was a similarity in the mean of government age-friendly and non-age-friendly PHCCs (67.28, 54.11, respectively), as presented in Table 6.

4. Discussion

In the culture of the Kurdistan Region, as in the rest of Iraq, the community bonds are strong, the society traditionally holds great respect for older adults, and families often play a central role in caregiving. By integrating these cultural considerations into the design and delivery of healthcare services, age-friendly PHCCs in the Kurdistan Region/Iraq can better meet the needs and expectations of older individuals while respecting and preserving the cultural richness of the community.

PHCCs have been shown to improve health outcomes, cut costs, and increase health equity

Table 4: The existence of medical staff and medical healthcare services in the PHCCs in Sulaimani Governorate.

Medical services	Frequency (n = 87)	Percentage
Referral sheet	76	87.4
Ambulance	24	27.6
Computerized system	3	3.4
Staff initiates introduction to sensory-deprived patients	85	97.7
Staff training	15	17.2
Geriatric doctor	0	0
Any doctor	77	88.5
Geriatric nurse	0	0
Physiotherapy	14	16.1
Occupational therapy	0	0
Ultrasound available	18	20.7
Ultrasound functional	12/18	66.6
X-ray available	24	27.6
X-ray functional	16/24	66.6
ECG available	48	55.2
ECG functional	42/48	87.5
Lab tests available	74	85.1
Medication	83	95.4
Screening record	0	0
Regular screening	7	8
Payment discount	10	11.5
Home visit	17	19.5

Table 5: Age-friendliness of the PHCCs.

Government-selected PHCCs		Frequency	Percentage
Not age-friendly		74	85.1
Age-friendly		13	14.9
Total		87	100.0
	Actual age-friendliness of the PHCCs		
	Score	Frequency	Percentage
Not age-friendly	<50%	20	23.0
Partially age-friendly	50–74%	64	73.6
Age-friendly	>75%	3	3.4
Total		87	100.0

[9, 10]. Effective implementation of age-friendly PHCCs requires commitment at national and local levels, including adequate funding to meet the needs of the elderly population and adequate number of trained staff [7]. Global aging is on the continuous rise and has resulted in older people living longer with a higher risk of chronic conditions that often lead to disabilities. The most common disabilities found in older people are reduced vision, hearing problems, and difficulties in mobility

Table 6: The mean score of age-friendly PHCCs in Sulaimani governorate.

		Mean score (P-value 0.07)			
		Mean	**Standard Deviation**	**Minimum**	**Maximum**
Regions	Sulaimani city (*n* = 61)	57.55	9.86	32	79
	Garmian district (*n* = 10)	52.13	9.64	32	64
	Raparin district (*n* = 16)	52.92	7.57	40	67
		Mean score (P-value 0.0001)			
		Mean	**Standard Deviation**	**Minimum**	**Maximum**
Government	Not-age-friendly	54.11	8.73	32	72
	Age-friendly	67.28	6.36	59	79

[7]. Many older people require wheelchairs for mobility, either temporarily or permanently. Older people, whether disabled or non-disabled, need PHCCs for their health care. PHCCs should provide a suitable environment where older people can move around independently, actively, safely, and securely [7].

PHCCs may fail to meet age-friendly criteria for various reasons, and these challenges can often be attributed to cultural, economic, or policy-related factors. Cultural factors that hold traditional views on aging may not prioritize the unique needs of older individuals. Lack of awareness or understanding of the specific healthcare requirements of the elderly can result in insufficient services and facilities. Besides, in cultures where family plays a central role in caregiving, there may be less emphasis on developing formal healthcare services for the elderly.

PHCCs might not be adequately equipped to address the complex health issues associated with aging, and in economically challenged areas, they may struggle with limited resources, affecting the quality and accessibility of services for all age groups [11]. This can result in a lack of specialized care for elderly patients. Economic disparities can contribute to the inability of older individuals to access necessary healthcare services. Age-friendly criteria may not be met if financial barriers are preventing the implementation of necessary improvements. Insufficient or outdated healthcare policies may not adequately address the needs of the aging population. There might be a lack of specific guidelines or incentives for PHCCs to tailor their services to meet age-friendly criteria [12].

