Assessment of health accreditation on health care from patient and healthcare provider experience in Makkah region 2017

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Abstract—

Background: A responsive and comprehensive primary healthcare (PHC) system leads to a more efficient health system, lower rates of hospitalization, fewer health inequalities, better health outcomes and lower costs. Despite its routine use in the work course of most hospitals worldwide, accreditation has only recently has been introduced into the PHC setting in high- income countries, including Saudi Arabia.

Objectives: To assess the impact of accreditation on quality of care as perceived by patients and PHC staff members as well as to compare the quality of healthcare services provided by accredited and non-accredited primary healthcare centers.

Subjects and methods: A cross-sectional study was conducted at two primary health care (PHC) centers that pass accreditation on CBAHI and two none-accredited PHC centers, in Makkah region, Saudi Arabia. The study population consists of patients attending PHC centers and staff working in the selected PHC centers. Two pre-designed self-administered questionnaires were used for both patients and healthcare providers.

Results: The study included 770 patients recruited from 4 primary healthcare centers (two in Makkah and two in Taif cities) and 47 primary healthcare staff members working in the same centers. Overall, the percentage of overall patient`s satisfaction with PHC centers` services score ranged between 27.8% and 100% with a mean of 89% and standard deviation of 10.5%. Older, male, lower educated patients were more satisfied with PHC centers` services than others. Also, smoker and obese patients were more satisfied with PHC centers` services than their counterparts. Patients attended accredited PHC center were more significantly satisfied with its services compared to those attended none-accredited center (mean ranks were 451.26 and 319.74), $p<0.001$. Regarding screening services, lipid panel, fasting plasma glucose and HBA1c screening were more significantly performed in accredited PHC centers than non-accredited centers. Regarding the surveyed scales of the impact of accreditation of primary healthcare centers, from staff`s perspectives, the mean scores computed for the scales and subscales were all high.

Conclusion: Patients attended accredited PHC center were more significantly satisfied with its services compared to those attended none-accredited center. Almost all services, including screening tests were more performed at accredited than non-accredited PHC centers. Positive impact of accreditation of primary healthcare centers on their services was ascertained according to staff`s perspectives.

INTRODUCTION

Background:

The dictum 'Primum non nocere (first, do no harm),' paraphrased from the Hippocratic Oath has been an enduring and leading axiom for the institution of medicine and the delivery of healthcare services globally[1]. Today and every day, the lives of vast numbers of people lie in the hands of health systems. From the safe delivery of a healthy baby to the care with dignity of the frail elderly, health systems have a vital and continuing responsibility to people throughout the lifespan. They are crucial to the healthy development of individuals, families and societies everywhere[2].

Following the Declaration of the International Conference on Primary Health Care, held in Alma-Ata, USSR (now Almaty, Kazakhstan) in 1978, WHO invited its Member States to act individually in formulating national policies, strategies and plans of action for attaining the goal of Health for all by the year 2000 and collectively in formulating regional and global strategies. As part of this goal, the WHO European Region developed targets in 1984. These included Target 31, which urged every WHO Member State to build effective mechanisms for ensuring quality of patient care by 1990 and by 2000 to provide structures and processes for ensuring continuous improvement in the quality of health care and appropriate development and use of new technologies. In 1998, the World Health Assembly adopted a revised strategy for the 21st century that continues to emphasize availability, accessibility and quality of care. Health for all in the 21st century continues to emphasize support for quality improvement at global, regional and national levels. The World Health Organization commissioned report in October 2000 from the International Society for Quality in Health Care in order to provide an overview of the rationale, structures, activities, tools and technologies that characterize quality assurance and quality improvement and accreditation in health care. This aim is consistent with the increased worldwide interest in the quality of health systems that was reflected in – and to some extent generated by – The world health report 2000 – Health systems: improving performance. The strategy promotes information systems for monitoring and calls for active surveillance by national governments, including the "implementation of international norms, standards and regulations" (paragraph 90). The World Health Organization (WHO) commissioned the report by the International Society for Quality in Health Care(ISQua) in 2000 to contribute to that objective by giving examples from around the world of quality structures and processes that might inform local improvement of health services, especially in the developing countries[4].

Accreditation is a process in which an entity, separate from the healthcare organization,

assesses the healthcare organization to determine if it meets a set of requirements or standards designed to improve quality of care. It is recognized evaluation process used in many countries to promote the quality of patient care and patient safety. It intends to promote quality improvement through diverse approaches; they are either mandated by the government, voluntary or initiated by independent agencies[10]. Quality of care is now prominent on health policy agendas of governments of several countries in the East Mediterranean Region. By the study conducted in 2000 by the World Health Organization revealed that there were no accreditation programs in the Eastern Mediterranean region[4]. Since then, several countries in this region have been developing and implementing accreditation programs. A number of countries in this part of the world later started the journey of implementing accreditation programs[13]. Saudi Arabia is one of the first countries in the Eastern Mediterranean Region to achieve healthcare accreditation standards[3]. According to the website of the Joint Commission International (JCI) Accreditation Organizations, 106 health organizations on have implemented accreditation programs in the Kingdom of Saudi Arabia (KSA)[6].

A responsive and comprehensive primary healthcare (PHC) system leads to a more efficient health system, lower rates of hospitalization, fewer health inequalities, better health outcomes and lower costs[7,16]. Despite the integral role of PHC for health systems, the World Health Report (2008) indicated that countries "are not performing as well as they could and as they should" when it comes to PHC[11]. A major challenge hindering countries from delivering PHC is establishing and maintaining high quality services[17].

One increasingly employed method for promoting quality at the healthcare organizational level is accreditation[17]. Despite its routine use in the work course of most hospitals worldwide, accreditation has only recently has been introduced into the PHC setting in high- income countries (HICs)[18]. This recent emphasis on accreditation in PHC organizations came with the shift in healthcare policy from hospitals towards preventive and primary healthcare delivery services[19].

In the Eastern Mediterranean Region (EMR), an expert group meeting took place in Cairo in 2002 to discuss the implementation of accreditation. The meeting concluded that although accreditation of health facilities is desired in countries of the EMR, the system required for implementing accreditation is not yet developed. In order to improve care through accreditation, it is important to establish leadership commitment and regulations to implement accreditation, allocate adequate resources, ensure the availability of data and facilitate its use[20].

On April 2016 the government of Kingdom of Saudi Arabia announced Saudi Arabia's Vision 2030. The vision 2030 was built on three pillars that draw on KSA's intrinsic strengths Vibrant Society, Thriving Economy and An Ambitious Nation. Among the goal a vibrant society with fulfilling and lives which include living healthy, being healthy Improve healthcare service, Promote a healthy lifestyle, Improve livability in Saudi cities. The Improve healthcare service include three objectives which is ease the access to healthcare services, improve value of healthcare services and strengthen prevention against health threats[5].

Although many health-care organizations in developing countries are undergoing or considering accreditation, there is little research on its impact and consequently no conclusive evidence that it improves quality of care.

