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RESEARCH ARTICLE

ASSESSMENT OF THE PHYSICAL AND FUNCTIONAL ASPECTS OF PRIMARY HEALTH CARE CENTERS

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ABSTRACT

BACKGROUND:

Adequate information and data are required for assessing the primary health care system's performance. This study aimed to assess the physical and functional aspects of a sample of primary health care centers in Erbil, Iraqi Kurdistan Region.

METHODS:

This quantitative cross-sectional study was conducted on eight randomly selected primary health care centers in Erbil, Iraqi Kurdistan Region. An assessment tool was designed to evaluate the selected centers' physical and functional performance, including physical infrastructure, workforce, preventive care, curative care, and support. We adopted a scoring system to measure performance based on several criteria for every aspect.

RESULTS:

The overall quality of physical and functional aspects of the primary health care centers was low. Two primary health care centers were judged to perform well, and both were in Erbil city. The centers located in Erbil city performed best in most aspects, followed by the centers in areas around Erbil city. The primary concerns causing the poor performance of various aspects were poor building status and unsuitable waiting areas for the physical structure component, unavailability of diagnostic facilities for curative care, and shortage of family planning services and lack of female doctors for preventive care. Other major concerns were the low health staff ratio compared to administrative staff and the unavailability of training and continuing professional development opportunities.

CONCLUSIONS:

The primary health care centers performed poorly in most physical and functional aspects. This poor performance was particularly evident in the centers located outside Erbil city. The main components and issues affecting the performance were recognized and described.

KEYWORDS

Primary health care, physical assessment, poor performance, Erbil

INTRODUCTION

Primary care is a core component of a health care system as it provides an essential front-line resource for curative and preventive health care services, especially for those without other access to health care and in low-income countries [1,2]. A strong primary care system is central to improving the health of the country and, in particular, removing inequalities in health. Research evidence is available about the specific contribution primary care can make to improved health outcomes [3,4].

Primary care refers to providing comprehensive, integrated, accessible, and continuing health care services to individuals and families during the first presentation to the formal health system. It can be defined as an approach to health care involving a wide range of services aimed at keeping people well [5]. Primary care services include curative, promotion, preventative, rehabilitation, and supportive services. Such services vary from health promotion and disease screening to assessment, diagnosis, treatment, rehabilitation, and personal social services. These services are usually provided at primary level facilities, including clinics, health posts, outpatient departments in district hospitals, community health centers, and outreach services like home visits and mobile services [6]. Thus, primary care services provide a fully accessible first-level contact by self-referral. These services strongly emphasize working with individuals and communities to improve their health and social well-being [7]

Primary health care services should be provided equitably, effectively, and efficiently. Availability, accessibility, and quality of care are the main dimensions of an effective primary health care system [3]. To ensure the availability and accessibility of a particular service, the primary health care facility should have the required resources such as infrastructure, workforce, supplies, and equipment. Only with these resources can we ensure the provision of effective and quality care at these facilities that can reasonably meet standards of care [8].

Research evaluating primary health care services focuses on organizational evaluations, care performance assessments, and critical assessment of the institutional mechanisms for monitoring and assessing the services [9,10]. There are several validated tools used to assess primary health care, including the WHO Primary Care Assessment Tool (PCET) [11], the General Practice Assessment Questionnaire (GPAQ), the ADHD Questionnaire for Primary Care Providers (AQ-PCP), and the Primary Care Assessment Tool (PCAT) [9,12]. The main dimensions of evaluation in the above tools include stewardship, resource generation, finance, and delivery of care. The delivery of care dimensions, which is the main interest of the current study, is based on a number of functions, including access to services, continuity, coordination, and comprehensiveness [11]. It has been emphasized that there is a need for country specific research tools to assess primary health care, which can assist in providing new directions to improve primary health care and family healthcare in that country [13].

Primary health care services in Iraq are provided by a network of public primary health care centers. Over the last few decades, devastating internal conflicts, wars, international sanctions, and political and security instability significantly affected the health care system in Iraq [14,15]. Iraq witnessed a substantial drop in major health indices resulting in having damaged health system struggling to address the population's needs. The Iraqi primary health care system was significantly affected by these devastating effects. The primary health care system continues to face the problems common throughout the Iraqi health care system [15-17].