The results of the current study revealed that public transportation was available for less than half of the PHCCs, and nearly one-third of the PHCCs were close to the nearby stations at a distance of <50 m. Furthermore, car parking was available for only two-thirds of the PHCCs; however, many of patients cannot reach the PHCCs easily and need to pay for private transportation. Similarly, in a 2017 study conducted in Dubai, it was observed that although public transportation covered a wide geographic area and was well-equipped for use by seniors and the disabled, most of the healthcare centers were not easily accessible by public transportation. The reason could be the fact that private cars are the primary means of transport in Dubai [13]. Similarly, in Riyadh City, Kingdom of Saudi Arabia, where private cars make up 93.4% of all types of transportation and more than half of the families own two or more

private cars, this dependence on private cars is observed. For this reason, none of them were served by public transportation [14].

On the other hand, studies in Iraq, Egypt, Malaysia, and Hong Kong revealed that almost all PHCCs are served by public transportation [15]. This can be explained by the fact that most centers are built near public transport stops or near major roads. This is important because generally most of the elderly suffer from chronic diseases such as arthritis, heart disease, or cerebrovascular disease, and it would be difficult for them to reach PHCCs on foot. Thus, in Sulaimani governorate, transportation to PHCCs is an important issue for elderly people, especially for those with low income, and represents a real obstacle in reaching the PHCCs, in addition to the older people facing difficulty in navigating the location of PHCCs. According to an Egyptian study, frequent visits of the elderly to PHCCs can reduce hospital admissions, so these need to be as accessible as possible [10].

In this study, the slop design of the PHCCs entrance and the absence of steps, railings, and grab bars in many PHCCs made it difficult for the elderly to enter these centers. In Saudi Arabia, Alhamdan *et al*. [14] found that PHCCs have safe and easy entrances for elderly people.

According to the WHO safety measures for the elderly, the width of entrances and corridors should be wide enough to allow the comfortable walking of elderly people; these standards were observed in all the PHCCs of the three Sulaimani governorate districts, where the corridors were >1 m wide and free of obstacles which are suitable for wheelchairs to move freely and safely. This result is consistent with the findings of the studies conducted in Riyadh and Baghdad, which showed that the majority of the centers had an entrance and a corridor about 1 m of the center entrance which is suitable for wheelchairs [14, 15].

Regarding the waiting areas, older people need enough numbers of and comfortable seating to wait without causing fatigue and injury. The current results showed that there were enough and comfortable seats present in the centers. This is consistent with the Baghdad PHCCs, which are equipped with satisfactory seats [15]. Moreover, rooms and corridors were found to be mostly well-lit and ventilated, and furniture and fittings were well-organized to reduce falls. Furthermore, the floor was non-slippery and well-maintained, and wheelchairs were mostly available for frail people. Likewise, the results of the Dubai study revealed that the corridor criteria were satisfactory in most PHCCs [13]. Disappointingly, in 85% of the PHCCs, the interior design was not supported by grab bars which puts the elderly at risk of falls. Similarly, the absence of interior grab bars was also observed in most of the PHCCs in Riyadh and Dubai [13, 14].

The toilets of the PHCCs were near waiting halls; their entrances were accessible to wheelchair users and the toilet facilities were at appropriate levels. Ventilators and water were available in all toilets which were clean, however, grab bars were absent in all toilets which can make standing up for elderly people difficult; and this difficulty is increased by the absence of Western-style toilets in all PHCCs. Although the absence of Western-type toilets may be due to cultural norms as the elderly are less familiar with using them and may misuse them, this represents a negative point in the design of PHCCs.

Looking at refreshments, older people require a sufficient source of drinking water because the majority of them have chronic illnesses and cannot withstand hot summers. Surprisingly, the current study showed that less than half of the PHCCs provided drinking water and disposable cups. Likewise, a study in Baghdad revealed that <25% of the centers in AL-Karkh and AL-Russafa

had access to acceptable drinking water sources and disposable cups [15].

Regarding the healthcare center layout, most of the centers have one floor; rooms are organized and logically distributed, but virtually only one-third align the reception counter. Emergency exits were found in about half of PHCCs, and fire extinguishers were provided for most of them. This is in accordance with the Dubai healthcare centers, wherein most of them are one level and rooms were organized in logically but the availability of reception counter and emergency exit were unlike ours: they were present in all of the centers (100%) [13]. One-level buildings and logically organized rooms are much safer and more comfortable for the elderly. On the other hand, the lack of a reception counter in PHCCs may confuse and be time-consuming for elderly people, as reception serves as a first point of contact for healthcare service users, and medical receptionists coordinate appointments and deal with patient concerns and emergencies.