International accreditation

Joint Commission International (JCI) is a not-for-profit affiliate formed by The Joint Commission (TJC) to provide leadership in healthcare accreditation and quality improvement for organizations outside the United States[10]. JCI accreditation began at the end of 1998 and the first hospital to be accredited outside the USA was the Israelita Albert Einstein in Brazil, while the American Hospital in Dubai was the first in the Middle East in 25 May 2000[1]. While King Faisal Specialist Hospital and Research Centre, Riyadh was the first hospital accredited in Kingdom of Saudi Arabia in 16 November 2000. By October 2017, JCI had accredited 1009 healthcare organizations internationally[6]. A hospital seeking to obtain JCI accreditation is visited every three years by a survey team that observes hospital operations, conducts interviews, and reviews medical documentation for compliance with a set of standards. The goal of the survey is to evaluate care, organizational processes and to provide education with the objective of promoting continual improvement for the organization under survey[10].

Local accreditation

The Saudi Central Board for Accreditation of Healthcare Institutions (CBAHI) is the official agency authorized to grant accreditation certificates to all governmental and private healthcare facilities operating today in Saudi Arabia. CBAHI has emerged from the Saudi Health Council as a non-profit organization. The principal function of CBAHI is to set the healthcare quality and patient safety standards against which all healthcare facilities are evaluated for evidence of compliance[21].

The foundation of CBAHI dates back to 2001 as Makkah Region Quality Program (MRQP), an initiative aimed at improving quality of healthcare delivery in the Makkah Region. In 2005, under a Ministerial Order, MRQP was developed and named as Central Board for

Accreditation of Healthcare Institutions (CBAHI) and its jurisdiction was expanded to the whole country. In 2006, with the help of healthcare quality experts from the public and private sectors, CBAHI developed the first set of national standards for hospitals[21].

In 2012, CBAHI's 2nd edition of national standards for hospitals was certified by the International Society for Quality in Healthcare (ISQua)[21].

In late 2013, when a Cabinet of Ministers Decree called for changing CBAHI's official name to the "Saudi Central Board for Accreditation of Healthcare Institutions", it also mandated the national accreditation by CBAHI on all healthcare facilities. In addition, the Ministry of Health is mandating CBAHI accreditation as a prerequisite for renewal of the operating license – a step towards encouraging more participation in this ambitious national initiative[21].

It is mandatory for all public and private healthcare delivery facilities (hospitals, polyclinics, blood banks and medical laboratories) in Saudi Arabia to comply with national standards set by CBAHI and obtain its accreditation through a survey process set forth by the Center[21].

Primary healthcare facilities provide basic preventive and curative care and are thereby considered to be the cornerstone of healthcare in the Kingdom of Saudi Arabia. With more than 2,000 primary healthcare centers in the Kingdom, improving performance standards and establishing safety guidelines is a high priority for CBAHI. Addressing this need, action committees collaborated with relevant authorities to develop a draft of the National Standards for Primary Healthcare Centers. Field studies were then conducted to ensure the suitability of the standards. As a result, a revision was issued to accommodate current conditions. The first edition of the National Standards for Primary Healthcare Centers was approved by the Saudi Health Council and was issued in Muharram 1433 AH (November 2011 AD)[21].

Literature Review:

By reviewing the literature; the researcher found that the impact of accreditation of PHCC on health care from patient and healthcare provider experience have been studied in many researches internationally but unfortunately no studies done locally.

Regional studies

In 2015, Saleh S, Alameddine M, Mourad Y, Natafgi N.conducted a systematic review of the literature to assess quality of care in primary health care settings in the Eastern Mediterranean region, A systematic search was conducted using Medline, Embase and Global Health Library (IMEMR) electronic databases to identify studies related to quality in PHC between years 2000 and 2012. One hundred and fifty-nine (159) studies fulfilled the eligibility criteria.

The majority of the articles (66.1%) assessed the quality of care provided at PHC centers using a single dimension of the Donabedian model, with the highest proportion of articles (42.8%) examining the process dimension. Out of the eight identified areas of focus, 'clinical practice' was identified in more than half of the reviewed articles, with the remaining articles dispersed among the other seven areas of focus. Only a quarter of the articles (41 of the 159 articles compiled) utilized disease groups to examine the quality of care provided by PHC centers. Several of the articles reviewed examined the role of resource availability. For example, studies conducted in Saudi Arabia reported varying levels of availability of essential resources, drugs and laboratory assessments for diabetic care, and for hypertension care in Aseer region, as well some essential equipment and drugs for emergency health services. Additionally, one survey in Egypt reported that resource availability in PHC and hospital laboratories were generally satisfactory, yet recommendations for the redistribution of some equipment and material between hospital laboratories were suggested. The evaluation of patient satisfaction was another investigated outcome of care in reviewed studies (13.8% of the studies). Mostly, patients' dissatisfaction pertained to factors related to their experience with providers of care. Several studies examined the patient–provider relationship. All studies reviewed indicated patient dissatisfaction with the process of patient–provider interaction. Gaps in patient–provider relationships were identified to be related to 'unfriendly providers' or 'poor information exchange'. Other studies unearthed dissatisfaction with non-clinical and administrative service components of care. For example, one study in Bahrain highlighted dissatisfaction with receptionists' poor communication skills, long waiting time, short consultation time and poor physician examination/explanation. In some studies, satisfaction levels toward a certain service varied based on the variance in gender, age and educational level. Few other studies were inconclusive in examining patient satisfaction levels. Only three identified studies handled provider satisfaction, and in all reviewed articles, dissatisfaction was inferred. Two articles tackled/identified 'practice pressure' as the factor behind dissatisfaction. The reviewed studies assessing quality of care at PHC centers based on quality indicators revealed varying results. Almost equal proportions displayed favorable or unfavorable results, and the majority indicated inconclusive results regarding quality in PHC settings. More than half of the articles (54.1%) assessed the clinical practice employed at PHC centers. Two aspects of reviewed studies were employed to assess clinical practice: the effectiveness of interventions aiming for improvement in PHC clinical services and the

assessment of present clinical processes. Interventions under the former theme included educational programs, such as training physicians about prescribing, reforming and enhancing diabetes care programs, and implementing practical approaches to promoting respiratory health. Access and continuity of care were additional outcomes of importance assessed in the reviewed studies. While some articles were based on referrals as a measure for healthcare quality, others concentrated on access to healthcare centers. In assessing patient safety, three identified studies investigated the patient safety culture and practices; two articles highlighted favorable overall patient safety standards, whereas the third investigated factors associated with adverse safety outcomes[8].

