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REVIEW ARTICLE

ASSESSMENT OF THE PRIMARY HEALTH CARE PROCESS IN THE KURDISTAN REGION OF IRAQ: A FOCUSED REVIEW

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ABSTRACT

There is an urgent need to restructure and improve the primary health care system in the Kurdistan Region of Iraq as part of broader health system reforms. However, there is a significant gap in the literature, as few publications provide a comprehensive and structured analysis of the challenges, needs, and opportunities within this system. Therefore, this review addresses this gap by assessing the primary care process component, identifying key barriers, and highlighting opportunities for improvement.

There are significant impediments to primary care delivery. Inappropriate service delivery is primarily due to the irrational use of services, poor referral systems, and irrational treatment. Easy accessibility and almost free-of-charge service delivery are the main features of the access dimension. However, these features frequently result in overutilization and affordability concerns due to the lack of all required services and the reliance on the private sector. The lack of a well-established family medicine system and the inability of people to have a doctor are considered impediments to proper longitudinal continuity of care. The ineffective referral system is a common problem in the current primary care system for the coordination of care. In terms of the comprehensiveness dimension, the primary health care system provides a wide range of primary care services, including preventive and curative health services, but is inadequate in some areas.

Strengthening the primary care process requires establishing a robust family medicine system, improving referral mechanisms, and promoting rational service use to enhance continuity, coordination, and comprehensiveness of care.

KEYWORDS

primary care; challenges; opportunities; process; referral.

INTRODUCTION

Primary care is a key component of a healthcare system as it provides an essential front-line resource for curative and preventive healthcare services, especially for those without other access to healthcare [1]. A robust primary care system is essential to improving the country's health, particularly to eliminate health inequalities. Research evidence is available on the specific contribution primary care can make to improving health outcomes [2].

Primary care can be approached as a system of three complex levels: structure, process, and outcome. Each level consists of several dimensions [3]. The process of a primary care system is a continuous cycle centered on a patient's

needs, from initial contact through ongoing care. The process of a primary care system is determined by four dimensions: access, continuity of care, coordination of care, and comprehensiveness of care [4]. The process of a primary care system is crucial for maintaining long-term health, as it serves as the first point of contact for a wide range of health needs, including prevention, early detection, and the management of chronic conditions. A well-functioning primary care system ensures comprehensive, continuous care, leading to better health outcomes, lower costs, and improved patient-provider relationships. This process helps individuals manage their overall well-being by promoting health, preventing illness, and guiding them through the health system [3,4].

The public, government-run health care system in the Kurdistan Region of Iraq (KRI) consists of a primary care level and a variety of secondary and tertiary hospitals. The former consists of 1,008 primary health care centers (PHCCs), each serving an average population of 6667. About a third (31%) of the centers are staffed by physicians; the rest are smaller centers staffed by nurses or medical assistants [5]. Most nurses have completed secondary nursing school or a two-year diploma after secondary school. The number of university nurses is limited. Medical assistants have completed a special two-year diploma in post-secondary school, mainly in polytechnic universities.

The PHCCs in Iraq provide curative and preventive healthcare services, including curative care (e.g., consultation and prescription) and preventive care (e.g., vaccination, antenatal care, nutrition and growth monitoring, health education, and family planning) [6]. Each PHCC receives 100 patients daily, typically with short consultation times due to overuse of services and inefficient distribution or use of human resources [5,7]. The distribution of PHCCs and staff is generally uneven, with some areas much better served than others [7,8].

The poorly regulated private healthcare sector in the Kurdistan Region of Iraq is consistently growing. It comprises a network of private clinics and hospitals that provide services primarily on an out-of-pocket basis due to the lack of health insurance schemes [9].

The political and socioeconomic events in Iraq during the last few decades had a significant impact on the healthcare system, resulting in an extensive decline in major health indices and leaving a struggling health system unable to address the needs of the population. The primary care system did not escape this devastation and continues to face challenges common to the healthcare system as a whole [10,11].

The health care system in Iraq is hospital-oriented, with little focus on primary care [12]. There is consensus on the poor functioning of the primary care system in Iraq and the urgent need to reorganize and restructure primary care services within the overall health system [13,14]. The primary care system in KRI is under pressure to adapt to the continuously changing, resource-intensive needs of populations with varying morbidity patterns amid prolonged political, economic, security, and humanitarian crises [14]. There is a need to understand the problems and needs of the primary care system in KRI [15]. This understanding can provide Iraqi policy and decision-makers with information on the quality of primary care services, help them identify development opportunities, and guide action to improve the primary care system. While there is an urgent need to comprehensively evaluate Iraq's entire primary healthcare system, a targeted assessment of the process component offers a critical opportunity to identify specific challenges and resource gaps—laying the groundwork for practical, evidence-based improvements in this foundational system. This study reviewed the relevant literature to evaluate the KRI primary care system and determine its challenges, needs, opportunities, and potential barriers to improvement. The two other primary healthcare system levels will be addressed through separate studies. While this study is specific to the Kurdistan Region of Iraq, it can be considered a good case study for other settings in the Middle East and internationally with similar healthcare systems.