In Sulaimani, the PHCC signage was generally unsatisfactory, for instance, poorly observed emergency exits and a lack of directional signs, room numbering, familiar pictures, and identifying personnel through badges. Additionally, Braille signage was not provided. On the other hand, the PHCCs were satisfactory in signage size, color, proper level, and contrast background. The results of an Egyptian study were in line with ours; the letter sizes of signage were appropriate, non-glare producing, characters contrasted with background and signs displayed at an appropriate level in around half of them, and familiar pictures were not used to increase effectiveness [10]. In mitigation of this, Egypt staff were easily identified by the elderly visitors (62%); however, in the current study, the PHCCs are not straightforwardly identified by service consumers (11/87 [12.6%]). In Saudi Arabia, the format of PHCCs and their signage were generally satisfactory, except for Braille signage (0%) [14]. In all the studied Saudi centers, staff were easily identified by name, badge, and title. In Dubai, when it comes to meeting the WHO's toolkit's recommendations for signage, the compliance rate is significantly lower than that of physical building properties, and the majority of signage items are either present in all PHCCs or absent from all. This is because all signs must adhere to the signage policy of the DHA health center [13]. The use of image symbols should be considered for people with visual impairments or those who are illiterate, because the usual signage may be insufficient in these situations. Improving PHCCs for older adults in terms of design, internal environment, and healthcare services would give more confidence to older adults to visit PHCCs for health examinations and follow-up appointments.

To maintain and manage the numerous medical, cognitive, social, and psychological problems, geriatric medicine (GM) is essential. However, the fundamentals of GM, which are crucial for improving the care of elderly people, are frequently misunderstood or ignored, particularly in nations where GM is still under development [16]. The shortage of qualified healthcare professionals is one of the biggest obstacles to healthcare, which is directly related to the quality of care delivered and, consequently, to the treatment's outcome. In this study, it was observed that most of the PHCCs recruited doctors and nurses, of whom none were geriatricians. Nurse-practitioner programs and training to prepare nurses to provide primary healthcare to the elderly are poor in Sulaimani Governorate. This is in contrast to Baghdad, Iraq, where most of the doctors and more than half of the health staff had training in geriatric health services [15].

The referral system plays a major role in managing the transfer of patients from primary to secondary and tertiary healthcare facilities. The

results revealed that referral forms were provided in most of the centers but ambulances were available in only a quarter of them. This is due to the centralization of the referral services through the hot phone line 122.

Globally, at various levels of the healthcare sector, the computerized health information system has been used to collect, process, store, and transfer necessary information for planning and decision-making to provide high-quality services. In addition to saving valuable information that is essential for surveillance, computerization is the crucial way to a more advanced method of recording, analyzing, and comprehending the situation of the patient. According to our findings, only three centers, which represent only 3.4% of the total PHCCs, had a computerized health information system. In contrast, a study in Baghdad stated that a quarter of the PHCCs use computerized health information systems [15]. The lack of a computerized healthcare management system in most of the Sulaimani PHCCs is an obstacle to the implementation of good healthcare service delivery, monitoring, and supervision.

Any patient consulting PHCC must be accurately diagnosed to take advantage of essential medications. Our results show that diagnostic facilities were provided for a quarter to half (20.7–55.2%) of the PHCCs and some of these equipment were not in use. However, essential lab tests and medications were available for the majority of the centers, thus patient management in many PHCCs of Sulaimani Governorate relies on syndromic diagnosis and empiric treatment when laboratory diagnostics and imaging techniques are unavailable [17].

The current study showed that regular comprehensive geriatric screening (CGA) was conducted insufficiently, and in a few PHCCs, without recording of screening results. Time limits by medical staff and lack of specific training are the main factors for inadequate CGA in PHCCs [18]. Home visits were done in nearly a fifth of PHCCs; these visits were mostly done for the elderly who cannot reach the centers because of movement difficulties. The home-visit staff should be encouraged to efficiently deliver the healthcare services to the elderly people.

Sulaimani Health Directorate selected 13 out of the 87 PHCCs in Sulaimani city to be age-friendly, which means that age-friendly PHCCs were completely absent in Raparin and Garmyan districts – this will impose more burden on secondary care facilities due to direct elderly visits to hospitals. Indeed, a study in England stated that stronger primary healthcare improves the population's health outcomes and reduces hospitalization rates [19].

Finally, we applied a scoring system to assess the age-friendliness of Sulaimani Governorate PHCCs and the results showed that most of the centers were partially age-friendly and only three met the WHO criteria of age-friendly PHCCs, which reflects a shortage in healthcare services applied for old people in Sulaimani Governorate. To the best of our knowledge, this is the first study that utilizes a scoring system to assess the age-friendliness of PHCCs in the Middle East. Moreover, upon searching in different search engines, no comparable study that applied such a scoring system for PHCC assessment was found.