In a study done in 2012 in Lebanon, the impact of accreditation of primary healthcare centers: successes, challenges and policy implications as perceived by healthcare providers and directors in Lebanon. The study was conducted in 25 PHC centers using a cross-sectional mixed methods approach; all staff members were surveyed using a self-administered questionnaire whereas semi-structured interviews were conducted with directors. The mean scores computed for the scales and subscales were all high. Management and Leadership had the highest mean score (4.28) followed by Accreditation Impact (4.27), Human Resource Utilization and Customer Satisfaction (both having a mean score of 4.24), Staff Involvement (4.23), Strategic Quality Planning and Quality Results (both having a mean score of 4.21), Accreditation Awareness (4.18) and finally Quality Management (4.02). More than 90% of respondents strongly agreed that leadership is the driving force behind quality improvement. In the Strategic Quality Planning scale, more than 90% of respondents indicated that staff members and middle managers play a key role in setting priorities for quality improvement; while 83.9% indicated that patients' expectations about quality play a key role in setting these priorities. When it comes to Human Resources Utilization, only 62.5% stated that they were rewarded and recognized for improving quality. Whereas more than 90% of respondents indicated that they were aware of the accreditation process, its aims and objectives and were committed to participate in it, only 70% indicated that patients were aware that accreditation was underway. Additionally, only 78.2% indicated receiving sufficient training and support to fulfill their accreditation responsibilities[14]. All directors affirmed that accreditation has led to quality improvement in several areas, particularly in documentation (55% of directors) including recording minutes of meetings, thoroughly completing medical records and documenting rules and regulations. Another

frequently mentioned benefit of accreditation was translating theories of quality into action (41%). Directors indicated that training and education was provided to staff to better prepare them for the accreditation process, which helped employees perceive accreditation as an opportunity for professional development and for providing high-quality services (45%). Accreditation helped enhance communication and teamwork among staff (14%) and between staff and management (14%)[14].

Another study done in 2014, in Jordan, Explaining the accreditation process from the institutional isomorphism perspective: a case study of Jordanian primary healthcare centers. Semi-structured, in-depth interviews were conducted with 56 healthcare professionals and administrative staffs from seven non-profit healthcare centers were carried out between August 2014 and February 2015 at the health centers. Fifty-six informants with different internal vocations and responsibilities and various levels of seniority participated in the study (27 were men and 29 women). Their years of experience ranged from 4 to 30 years, with an average of 16 years. According to their professions, 6 were physicians, 4 were dentists, 18 were nurses/midwives, 16 were from other allied health professionals and another 12 were administrative staff. Findings from the analysis of the interviewees' narratives evolved around the following themes. However, there was no clear distinction between the three isomorphic pressures. Two of the health centers were proud of being among the first health centers in Jordan to be accredited (12 September 2012). The centers saw themselves as leading exemplars to which other centers should aspire. However, even though they were proud of being among the first accredited centers, the pressure exerted from the government on these two facilities was apparent. Informants stated that there was no direct or explicit pressure from the MoH on centers to achieve accreditation. Yet, they believe that the MoH indirectly pushed them toward accreditation process. Other external pressures that induced health centers to seek accreditation were legislation and societal expectations, because the accreditation process was seen as a way to demonstrate that the health center was one that provided good quality care; it added value to society. They believed that healthcare centers intended to meet social needs and mitigate social suffering. Although many patients were not fully aware of what the accreditation meant, they became more confident about the services provided, and in turn, the health centers used this status to improve their image. However, some of the informants shared their feelings and were reluctant about the impact accreditation actually made on quality improvement, while others felt that accreditation had a positive impact on their quality of care and

services. They had divergent views about its effectiveness and efficiency; most believed that the accreditation process increased reporting requirements both internally and externally, as well as increased the documentation process. Participants from various health centers narrated different reasons for seeking accreditation, but some were influenced by other healthcare centers having been accredited. Participants across all the centers expressed a deep concern about staff shortages, motivation and the resources needed. The interviews identified several normative mechanisms that influenced health centers to seek accreditation. However, the most prominent shared theme was an increasing awareness and a changing perception of the importance in accreditation, as being accredited was a way of assuring quality of care and standards and local community members became involved in accreditation process[15].

International studies

By 2013 a study published about the status of accreditation in primary care. An extensive search was completed examining peer-reviewed and grey literature. In addition, interviews with key stakeholders involved in primary care accreditation were undertaken. Outlines the number of scholarly abstracts and papers reviewed and the final number of articles included. From the grey literature, a total of 72 sources were used. Eight interviews were conducted with representatives from Canada, the USA, the UK, the Netherlands, Denmark, Australia and New Zealand. Research investigating the impact of accreditation on the outcomes of patient care was sparse. Two studies provided evidence to suggest accreditation results improved care. In study, found accredited centers were more likely to have staff dedicated to risk management, environmental safety and QI. Another study has been suggested that accreditation results in improved teamwork, improved access to care, increased awareness of patient safety improved practice systems and care processes, and improved quality of care. In contrast to previous results, some authors concluded that it was difficult to determine if accreditation improved patient outcomes and postulated that accreditation may not offer an effective way to control or improve quality as the minimum standards required were unlikely to challenge many practices. Accreditation in primary care is costly, requires significant work and resources and involves uncertainty over whether the benefits outweigh potentially significant costs. Only one study examining provider perceptions of primary care accreditation was found. This study examined the perceptions of providers in two primary care organizations. Administrators felt that accreditation brought greater collaboration, improved culture, fostered implementation of QI and brought greater understanding of their

organization, whereas some staff viewed accreditation as a bureaucratic control mechanism. Although positive attitudes towards accreditation exist, it is not widely accepted. In Australia, accreditation was still controversial despite having three- quarters of the general practices accredited. In the USA, one of the biggest challenges to accreditation is primary care providers' lack of recognition of the risks in their environment. Awareness and education surrounding accreditation is also deficient. Practices commonly face a lack of resources, time and support to undergo accreditation. There is a void in research examining patients' perceptions towards accreditation and its impact on patient care. One study found that patients generally lack awareness and concern for practice accreditation. In Australia, patient perceptions toward the changes implemented as a result of accreditation have been examined, but not their perceptions of accreditation itself[9].

Rational:

-To date there is little study assessing the impact of the accreditation on health care form the patients and healthcare providers view specially in Makkah Region of Saudi Arabia.

-The researcher observed during his rotation some of the staff of accredited health organization have positive effect and some have negative effect about the accreditation.

Aim of the study:

To assess the impact of the accreditation of primary health care center on healthcare quality from patient and healthcare provider views among patient and staff of accredited primary health care center at Makkah Region by comparing the quality of healthcare services provided by accredited and non accredited primary healthcare centers.

Objectives:

1. Assessment the impact of accreditation on quality of care as perceived by PHC staff members.
2. Patients' perceptions towards accreditation and its impact on patient care.
3. Compare the quality of healthcare services provided by accredited and non-accredited primary healthcare centers.

Methodology:

Study design:

Cross-sectional study design was adopted.

Study Area:

This study was conducted at primary health care centers that pass accreditation on CBAHI on Makkah region and compare it with non-accredited primary health care centers. The Region of Makkah Al-Mokarramah is located in the western part of the Kingdom. Makkah Al-Mokarramah Region is divided into the emirate quarter and eleven governorates which are Makkah Al-Mokarramah, Jeddah, At-Taif, Al-Qunfidhah, Al-Lith Rabigh, Al-Jumum, Khulays, Al-Kamil, Al-Khurmah, Ranyah, Turubah.

The total number of population in Makkah region is 6,927,477 according to the General Authority for Statistics 2010 census.

The total number of accredited PHC centers are 16 PHC ceneters; 4 in Makkah, 5 in Jeddah, 5 in Taif, 4 in Al-Qunfidhah.

Study Population:

The study population consists of patients attending PHC centers and staff working in the PHC centers that passed CBAHI in Makkah region and accepted the invitation to participate in the study.