METHODS

This focused literature review included full-text articles published in English from 1 January 2010 to 30 September 2025.

The review used major electronic databases, including Medline, SCOPUS, Web of Knowledge, Iraqi Academic and Scientific Journals (IASJ), CAB Direct, and EMBASE. Search terms used included: 'primary care', 'healthcare', and 'health system'; 'Kurdistan Region' and 'Iraqi Kurdistan'; and 'evaluation' and 'assessment'. Both free text and Medical Subject Headings (MeSH) terms were used in Medline. Synonyms and interchangeable terms were connected using 'OR' and 'AND' operators in the search strategy to connect and establish relationships between search terms. The references of the initially selected studies were hand-checked to identify additional studies that the main search may have missed due to gaps in the search strategy or weaknesses in the database indexing systems. A total of 46 studies were identified, of which 25 were relevant and used for this review.

The findings of different studies on the primary care system in KRI are thoroughly discussed collectively under the main theme of process based on Donabedian's conceptual framework of structure, process, and outcome to assess the quality of care [3] and their respective dimensions to evaluate the primary care system as described by Kringos et al. [4].

PRIMARY CARE PROCESS

ACCESS TO PRIMARY CARE SERVICES

The characteristics of primary care services — easily accessible and almost free of charge — make the system appropriate for poor people, and their availability to most people helps reduce the burden on hospitals and other health institutions [16-18]. Smith et al. reported that access to primary care services is not a problem in Iraq, which was considered surprising given the lack of infrastructure, security issues, and sociopolitical barriers [18]. The distance from the residence to the health facility is crucial for accessing healthcare. Khudhairi notably revealed that around 30% of patients reach PHCC by walking [17]. The distance to a PHCC from an individual's residence was a factor in the use of PHCCs across several governorates of Iraq, particularly in the south [19].

Tawfik-Shukor and Khoshnaw raised concerns about affordability, mainly for people who do not find the required services in the public sector and need care from the private sector [20]. However, low user fees and the related overutilization of services could also be considered a negative aspect of the current system. Irrational visits are another problem in the PHCCs in KRI. Low user fees are the main reason for repeated and irrational visits to PHCCs [6,21].

Research from KRI revealed that primary care providers are concerned about the poor organization of health service delivery, which is mainly attributed to the irrational use of primary care services [6,21]. This poor, unorganized primary care system and overuse of services create an unnecessary workload for primary care facilities and providers. This negatively affects the quality of services provided, particularly in provider-patient interaction and communication, as well as the duration of consultation [6,22]. According to MOH-Iraq, each main PHCC in Iraq receives more than 100 patients per day [5]. Khudhairi revealed that each PHCC in Iraq receives an average of 123 patients per day, and each doctor makes an average of 24.5 consultations per day [17]. Al-Dabbagh reported a staffing need ratio of 0.33, indicating high work pressure on medical doctors [22]. Unacceptably short consultation times in PHCCs in Iraq have been reported, mainly due to overuse of services and, subsequently, a large number of patients per doctor hour, as doctors work only 3 hours a day and each has 50-100 consultations [23].

The issue of working hours is a concern for people who ask for longer hours or at least fulfill the official hours, as the official working hours in the PHCCs of KRI are from 8:00 am to 2:00 pm, that is, 36 hours per week. In the rest of Iraq, working hours are from 8:00 am to 3:00 pm, 42 hours a week [24]. However, actual working hours are usually 12-18 hours per week [23]. On the contrary, Burnham et al. reported high satisfaction (74%) among a sample of the Iraqi population with the convenience of primary care clinic hours [25]. However, the latter study involved all types of public and private primary care clinics, which may explain this high satisfaction rate. According to Tawfik-Shukor and Khoshnaw, the short clinic hours at primary care centers in KRI and the late arrival and early departure of physicians sometimes result in long patient queues outside the centers [20].

Poor infrastructure and the need to increase the number of PHCCs to meet population needs have been emphasized in KRI research [21,26]. On average, there are 0.7 PHCCs per 10,000 people, which is low compared to international standards and neighboring countries' two to three per 10,000 [5]. The expansion of public health facilities in the KRI region is encouraging, in contrast to the slow pace of improvement in other parts of Iraq, primarily due to the dreadful security situation. However, much remains to be done to meet the standards of neighboring countries [27].