It is generally agreed that the primary health care system in Iraq and the Kurdistan region is poorly functioning. There is an essential and urgent need to reorganize and restructure primary health care services [15,18]. To do this effectively, there is a need for a comprehensive assessment of the primary care system as there is limited empirical and documented knowledge available on the challenges facing the primary health care system in Iraq, especially in the Kurdistan region [19]. Also, adequate information and baseline data are needed to evaluate the performance of the primary health system [20]. The availability of such knowledge can provide the health policy and decision-makers with knowledge about

the quality of primary care services, help determine the potential for development, and direct action to improve the primary care system. Therefore, this study aimed to evaluate the physical and functional components of a sample of primary health care centers in Erbil governorate, Iraqi Kurdistan Region.

METHODS

DESIGN AND SETTING

This cross-sectional study was carried out in Erbil governorate, Iraqi Kurdistan Region. This study involved quantitative evaluation of the physical and functional aspects of a sample of primary health care centers using a set of criteria and a scoring system.

SAMPLING

Eight primary health care centers were selected through a stratified random sampling method. A sample frame of all main primary health care centers within Erbil governorate stratified by their geographical locations was obtained. The sample included three primary health care centers from Erbil city center stratum, three primary health care centers from areas around Erbil city stratum, and two primary health care centers from remote areas to Erbil city stratum.

DATA COLLECTION TOOL

Structural quality was evaluated in reference to the expected standards. An initial list of structural criteria based on national and international standards was developed. This list used the existing supervision checklists in Iraq and some tools from other countries [11,13,19]. The list was reviewed and finalized in consultation with several public health academics, professionals, and health managers within Erbil governorate. This step helped in ensuring the local relevance of the assessment tool.

The selected criteria reflected realistic expectations of the primary health care center structure and services needed to provide quality care. For each criterion, good, average, poor performance, and unavailability were defined in statements of expected availability/practice. The criteria assessed the condition of physical infrastructure, curative care (case management facilities, drugs, equipment, care providers), preventive care (preventive structural facilities, care providers, supplies), workforce (number of care providers and type of professions) and the support received (supervision, training, ambulance).

We developed a scoring system to evaluate performance based on 18 to 42 criteria for each component. For each criterion, unavailability scored '0' point, poor performance scored '1' point, average performance scored '2' points, and good performance scored '3' points. The total score for each center was calculated as a percentage of the maximum total and represented the overall performance. A standard of 60% was decided to differentiate between good and poor-quality health facilities regarding physical and functional performance.

The criteria were also grouped under various subclasses to allow a more detailed evaluation of various components of each aspect. For each subclass, the total scores were calculated as the percent of the maximum total to allow comparison across health facilities. Exploratory data analysis was conducted, allowing the full exploration of the available data.

ETHICAL ASPECTS

The anonymity of the primary health care centers included in the study was ensured. Coding of the primary health care centers was used to report the results. As one person undertook all observations, an assessment of inter-observer variation was not necessary. The Research Ethics Committee of the author's institution provided ethical approval (IRB reference number 4/16 dated 20.05.2020).

STATISTICAL ANALYSIS

The statistical package for the social sciences (IBM SPSS Statistics version 22) was used for data analysis. Data analysis included calculating overall and category-specific total and mean scores and descriptive statistics presented in tables.

RESULTS

OVERALL PERFORMANCE

The physical and functional quality was generally low. Two out of eight primary health care centers were considered to perform well based on the 60% standard. Both primary health care centers were located in Erbil city, one in high and one in middle socioeconomic sectors. Primary health care centers located in Erbil city performed better in all components, followed by the primary health care centers located around Erbil city and the primary health care centers located in remote areas. The primary health care centers performed best in the physical structure component. This was followed by curative care and workforce components. Table 1 shows the details of the overall physical and functional performance of the primary health care centers.