Also the patients attending PHC centers and staff working in the PHC centers doesn't have accreditation in Makkah region and accepted the invitation to participate in the study

Selection criteria:

- All of the staffs working in the PHC center that passed accreditation and accepted the invitation to participate in the study.
- Patients attending the PHC centers that pass accreditation were eligible for study inclusion.
- All of the staff working in the PHC center doesn't have accreditation and accepted the invitation to participate in the study.
- Patients attending the PHC center doesn't have accreditation were for study inclusion.

Sampling Technique:

A multistage stratified sampling technique was adopted in this study. One accredited and one non-accredited PHC were selected randomly from each of the study setting (Makkah and Taif) Patients attending the selected centers were selected using systematic random sampling (every 2nd patients from registration form).

All of the staff members working in the selected PHC centers were included in the study.

Sample Size:

Assuming perception of participants about quality of care in the accredited PHCC equal 50%, using 80% power and $\alpha = 0.05$ the minimal calculated sample size is 384 which was rounded to 385. An equal number was chosen from non-accredited PHCC. The sample size

selected from each center was proportionally allocated based on number of attendees. The required sample size was calculated using Epi Info software.

Data Collection Tool:

Questionnaire:

•A pre-designed self-administered questionnaire was used for healthcare providers. It consisted of two sections. The first section is on the socio-demographic data of health care provider (e.g., age, city and PHHC name). The second section is to explore a quality of care and the accreditation impact.

For the patients, there was an interviewing questionnaire. It consisted socio-demographic data, their experience about the health care provided to them, awareness of the patients regarding meaning of accreditation of a primary healthcare center.

The questionnaires had cover with a letter explaining the purpose of the study without mentioning names to ensure confidentiality.

Questionnaire Validity:

The questionnaire of healthcare provider is valid and used previously in other published research[14].

Regarding the questionnaire for patients, the researcher distributed the questionnaire to two consultants of family medicine and one expert physician had an interest regarding the subject of the health care quality management.

Pilot Study:

The researcher performed a pilot study on 20 volunteers from the study population. The purpose was to examine the clarity of the questionnaire as well as to estimate the time needed to complete it. The results were excluded from the final research report.

Data Entry and Analysis:

Data were collected and verified, variables were coded and entered to Statistical Package for Social Sciences (SPSS) software version 25, developed by IBM Corporation, with a help of a biostatistician. Descriptive statistics, e.g., number, proportions, median, mean, inter-quartile range (IQR), mean rank and standard deviation, etc. were displayed, as appropriate depending on the type of variable and its distribution (normal or abnormal).

Analytically, Chi-square/Fischer exact test was utilized to test for the association between two categorical variables and non-parametric techniques were used to test for the factors associated with percentage of satisfaction score among patients and subscales of the impact of accreditation on PHC centers` services among staff. All results of tests with p-values equal or <0.05 were considered “statistically significant”.

Ethical Consideration:

- Necessary approval by the Research Ethics Committee of the program in Taif

and Makkah was obtained prior to the study.

- Approval to conduct the study in the selected PHC centers that pass the accreditation was obtained from the related authorities.
- Consent was obtained from each participant to voluntarily participate in the study.
- Data were treated confidentially and will be used only for the purpose of research.

Budget:

It was a self- funded research.

RESULTS:

The study included 770 patients recruited from 4 primary healthcare centers (two in Makkah and two in Taif cities); two accredited (Washhaa and Eastern Aziziah) and two non-accredited (Seel Sagheer and Alsharaee-AlMogahedeen). Slightly more than half (54.9%) of patients were recruited from Makkah. The age of the patients ranged between 17 and 85 years with a mean of 36.3 and standard deviation of 12.3 years. Majority of patients (97.7%) were Saudis. Females represented 59.9% of them. More than one-third of them (39.6%) were university or above graduated whereas 5.8% were illiterates.

Table 1: Demographic characteristics of patients

		Frequency (n=770)	Percentage
PHC center	Washhaa	177	23.0
	Seel Sagheer	170	22.1
	Eastern Aziziah	208	27.0
	Alsharaee-AlMogahedeen	215	27.9
City	Taif	347	45.1
	Makkah	423	54.9
Age (years)	≤25	150	19.5
	26-35	280	36.3
	36-45	180	23.4
	46-55	81	10.5
	>55	79	10.3
	Range	17-85	
	Mean±SD	36.3±12.3	
Nationality	Saudi	752	97.7
	Non-Saudi	18	2.3
Gender	Male	309	40.1
	Female	461	59.9
Educational level	Illiterate	45	5.8
	Elementary school	85	11.0
	Intermediate school	104	13.5
	Secondary school	232	30.1
	University/+	384	39.6

From figure 1, it is evident that 33.2% of them were overweight and 23.4% were obese whereas 6.9% were underweight.

Prevalence of smoking among the patients was 10% as illustrated from figure 2.

Less than one-quarter (21.7%) of the patients reported not practicing of physical activity as seen in figure 3. Less than half of the patients (42.6%) who reported practicing physical activity practiced it 5-6 days/week whereas 41.6% of them practiced it one to two days per week. Among almost two-thirds of them (65.5%), the duration of practice was less than 60 minutes per day whereas it exceeded one hour among only 4.8% of them.