While many people visit PHCC, most seek preventive measures, and a low proportion seek basic medical treatment [11]. The population's criticism of PHCC services primarily concerns poor access to and organization of primary care services [24]. Some studies from Iraq revealed good overall satisfaction with primary care services, but they have also reported poor organization of services, primarily due to the long waiting time [17,25]. People eventually turn to private services when they are dissatisfied with public services [28]. The Iraqi people, particularly the wealthy, commonly use widely available, easily accessible private health services [25]. The primary benefits of the private sector include access to consulting specialists who are not always available in PHCCs, receiving high-quality care, and better interaction with providers [24]. There is a high preference for using private health services for primary care in Iraq compared to PHCCs [17,25]. The percentage of the population attending PHCCs in Iraq ranges from 3% to 26%, which is considered low compared to other countries [5]. On the contrary, Habib and Vaughan reported that overall service utilization in PHCCs in southern Iraq was sufficient in 1985, before the health system began to deteriorate [29].

Patient dissatisfaction is an important challenge in the use of PHCCs [19]. Some people have poor satisfaction with primary care services, but they mostly continue to use them. This could be the point for people with low incomes who might not be able to afford private-sector services [24]. The PHCCs are nearly free of charge and should not pose a financial burden to those using them. However, the financial burden is often highlighted by rising health expenditures associated with increased reliance on private services [24]. Burnham et al. also reported difficulties in providing health care in Iraq, revealing a relatively high proportion of families (24.3%) with catastrophic health expenditures during the month preceding that study [25].

There is a wide range of variations in satisfaction with primary care services [24]. Burnham et al. reported that the Iraqi population was highly satisfied (75%) with primary care services, with no significant difference between PHCCs and private clinics [25]. Khudhairi also revealed a high satisfaction (79%) among a sample of people in Baghdad with public primary care services [17].

CONTINUITY OF PRIMARY CARE

The lack of a well-established family medicine system and the inability of people to access primary care doctors have been emphasized in the KRI research [6,21]. This can be considered an impediment to proper longitudinal continuity of care. If a patient does not improve and needs to go back to the same PHCC, he may not see the same first doctor and may receive completely different treatment due to the lack of use of medical records [6]. This is an example of poor longitudinal continuity of care. On the other hand, most people can, to some extent, call a doctor they know to get advice on their illness. This includes physicians from the private sector, who generally consult and maintain better interpersonal relationships [24].

The improper use of information technology in PHCCs in Iraq was highlighted by Lafta and Khudhairi, who found that only 10 of 30 PHCCs had computers [15]. The study also noted the inefficient use of computers in PHCCs that have them. Another study similarly reported a lack of consistent medical record systems in PHCCs and hospital outpatient departments, with substandard medical charting quality [23]. Although the importance of integrating information technology into the primary care system in KRI has been revealed in research [6,21], the main concern is related to organizing health services, proper disease reporting, and improving communication with the DOH rather than keeping and using medical records of patients and coordinating patient care with secondary levels of health care.

While availability and physical access are important, patients' perceptions of the quality of care during the patient-provider encounter are recognized as playing an important role in health-seeking behavior [30]. Poor patient-provider

relationships are described as one of the main reasons for recognizing disease treatment as the worst functioning service in PHCCs [21]. Khudairi also reported poor patient-provider relationships, including improper clinical examination, treatment instructions, and patient education [17]. Burnham et al. similarly reported poor patient-provider relationships, with approximately 64% of study participants feeling that staff members in primary care centers are too busy to give adequate attention to their medical problems [25].

COORDINATION OF PRIMARY CARE

In general, having an ineffective referral system is a common problem in the current primary care system. A survey in Erbil found a low referral rate from PHCCs to secondary care (6%) and a high rate of self-requested referrals (38%) [31]. A higher referral rate has been reported in the Duhok governorate of Iraq (15%) [32].

The referral rate from primary care to secondary care settings is expected to vary, which is usually challenging to explain [33]. However, the referral rate in KRI is comparable to that in other settings with efficient referral systems, with reported referral rates of 4-5% [34,35].

Under-referral from physicians to specialists is commonly reported in developing countries. In contrast, over-referral is more commonly reported in developed countries, primarily due to increased medical costs [36]. In practice, inappropriate referral is more important than the referral rate; however, it is difficult to study [33,37].

In principle, the health needs of most patients can be met in a primary care setting [2]. When the primary health problem cannot be managed, the primary care physician should decide to refer the patient to a specialist. Self-requested referrals or self-referrals to a secondary care setting will result in inefficiencies in the system. If secondary care physicians become overwhelmed by inappropriate self-referrals, some disadvantaged patients may lack specialist care [38].