Age-friendly healthcare centers need to be actively engaged with the community, involving local leaders and influencers to build trust and promote awareness of available health-care services. Healthcare providers should be trained to communicate respectfully with older patients, considering language preferences and any potential communication barriers. PHCCs need to implement measures to ensure the dignity of older patients, such as providing

private consultation spaces and respecting cultural norms related to dress and modesty [20], they ought to be culturally competent, recognizing and respecting the diversity within the older population and tailoring services accordingly. Healthcare providers must be open to discussing and integrating traditional practices into the care plan if deemed appropriate by the patient and their family [7].

5. Conclusion

Only 3.4% of PHCCs in Sulaimani Governorate were age-friendly and most of the centers were partially age-friendly. Geriatric doctors and nurses were not recruited and geriatric training programs for medical staff were not satisfactory. Public transport was either not present or too far from many PHCCs. Many centers have risky walking entrances, but corridors were well-lit, ventilated, and wide enough for the movement of wheelchairs in most centers, however, garb bars did not exist in most corridors. Most of the centers have one floor; rooms are organized and comfortable for the elderly. A computerized health management system was absent in most of the PHCCs, and diagnostic techniques were insufficient in many of them. The implementation of elderly health screening programs in PHCCs was primitive. Improving PHCCs to become more age-friendly requires a comprehensive approach that addresses various aspects, including assessment and upgrading the infrastructures of PHCCS, enhancing the staff training on geriatric care by further cooperation with the Ministry of Health in Iraq to provide more training courses for Sulaimani medical staff. Future research on the age-friendliness of PHCCs should be conducted in other parts of Iraq to acquire a better understanding of the quality of primary healthcare services given to older adults and to determine compliance with the WHO age-friendly PHCCs parameters.

Limitations

This cross-sectional study design may provide a snapshot of age-friendliness at a specific point in time, however, it may not capture changes over time, limiting the study's ability to assess the sustainability of age-friendly practices. The study may not capture the full range of elements influencing age-friendliness, and important aspects may be overlooked. The absence of universally accepted criteria for age-friendly healthcare may lead to variability in how age-friendliness is assessed.

Declaration

Acknowledgements

The authors are thankful to the Ministry of Health of Kurdistan Region Government/Iraq, Directorate of Health of Sulaimani, Garmyan, and Raparin, and PHCCs directors who allowed them to conduct this study.

Ethical Considerations

This research is a part of a PhD study and was granted approval (reference no. CH00037) from the ethics committee of the College of Health and Medical Technology, Sulaimani Polytechnic University. Prior to the data collection, written consent was obtained from the related authorities in the Kurdistan Region, Iraq (Ministry of Health, Directorate of Health of Sulaimani, Garmyan, and Raparin).

Competing Interests

The authors declare that they have no competing interests.

Availability of Data and Material

Anonymous data are available.

Funding

This study was self-funded.

Abbreviations and Symbols

PHCC: Primary healthcare center

ECG: Electrocardiography

GM: Geriatric medicine

CGA: Comprehensive geriatric screening

References

[1] Dhillon, R. J., & Hasni, S. (2017). Pathogenesis and management of sarcopenia. *Clinics in Geriatric Medicine, 33*(1), 17–26. https://doi.org/10.1016/j.cger.2016.08.002

[2] Yakubu, Y. H., Fuseini, A. G., & Holroyd, E. (2022). Nurses' attitudes towards hospitalized older adults in a tertiary care setting in Ghana. *Nursing Open, 9*(4), 2054–2062. https://doi.org/10.1002/nop2.1216

[3] Song, Y., Ma, W., Yi, X., Wang, S., Sun, X., Tian, J., Wang, S., Zheng, C., Zhang, B., Xu, Z., & Marley, G. (2013). Chronic diseases knowledge and related factors among the elderly in Jinan, China. *PLoS One, 8*(6), e68599. https://doi.org/10.1371/journal.pone.0068599

[4] Wei-Jun Jean, Y., Desai, S., & Jones, G. W. (2018). Families in Southeast and South Asia. Annual *Review of Sociology*, *2018*, 469–495.