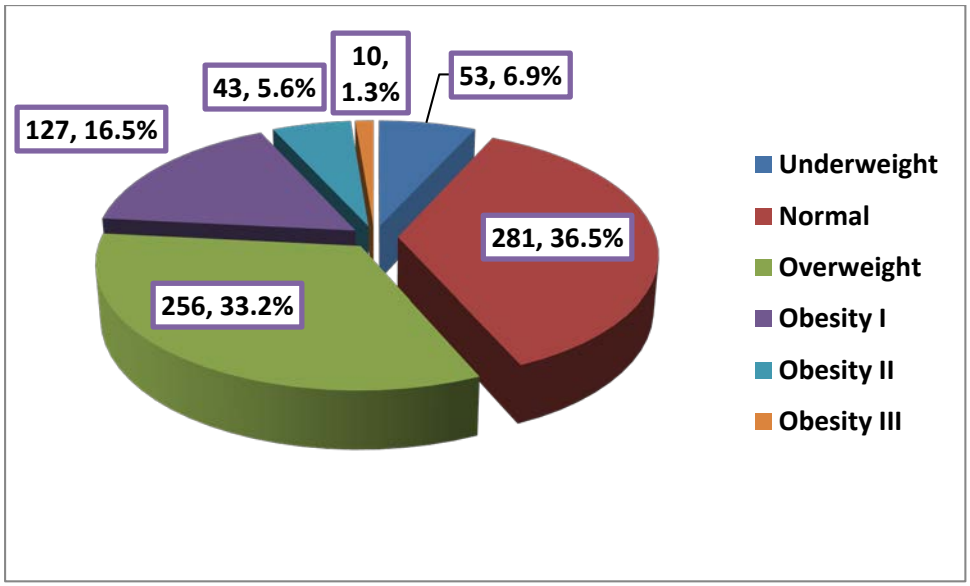

Figure 1: Body mass index categories of the patients

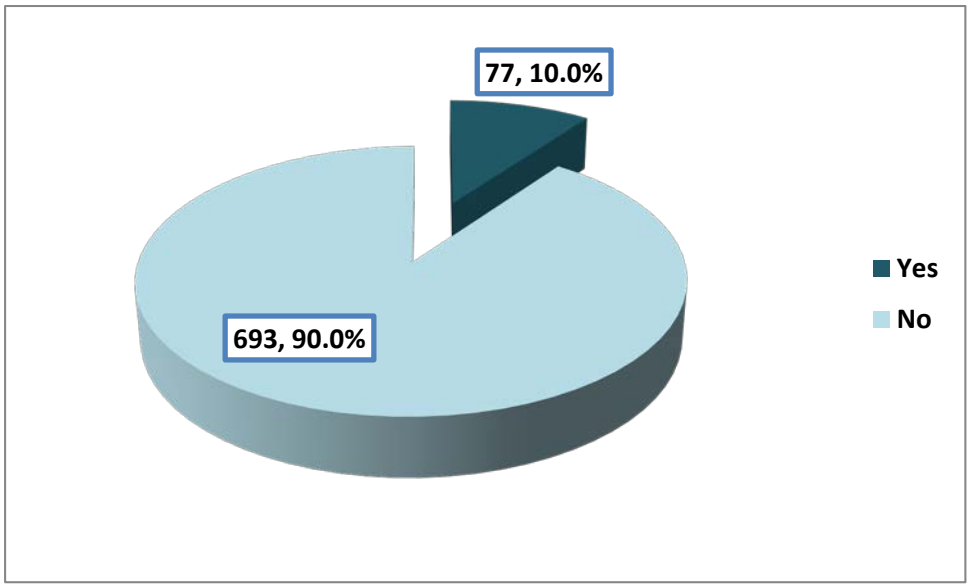

Figure 2: Smoking history among patients

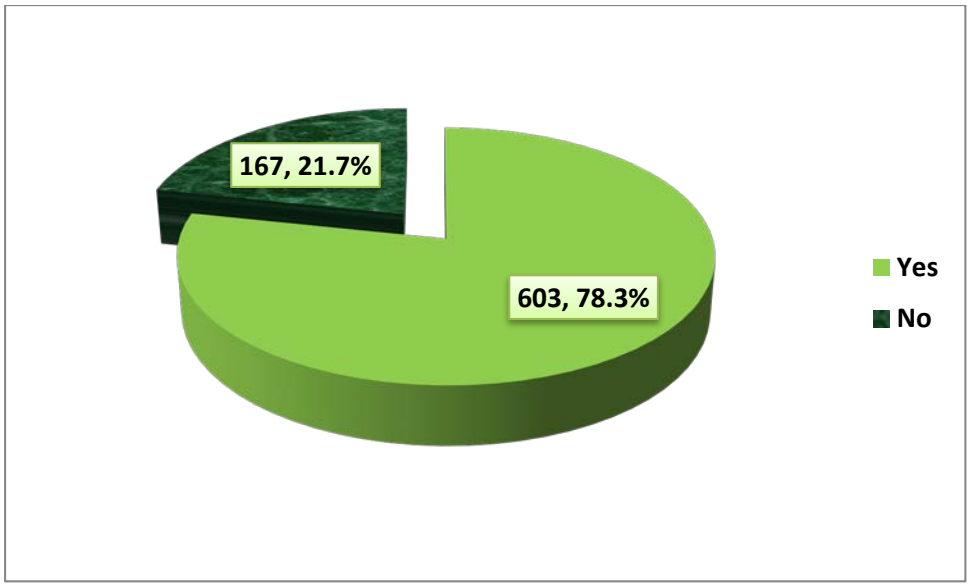

Figure 3: Physical activity among patients

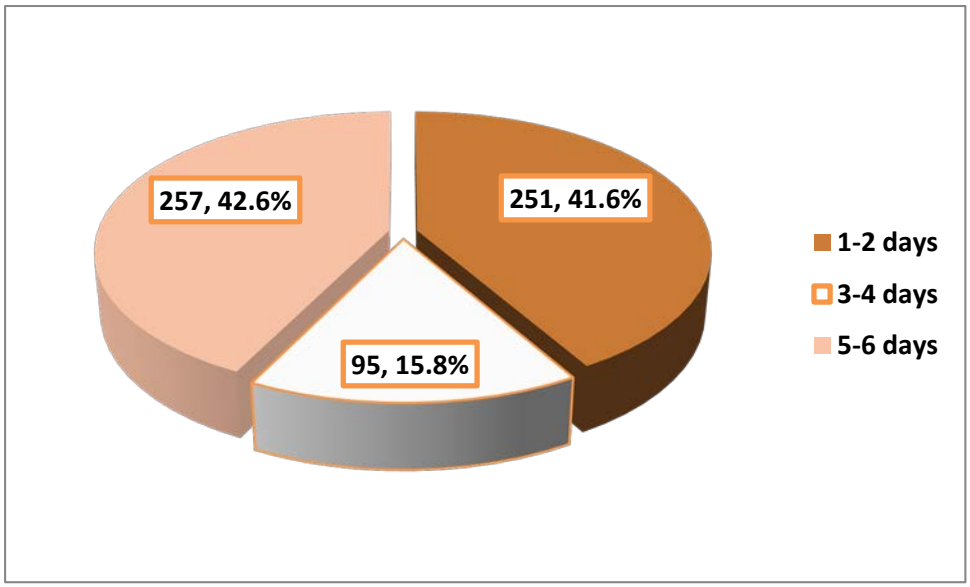

Figure 4: Frequency of practicing physical activities (days/week) among patients (n=603)

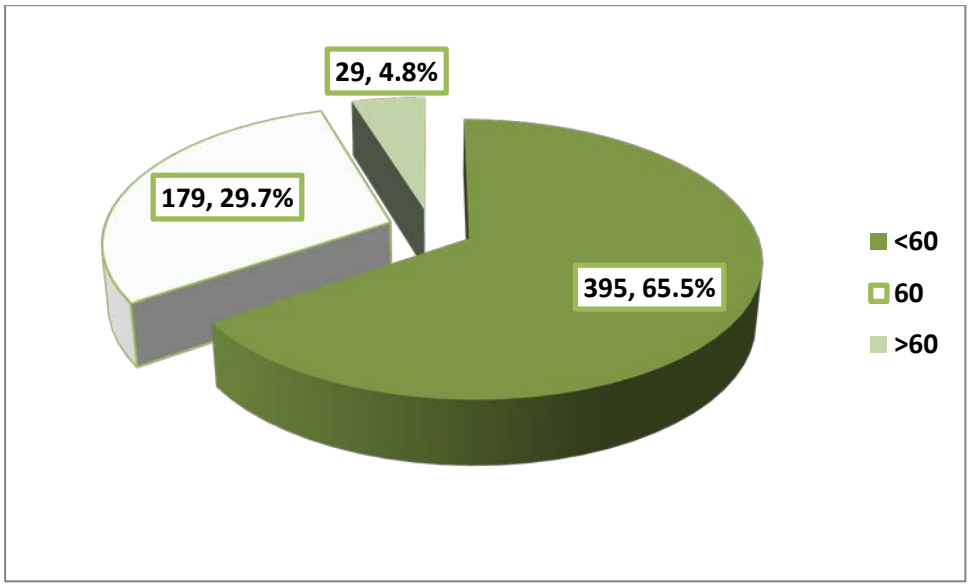

Figure 5: Duration of physical activity in minutes (n=603)