TABLE 1: THE OVERALL PHYSICAL AND FUNCTIONAL PERFORMANCE OF THE PRIMARY HEALTH CARE CENTERS

Component	Erbil city			Around Erbil city			Remote of Erbil city	
	Center 1	Center 2	Center 3	Center 4	Center 5	Center 6	Center 7	Center 8
Physical structure	66.7	54.5	51.4	44.5	50.2	39.3	48.3	36.0
Workforce	57.6	69.7	60.8	46.5	39.2	49.9	19.7	28.8
Preventive care	59.3	70.6	39.0	23.9	28.3	29.6	33.9	20.7
Curative care	66.6	72.5	58.1	43.2	45.5	52.2	32.9	32.3
Support	41.2	58.3	62.0	46.8	25.7	44.9	15.3	27.8
Overall	**61.4**	**65.8**	**54.3**	**41.2**	**40.3**	**44.1**	**33.2**	**31.5**

PHYSICAL STRUCTURE PERFORMANCE

The unavailability of guiding labels, poor building status, poor healthy buildings, lack of gardens, and unsuitable waiting areas primarily undermined the physical structure of primary health care centers. Only one primary health care center was considered to perform at good levels based on the 60% standard for the physical structure component. This primary health care center was located in the high socioeconomic status of Erbil city. The primary health care centers in Erbil city performed better, followed by the primary health care centers around Erbil city, and the primary health care centers in remote areas. Table 2 shows the details of the physical structure performance of the primary health care centers.

TABLE 2: THE PHYSICAL STRUCTURE PERFORMANCE OF PRIMARY HEALTH CARE CENTERS

Component	Erbil city			Around Erbil city			Remote areas	
	Center 1	Center 2	Center 3	Center 4	Center 5	Center 6	Center 7	Center 8
Landmark sign	66.7	66.7	66.7	66.7	66.7	33.3	66.7	33.3
Guiding label	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0
General view	66.7	33.3	33.3	66.7	66.7	33.3	66.7	33.3
Healthy building	66.7	33.3	33.3	33.3	66.7	33.3	33.3	33.3
Hygiene	100.0	33.3	66.7	66.7	66.7	33.3	66.7	66.7
Building status	66.7	33.3	33.3	33.3	66.7	33.3	66.7	33.3
Garden	100.0	66.7	66.7	0.0	0.0	66.7	33.3	33.3
Air-conditioning	66.7	33.3	66.7	33.3	33.3	66.7	66.7	33.3

AC Generator	66.7	66.7	100.0	66.7	66.7	66.7	66.7	66.7
Waiting area	66.7	46.7	53.3	40.0	53.3	33.3	43.3	36.7
Toilets	66.7	50.0	33.3	50.0	50.0	50.0	66.7	33.3
Distance from main referral centers	55.6	77.8	55.6	55.6	55.6	33.3	33.3	33.3
Overall	**66.7**	**54.5**	**51.4**	**44.5**	**50.2**	**39.3**	**48.3**	**36.0**

CURATIVE CARE PERFORMANCE

Two primary health care centers, one from the high and one from the middle socioeconomic sectors of Erbil city, were considered to perform at good levels based on the 60% standard. This component of the primary health care centers was primarily affected by a lack of labor services, investigation facilities like ultrasound, x-ray, and laboratory facilities, the number of doctors in the primary health care centers, and the proportion of doctors per inhabitants. There was a wide variation between the primary health care centers of Erbil city and those outside Erbil city. Details of the curative care performance of primary health care centers are shown in Table 3.

TABLE 3: THE CURATIVE CARE PERFORMANCE OF PRIMARY HEALTH CARE CENTERS

Component	Erbil city			Around Erbil city			Remote areas	
	Center 1	Center 2	Center 3	Center 4	Center 5	Center 6	Center 7	Center 8
Case management facilities	94.4	66.7	88.9	66.7	52.8	47.2	55.6	55.6
Doctors	77.8	100.0	55.6	55.6	11.1	22.2	0.0	11.1
Health workers	100.0	100.0	100.0	66.7	66.7	100.0	33.3	16.7
Consultation, inhabitants per doctor	66.7	66.7	16.7	50.0	33.3	41.7	16.7	66.7
Pharmacy	57.1	50.0	71.4	57.1	53.6	50.0	50.0	35.7
Drug store	80	70	70	70	60	50	70	0
Dental services	66.7	74.1	70.4	0.0	55.6	59.3	55.6	50.0
Laboratory	73.3	53.3	66.7	46.7	46.7	46.7	46.7	0.0
Labor room	0.0	78.9	0.0	0.0	0.0	0.0	0.0	0.0
X-ray	66.7	80.0	40.0	0.0	40.0	80.0	0.0	0.0
Ultrasound	75.0	83.3	50.0	0.0	0.0	16.7	0.0	0.0
ECG	66.7	83.3	66.7	83.3	83.3	83.3	0.0	83.3
Drugs	58.3	58.3	50.0	58.3	66.7	66.7	66.7	66.7
Supply	50.0	50.0	66.7	50.0	66.7	66.7	66.7	66.7
Overall	**66.6**	**72.5**	**58.1**	**43.2**	**45.5**	**52.2**	**32.9**	**32.3**