More than one-third of referrals to KRI are self-request [31]. As a rule, the KRI health system does not permit self-referrals; patients must have a referral from PHCC, an emergency hospital, or a private physician clinic for secondary care services. Such a mechanism might lead to a high rate of self-referrals. Enforcement of such a referral rule is relatively weak and cannot control all self-referrals. Some patients can still visit secondary care settings without obtaining a referral [39]. The high self-requested referral rate indicates a tendency for people to seek direct care in secondary rather than primary care settings. A high proportion of referred patients are seen in the secondary care setting on the same day of referral, indicating easy access to secondary care. Referral feedback from secondary to primary care is lacking in Iraq [32].

The findings of Erbil referral survey approximate the pattern of referral to specialty reported by previous research [34,40]. The survey revealed a high rate of self-requested referrals to otolaryngology and pediatric departments.

Other studies also emphasized the poor referral system in Iraq. For example, Younus revealed a high rate (15.4%) of patients referred from primary care to secondary care in Duhok City; half of the referrals are inappropriate, and the accompanying referral document frequently does not provide essential information, such as the name of the referee and the reason for the referral [32]. Shabila and Al-Tawil revealed a relatively high proportion of non-referred patients (25.4%) in the secondary care setting [39]. Among those referred, 30.6% were self-requested referrals, and only 26.4% were referred from PHCCs. Al-Shatari et al. reported that 80% of hospital doctors in 9 Iraqi governorates lacked coordination with primary care doctors and considered the current referral system ineffective. They considered patient crowding and doctor shortages in PHCCs as causes of PHCCs not adequately filling the referral form [41].

The preference to consult a specialist rather than a general practitioner is common among KRI people [24]. Several factors result in this specific preference for specialists. The Iraqi health system has historically been based on a hospital-oriented model that mainly relies on specialists. General practitioners in Iraq lack formal postgraduate training. Specialists are commonly assigned PHCCs due to the increased number of specialists and the limited number of hospitals [7]. Patients can visit private-sector specialists without referrals.

In an ideal situation, PHCCs should be run by family medicine or general practitioners. However, specialist physicians serve in most main PHCCs, while nurses or medical assistants staff most small PHCCs. Iraq and the Kurdistan Region of Iraq have seen an increase in specialists over the last two decades. With limited working places in hospitals and consulting centers, many specialists are assigned to work in PHCCs [6].

In KRI, many people visit a specialist of their own choice based on their symptoms [24]. Such health-seeking behavior rules out the importance of the general practitioner or family doctor's coordinating and gatekeeping role. It leads to excessive use of specialist services and an unnecessary increase in people's financial burden [34].

COMPREHENSIVENESS OF PRIMARY CARE

PHCCs in Iraq are set to provide a wide range of primary care services, including preventive and curative health services: antenatal care, immunization, growth monitoring, simple diagnostic investigations, basic dental services, and case management [7]. In principle, many of the services presented in the WHO-MOH Basic Health Services Package for Iraq are currently being provided at the main PHCCs but not at all levels and need to be strengthened [5]. For example, the package includes several programs or services that are rarely offered in PHCC, such as delivery service, mental health, emergency services, tuberculosis and chronic disease programs, food safety, and environmental health, while many items in the essential list of medications and the comprehensive list of diagnostic investigations are currently lacking. Moreover, the available services suffer from many shortcomings and challenges. Many PHCCs, particularly those in Erbil, have specialists in different specialties. However, PHCCs lack the appropriate equipment and investigation to allow these specialists to work properly [6]. Sometimes, even with equipment such as X-ray machines, PHCCs may lack the skilled staff to operate them.

CONCLUSIONS

This review thoroughly explains the factors that positively and negatively affects the primary care process in KRI's primary health care system. Positive aspects include several programs that work properly, such as antenatal care and immunization, low use fees, and easy accessibility. However, the primary care system faces enormous challenges, primarily related to poor service delivery. Strengthening the primary care process requires establishing a robust family medicine system, improving referral mechanisms, and promoting rational service use to enhance continuity, coordination, and comprehensiveness of care. The positive experience with several pilot family medicine projects underscores the need to shift the primary care system from PHCCs to family medicine centers for long-term improvement. However, such reform might be costly and require substantial resources, including specialized medical and non-medical workforces. Improvement within the current system through interventions directed to overcome the significant problems in the system, like reorganizing the services, the establishment of an effective referral system, and regulation of public-private partnerships together with the integration of the main elements of the MOH-WHO recommended basic health services package for Iraq might be considered a more practical and less costly solution, particularly as a short-term improvement.

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