Reasons for visiting the PHC center

As shown in figure 6, the main reasons for visiting the primary healthcare centers were acute diseases (46.2%) and chronic diseases (45.5%). The commonest reported chronic diseases were DM (7.5%), hypertension (5.7%), hypercholesterolemia (3.9%) and bronchial asthma (2.5%). Figure 7

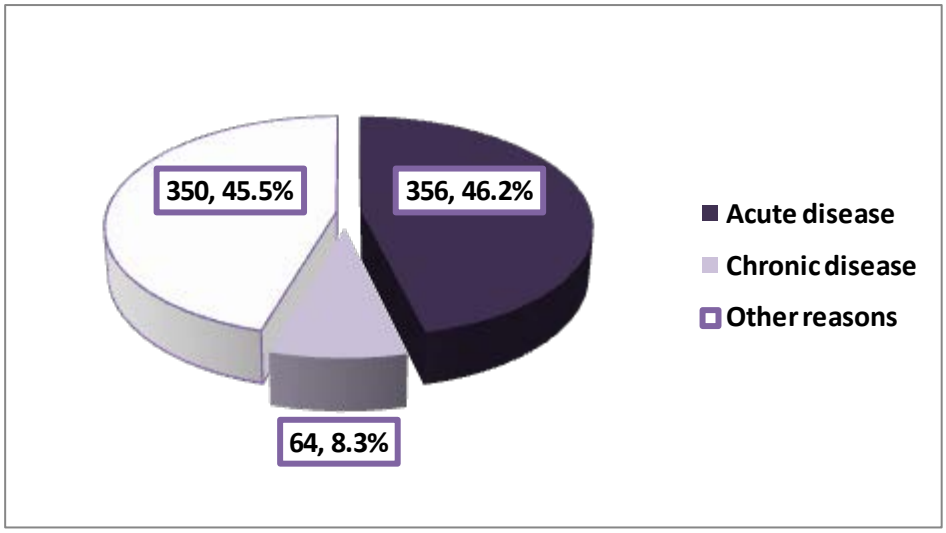

Figure 6: Main reason for visiting PHC among patients

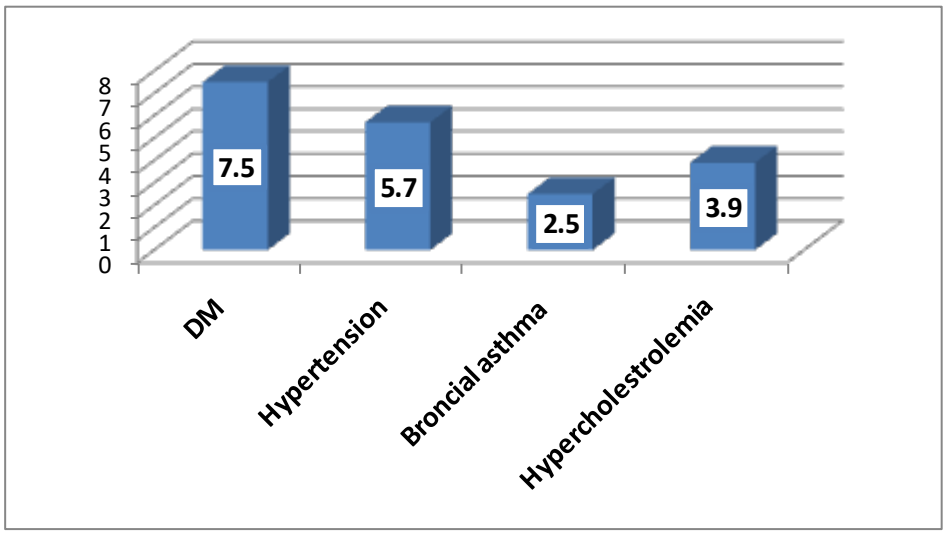

Figure 7: Prevalence of chronic diseases among the participants

Primary healthcare center`s visit

From table 2, it is evident that 60.7% of patients visited non-accredited PHCC compared to 39.3% of patients who visited accredited PHC center received care from a health care provider(s) at a location other than the current practice. The difference was statistically significant, <0.001. It was very easy among 63.8% of patients visited accredited PHC center compared to 36.2% of those visited non-accredited PHC center to get care in the evening, on the weekend, or on a public holiday without going to the emergency department, p<0.001. About two thirds (69.1%) of patients visited non-accredited PHC center since less than 6 months compared to 30.9% of those visited accredited PHC center, p<0.001. More frequent visiting of the PHC center (five times or more/year) was more observed among patients visited accredited PHC center than non-accredited PHC centers (59.4% versus 40.6%), p<0.001. Most of patients (76.6%) compared to only 23.4% of those visited accredited and non-accredited PHC centers, respectively will definitely recommend PHCC` services to their families, p<0.001. Slightly more than half (51.5%) of patients who visited non-accredited PHC center compared to 48.5% of those who visited accredited PHC centers claimed that the health team staff never measured or asked about their height with every visit, p=0.029. About two-thirds (61.8%) of patients who visited non-accredited PHC center compared to 38.2% of

those who visited accredited PHC centers claimed that the health team staff never measured or asked about their weight with every visit, p<0.001. More than two-thirds (70%) of patients who visited non-accredited PHC center compared to 30% of those who visited accredited PHC centers claimed that the health team staff never measured their blood pressure with every visit, p<0.001. More than half (59.1%) of patients who visited non-accredited PHC center compared to 40.9% of those who visited accredited PHC centers claimed that the health team staff never measured their body temperature every visit, p<0.001. More than half (59.4%) of patients visited accredited PHC center compared to 40.4% of those visited non-accredited PHC center reported that there were programs or brochures in the primary care center that educate them about hand hygiene, p<0.001. Moreover, hands cleaning products were readily available to use according to 57% and 43% of patients visited accredited and non-accredited PHC centers, respectively (p=0.001). About two thirds (61.3%) compared to 38.7% of patients visited accredited and non-accredited PHC centers, respectively reported that healthcare workers washed/sanitized their hands before they examined them, p<0.001. Patients visited non-accredited PHC centers were more significantly like to ask healthcare worker to wash/sanitize their hands before they examined them, p<0.001.

Table 2: Comparison between accredited and non-accredited primary healthcare centers as regards patient`s experience with visits.