PREVENTIVE CARE PERFORMANCE

One primary health care center was considered to perform well in the preventive care component. The primary health care centers located around and remote from Erbil city performed exceptionally low. The main concerns in this component were related to a lack of family planning services, female doctors and pediatricians, and ultrasound for antenatal care services. Table 4 shows the details of the preventive care performance of primary health care centers.

TABLE 4: THE PREVENTIVE CARE PERFORMANCE OF PRIMARY HEALTH CARE CENTERS

Component	Erbil city			Around Erbil city			Remote areas	
	Center 1	Center 2	Center 3	Center 4	Center 5	Center 6	Center 7	Center 8
Health education posters	100.0	33.3	66.7	33.3	33.3	33.3	66.7	33.3
Vaccination	78.9	73.7	68.4	63.2	55.3	52.6	63.2	52.6
Antenatal care	78.9	68.4	68.4	0.0	55.3	52.6	57.9	0.0
Female doctors	33.3	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Ultrasound	70.0	80.0	40.0	0.0	0.0	20.0	0.0	0.0
Pediatricians	0	100	0	0	0	0	0	0
Growth monitoring	63.2	78.9	52.6	68.4	60.5	57.9	63.2	50.0
Oral rehydration	59.1	59.1	54.5	50.0	50.0	50.0	54.5	50.0
Family planning	50.0	42.1	0.0	0.0	0.0	0.0	0.0	0.0
Overall	**59.3**	**70.6**	**39.0**	**23.9**	**28.3**	**29.6**	**33.9**	**20.7**

WORKFORCE PERFORMANCE

Two primary health care centers located in Erbil city were considered to perform well in the workforce component. The primary health care centers in remote areas performed exceptionally poorly. The primary problems of this component were related to the shortage of health staff compared to administrative and support staff, the lack of female doctors and pharmacists, and a large number of consultations. Again, the primary health care centers in remote areas performed exceptionally poorly on this component. Table 5 shows the details of the workforce performance of primary health care centers.

TABLE 5: THE WORKFORCE PERFORMANCE OF PRIMARY HEALTH CARE CENTERS

Component	Erbil city			Around Erbil city			Remote areas	
	Center 1	Center 2	Center 3	Center 4	Center 5	Center 6	Center 7	Center 8
Consultation/doctor	66.7	33.3	33.3	33.3	33.3	16.7	50.0	66.7
Inhabitant/doctor	66.7	100.0	83.3	66.7	33.3	66.7	33.3	66.7
Doctors	100.0	100.0	100.0	66.7	33.3	33.3	0.0	33.3
Female doctors	66.7	100.0	33.3	33.3	0.0	0.0	0.0	0.0
Inhabitants/dentist	33.3	66.7	66.7	0.0	66.7	100.0	100.0	100.0
Dentists	66.7	100.0	66.7	0.0	33.3	33.3	0.0	33.3
Inhabitants/pharmacist	33.3	66.7	66.7	100.0	100.0	100.0	0.0	0.0
Pharmacists	0.0	0.0	33.3	33.3	33.3	33.3	0.0	0.0
Health/Admin-Support ratio	0.0	0.0	18.8	44.4	31.7	31.7	0.0	0.0
Health workers	100.0	100.0	100.0	66.7	66.7	100.0	33.3	16.7
Specialist doctors	100.0	100.0	66.7	66.7	0.0	33.3	0.0	0.0
Overall	**57.6**	**69.7**	**60.8**	**46.5**	**39.2**	**49.9**	**19.7**	**28.8**

SUPPORT PERFORMANCE

One primary health care center from Erbil city is considered to perform well on the support component. The primary problems in the support component were the lack of training and professional development opportunities and the

unavailability of ambulances/vehicles. Table 6 shows the details of the support performance of primary health care centers.