[5] Tavares, J., Santinha, G., & Rocha, N. P. (2021). Age-friendly health care: A systematic review. *Healthcare*, *9*(1); 83. https://doi.org/10.3390/healthcare9010083

[6] WHO. (2004). *Towards age-friendly primary health care*. WHO. https://www.emro.who.int/images/stories/elderly/documents/towards_age_freindly_phc.pdf?ua=1#:~:text=The%20age%2Dfriendly%20primary%20health,centres%2C%20in%20particular%20older%20persons.

[7] World Health Organization. (2008). *Age-friendly primary health care centres toolkit*. World Health Organization.

[8] Osman, M. (2021). *Kurdistan region of Iraq Population Analysis Report* (February). https://krso.gov.krd

[9] Ramalho, A., Castro, P., Gonçalves-Pinho, M., Teixeira, J., Santos, J. V., Viana, J., Lobo, M., Santos, P., & Freitas, A. (2019). Primary health care quality indicators: An umbrella review. *PLoS One, 14*(8), e0220888. https://doi.org/10.1371/journal.pone.0220888

[10] El-Gilany, A., El-Bastawesy, S., & Ibrahim, A. (2018). Internal physical environment of health care facilities and services provided for elderly in Port Said, Egypt. *International Journal of Nursing, 8*(11).

[11] McMaughan, D. J., Oloruntoba, O., & Smith, M. L. (2020). Socioeconomic status and access to healthcare: Interrelated drivers for healthy aging. *Frontiers in Public Health, 8*(June), 231. https://doi.org/10.3389/fpubh.2020.00231

[12] Tavares, J., Santinha, G., & Rocha, N. P. (2024). Unlocking the WHO's age-friendly healthcare principles: Portugal's quest and recommendations. *International Journal of Environmental Research and Public Health, 20*(22), 7039. https://doi.org/10.3390/ijerph20227039

[13] Abdellatif, T. M. F., Al Jaziri, A. M. S. A., Taryam, M. M. O., Monsef, N. A., Buharoun, A. I., Elbadawi, S. A. M., Ashtar, M. S. (2017). Dubai primary health care centers conformation to WHO age-friendly primary healthcare recommendations. *Advances in Aging Research, 06*(06), 83–92. https://doi.org/10.4236/aar.2017.66009

[14] Alhamdan, A. A., Alshammari, S. A., Al-Amoud, M. M., Hameed, T. A., Al-Muammar, M. N., Bindawas, S. M., Al-Orf, S. M., Mohamed, A. G., Al-Ghamdi, E. A., & Calder, P. C. (2015). Evaluation of health care services provided for older adults in primary health care centers and its internal environment. A step towards age-friendly health centers. *Saudi Medical Journal, 36*(9), 1091–1096. https://doi.org/10.15537/smj.2015.9.11789

[15] Tariq, E., & Lafta, R. (2018). A profile on health-care services for old in Baghdad. *Mustansiriya Medical Journal, 17*(1), 52. https://doi.org/10.4103/MJ.MJ_13_18

[16] Kotsani, M., Kravvariti, E., Avgerinou, C., Panagiotakis, S., Bograkou Tzanetakou, K., Antoniadou, E., Karamanof, G., Karampeazis, A., Koutsouri, A., Panagiotopoulou, K., Soulis, G., Stolakis, K., Georgiopoulos, I., & Benetos, A. (2021). The relevance and added value of geriatric medicine (Gm): Introducing gm to non-geriatricians. *Journal of Clinical Medicine, 10*(14), 1–19. https://doi.org/10.3390/jcm10143018

[17] Yadav, H., Shah, D., Sayed, S., Horton, S., & Schroeder, L. F. (2021). Availability of essential diagnostics in ten low-income and middle-income countries: Results from national health facility surveys. *The Lancet. Global Health, 9*(11), e1553–e1560. https://doi.org/10.1016/S2214-109X(21)00442-3

[18] Seematter-Bagnoud, L., & Büla, C. (2018). Brief assessments and screening for geriatric conditions in older primary care patients: A pragmatic approach. *Public Health Reviews, 39*(1), 8. https://doi.org/10.1186/s40985-018-0086-7

[19] Dolton, P., & Pathania, V. (2016). Can increased primary care access reduce demand for emergency care? Evidence from England's 7-day GP opening. *Journal of Health Economics, 49*, 193–208. https://doi.org/10.1016/j.jhealeco.2016.05.002

[20] Tumosa, N. (2024). Using the age-friendly health systems framework to track wellness and health promotion priorities of older adults in the global community. *International Journal of Environmental Research and Public Health, 20*(5), 4617. https://doi.org/10.3390/ijerph20054617