	Primary healthcare center		p-value*
	Accredited N=385 N (%)	Not Accredited N=385 N (%)	
Over the last year, did you receive care from a health care provider(s) at a location other than this practice?			
Yes (n=239)	94 (39.3)	145 (60.7)	
No (n=531)	291 (54.8)	240 (45.2)	<0.001
The last time when you needed medical care in the evening, on the weekend, or on a public holiday, how easy was it to get care without going to the emergency department? (n=186)			
Very Easy (n=94)	60 (63.8)	34 (36.2)	
Somewhat Easy (n=37)	18 (48.6)	19 (51.4)	
Somewhat Difficult (n=20)	16 (80.0)	4 (20.0)	
Very Difficult (n=35)	23 (65.7)	12 (34.3)	<0.001
How often have you been visiting the PHCC for your healthcare?			
Less than six months (n=136)	42 (30.9)	94 (69.1)	
Between six months and a year (n=61)	18 (29.5)	43 (70.5)	
Between one and three years (n=98)	39 (39.8)	59 (60.2)	
Between three and five years (n=73)	37 (50.7)	36 (49.3)	
Longer than five years (n=402)	249 (61.9)	153 (38.1)	<0.001
How many times did you visit the PHCC over the last year for your medical care?			
Once-twice (n=286)	115 (40.2)	171 (59.8)	
Three-four times (n=240)	125 (52.1)	115 (47.9)	
≥five times (n=244)	145 (59.4)	99 (40.6)	<0.001
Would you recommend PHCC` services to your family?			
Definitely no (n=66)	12 (18.2)	54 (81.8)	
Probably no (n=29)	10 (34.5)	19 (65.5)	
Probably yes (n=303)	78 (25.7)	225 (74.3)	
Definitely yes (n=372)	285 (76.6)	87 (23.4)	<0.001
Is the health team staff measure or asking about your height with every visit?			
Always (n=256)	125 (48.8)	131 (51.2)	
Often (n=76)	43 (56.6)	33 (43.4)	
Sometimes (n=106)	45 (42.5)	61 (57.5)	
Rarely (n=60)	40 (66.7)	20 (33.3)	

Never (n=272)	132 (48.5)	140 (51.5)	0.029
Is the health team staff measure or asking about your weight with every visit?			
Always (n=325)	176 (54.2)	149 (45.8)	
Often (n=83)	43 (51.8)	40 (48.2)	
Sometimes (n=117)	51 (43.6)	66 (56.4)	
Rarely (n=80)	52 (65.0)	28 (35.0)	
Never (n=165)	63 (38.2)	102 (61.8)	<0.001
Is The health team staff measure your blood pressure with every visit to the primary care center?			
Always (n=411)	252 (61.3)	159 (38.7)	
Often (n=62)	33 (53.2)	29 (46.8)	
Sometimes(n=100)	24 (24.0)	76 (76.0)	
Rarely (n=77)	40 (51.9)	37 (48.2)	
Never (n=120)	36 (30.0)	84 (70.0)	<0.001
Is the health team staff measure your body temperature every visit?			
Always (n=479)	274 (57.2)	205 (42.8)	
Often (n=74)	33 (44.6)	41 (55.4)	
Sometimes (n=118)	42 (35.6)	76 (64.4)	
Rarely (n=11)	0 (0.0)	11 (100)	
Never (n=88)	36 (40.9)	52 (59.1)	<0.001
Are there any programs or brochures in the primary care center that educate you about hand hygiene?			
Yes (n=228)	136 (59.6)	92 (40.4)	
No (n=393)	170 (43.3)	223 (56.7)	
I don`t know (n=149)	79 (53.0)	70 (47.0)	<0.001
Are hands cleaning products readily available to use in the primary care center?			
Yes (n=223)	127 (57.0)	96 (43.0)	
Sometimes (n=178)	101 (56.7)	77 (43.3)	
No (n=247)	103 (41.7)	144 (58.3)	
I don't know (n=122)	54 (44.3)	68 (55.7)	0.001
Are the healthcare workers wash/sanitize their hands before they examined you?			
Yes (n=173)	106 (61.3)	67 (38.7)	
Sometimes (n=56)	28 (50.0)	28 (50.0)	
No (n=379)	153 (40.4)	226 (59.6)	
I don't know (n=162)	98 (60.5)	64 (39.5)	<0.001
Have you ever asked your healthcare worker to wash/sanitize their hands before they examined you?			
Yes (n=17)	0 (0.0)	17 (100)	
No (n=753)	385 (51.1)	368 (48.9)	<0.001**

* Chi-square test ** Fischer exact test

Patients `satisfaction with primary health care services

From table 3, it is shown that the highest rated statements regarding patients` satisfaction with primary healthcare centers` services was that the health care staff treated him/her with dignity and respect (weighted mean was 4.87 on a scale ranged between 1 “poor” and 5 “excellent”, followed by the statements that “The healthcare staff spoke using a language they could understand”, “The healthcare staff explained things in a way that was easy to understand” (weighted mean was 4.79) and that “patient`s confidence that his/her health information had treated with the level of privacy they expect (weighted mean was 4.75). The least satisfied services were “the length of time patient had to wait in the reception/ waiting area” (weighted mean was 3.71) and “Involvement of patients as much as they want to be in decisions about their care and treatment (weighted mean was 3.68 on a scale ranged between 1 “never” to 5 “always”).

Table 3: Patients` satisfaction with primary healthcare services

	Excellent N (%)	V. good N (%)	Good N (%)	Fair N (%)	Poor N (%)	Wt mean
Your experience accessing the primary health care center	481 (62.5)	120 (15.6)	127 (16.5)	6 (0.8)	36 (4.7)	4.30
The length of time you had to wait in the reception/ waiting area	258 (33.5)	241 (31.3)	152 (19.7)	24 (3.1)	95 (12.3)	3.71
Your overall experience with our reception staff	492 (63.9)	183 (23.8)	54 (7.0)	18 (2.3)	23 (3.0)	4.43
Thinking about the physician you spoke with during the visit…?						
They asked about your medical history	491 (63.8)	106 (13.8)	33 (4.3)	9 (1.2)	131 (17.0)	4.06
They listened to your concerns (n=765)	584 (76.3)	86 (11.2)	14 (1.8)	3 (0.4)	78 (10.2)	4.40
They spoke using a language you could understand (n=768)	689 (89.7)	46 (6.0)	13 (1.7)	3 (0.4)	17 (2.2)	4.79
They explained things in a way that was easy to understand	689 (89.5)	43 (5.6)	16 (2.1)	5 (0.6)	17 (2.2)	4.79
They treated you with dignity and respect	717 (93.1)	24 (3.1)	19 (2.5)	3 (0.4)	7 (0.9)	4.87
They gave you clear instructions about what you need to do after your visit	638 (82.9)	74 (9.6)	29 (3.8)	5 (0.6)	24 (3.1)	4.68
Your overall experience speaking with the healthcare provider about the reason for your visit (n=764)	596 (78.0)	107 (14.0)	31 (4.1)	7 (0.9)	23 (3.0)	4.59
The overall cleanliness of the primary health care center	514 (66.8)	145 (18.8)	90 (11.7)	12 (1.6)	9 (1.2)	4.48
The overall physical comfort of the primary health care center (n=766)	525 (68.5)	141 (18.4)	58 (7.6)	17 (2.2)	25 (3.3)	4.44
Your confidence in treating physician during the visit	588 (76.4)	135 (17.5)	39 (5.1)	0 (0.0)	8 (1.0)	4.68
Your confidence that your health information had treated with the level of privacy you expect	646 (83.9)	85 (11.0)	23 (3.0)	4 (0.5)	12 (1.6)	4.75
Your overall experience with the visit you had with us	544 (70.6)	153 (19.9)	65 (8.4)	4 (0.5)	6 (0.5)	4.60
When do you see your doctor how often they	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**	**Wt mean**
Give you an opportunity to ask questions about recommended treatment	408 (53.0)	185 (24.0)	135 (17.5)	14 (1.8)	28 (3.6)	4.21
Involve you as much as you want to be in decisions about your care and treatment	353 (45.8)	145 (18.8)	86 (11.2)	55 (7.1)	131 (17.0)	3.68
Spend enough time with you	589 (76.5)	97 (12.6)	62 (8.1)	4 (0.5)	18 (2.3	4.60

Wt mean: Weighted mean

Figure 8 illustrates the distribution of percentage of patients` satisfaction score regarding primary healthcare`s services. Overall, the percentage of overall patient`s satisfaction score ranged between 27.8% and 100% with a mean of 89% and standard deviation of 10.5%.