TABLE 6: THE SUPPORT PERFORMANCE OF PRIMARY HEALTH CARE CENTERS

Component	Erbil city			Around Erbil city			Remote areas	
	Center 1	Center 2	Center 3	Center 4	Center 5	Center 6	Center 7	Center 8
Administrative facilities	75.0	91.7	91.7	66.7	54.2	66.7	58.3	41.7
Computers	55.6	66.7	55.6	22.2	33.3	77.8	0.0	0.0
Ambulance and vehicles	0.0	75.0	41.7	25.0	0.0	25.0	0.0	25.0
Training	33.3	33.3	33.3	33.3	0.0	33.3	0.0	0.0
Supervision	50.0	50.0	50.0	33.3	33.3	33.3	0.0	0.0
Director at work	33.3	33.3	100.0	100.0	33.3	33.3	33.3	100.0
Overall	**41.2**	**58.3**	**62.0**	**46.8**	**25.7**	**44.9**	**15.3**	**27.8**

DISCUSSION

This study evaluated the physical and functional performance of the primary health care system in the Iraqi context. Primary health care centers in Erbil city performed much better in most aspects than those outside the city. Such a problem is common in most countries since most efforts and resources go to the health facilities in the main urban areas [21]. The best performance of the primary health care centers was in the physical structure and health workforce components. The worst performance was in the support and preventive components. These findings agree with another study that assessed the primary health care system in Iraq [19] and corresponds to a study from a similar context [22].

Several problems of the poor physical structure reported in this study, such as poor healthy buildings, poor building statuses, lack of guiding labels, and unsuitable waiting areas, were similarly reported by another study from Iraq [19]. Infrastructure decay of primary health care facilities is a commonly found problem in most developing counties [23,24]. While Iraqi Kurdistan region has witnessed some expansion of primary health care facilities, much should still be done to reach the required standards. On the other hand, there has been a slow pace of improvement in the rest of Iraq, primarily related to the unstable security situation [17].

Several other studies from Iraq have similarly reported poorly performed curative services in primary health care centers. These studies have also primarily reported on the lack and irrational use of medications, poor patient-provider interaction, and shortage of investigation facilities [18, 25, 26]. Other studies from Iraq have also identified several other problems related to poor curative services in primary health care centers, such as short consultation time, overly and unnecessary prescription of drugs, and overuse of medicine by patients [16, 26, 27].

Regarding preventive services, another study from Iraq also identified antenatal care and immunization as the best functioning services in primary health care centers and recognized health education as the worst functioning service [18]. Preventive services, especially immunization, have good logistical, financial, and training support from international organizations like WHO and UNICEF as part of worldwide programs [28]. As a result, the staff members involved in these programs are better trained and are better established in their positions. Another reason for properly functioning immunization services could be related to having the service provided only by the public sector, thus avoiding the negative effects of public/private conflicts of interest. All these factors, in addition to having these services provided free of charge, make them better utilized and eventually more positively perceived.

The primary problems of the workforce were a lack of health professional staff compared to administrative and support staff, a lack of female doctors, and a large number of consultations. Several other studies from Iraq also reported these concerns. One study identified a poor workforce skill mix, particularly for nurses, and uneven distribution of doctors [19]. A study from Erbil governorate that evaluated the medical professionals' viewpoints of the health system showed good satisfaction toward the availability of adequate nurses and other health care workers in health facilities [29]. Uneven distribution of the doctor workforce and an imbalance in numerical, geographical, specialty, institutional, and gender terms were reported by another study from Erbil [30].

The primary concern in the support component was the need for more training and continuing professional development programs. Other studies from the Iraqi context also reported the lack of training and educational opportunities for the primary health care workforce [16,25,31]. The unavailability of opportunities for professional development for the primary health care workforce is common in many developing and post-conflict countries [32, 33].

The main limitation of this study is having a small number of primary health care centers and only from Erbil governorates. However, it is still an interesting and important pilot study to assess primary health care facilities in Iraqi context. The study highlighted the primary problems facing the primary health care system.

CONCLUSION

This study provided helpful insight into the different problems facing the primary health care system. The primary health care centers performed poorly in most physical and functional aspects. Such poor performance was evident in the primary health care centers located outside Erbil city. The primary components responsible for such underperformance under each of these components were recognized and described.

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