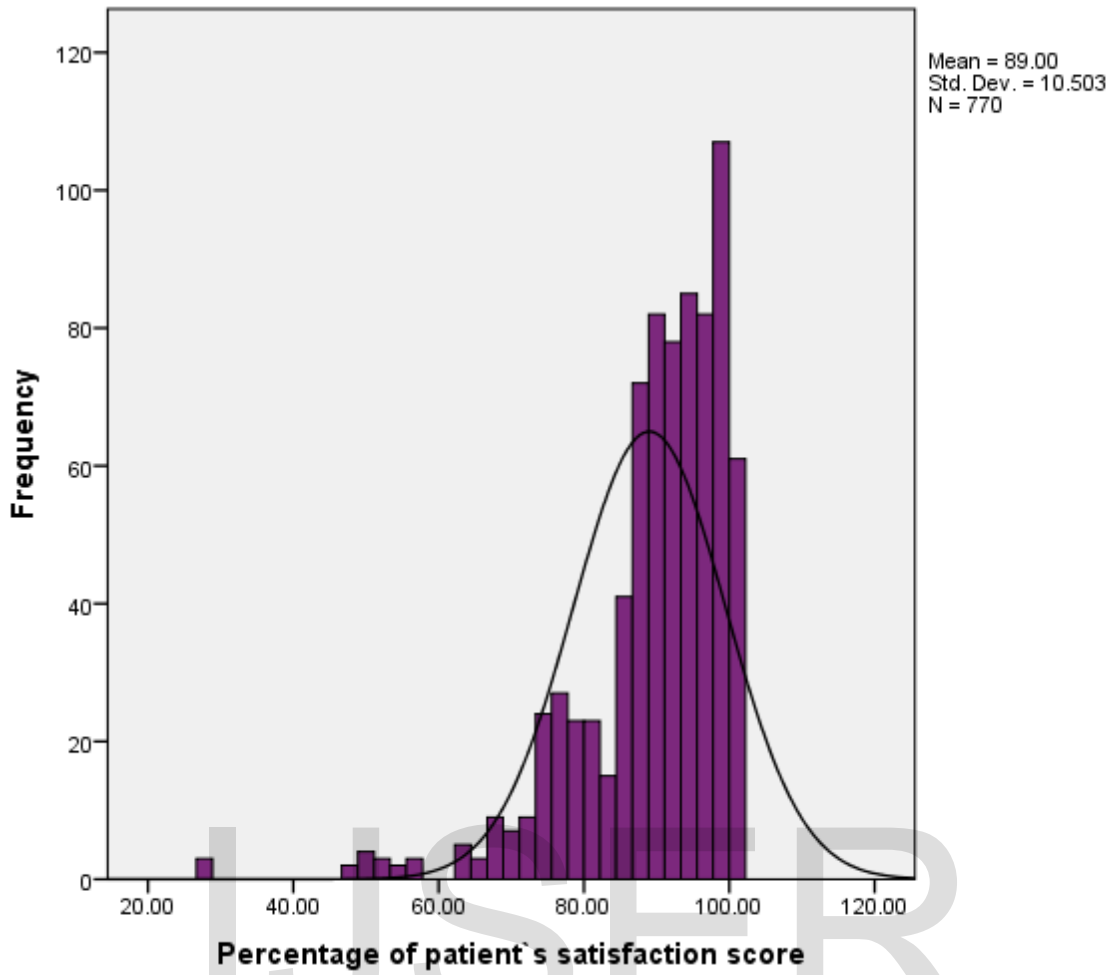

Figure 8: Distribution of percentage of patients` satisfaction score regarding primary healthcare`s services

Factors affecting patient`s satisfaction with PHC center`s services

-Patients` socio-demographic factors:

Older patients (>55 years) had the highest percentage of satisfaction score (mean rank=436.68) while those aged between 26 and 35 years had the lowest value (mean rank=362.59). The difference was statistically significant, p=0.029. Male patients were more significantly satisfied than female patients (mean ranks were 427.36 and 357.44), p<0.001. Illiterate patients had higher percentage of satisfaction score (mean rank=514.77) compared to more educated patients. The difference was statistically significant, p<0.001.

Table 4: Patients` socio-demographic factors associated with primary healthcare center`s services.

	Percentage of patient`s satisfaction score			p-value
	Median	IQR	Mean rank	
Age (years)				
≤25 (n=150)	90.0	83.6-96.7	371.71	
26-35 (n=280)	91.1	85.5-95.6	362.59	
36-45 (n=180)	92.2	86.7-98.6	413.80	
46-55 (n=81)	91.1	85.0-95.6	377.44	
>55 (n=29)	93.3	87.8-98.9	436.68	0.029**
Nationality				
Saudi (n=752)	91.1	85.6-96.7	386.40	
Non-Saudi (n=18)	90.0	82.2-94.4	347.78	0.466*
Gender				
Male (n=309)	93.3	87.8-97.8	427.36	
Female (n=461)	90.0	82.2-95.6	357.44	<0.001*
Educational level				
Illiterate (n=45)	94.4	90.0-98.9	514.77	
Elementary school (n=85)	90.0	85.6-98.9	393.32	
Intermediate school (n=104)	91.1	81.1-95.6	358.98	
Secondary school (n=232)	91.1	85.6-95.6	368.93	
University/+ (n=384)	92.2	84.7-96.7	385.90	<0.001**

*** Mann-Whitney test** **** Kruskal-Wallis test**

-Type of the primary healthcare center

Patients attended accredited PHC center were more significantly satisfied with its services compared to those attended none-accredited center (mean ranks were 451.26 and 319.74), p<0.001

Table 5: Association between type of the primary health care center and patients' satisfaction with its services

PHC center	Percentage of patient`s satisfaction score			p-value*
	Median	IQR	Mean rank	
Accredited (n=385)	93.3	88.9-97.8	451.26	
Not accredited (n=385)	87.8	78.9-94.4	319.74	<0.001

*** Mann-Whitney test**

-Body mass index

It is clear from table 6 that obesity grades II and III patients were more satisfied with PHC centers` services compared to underweight patients (mean ranks were 695.05, 456.33 and 334.58, respectively), p<0.001.

Table 6: Association between patients` body mass index and their satisfaction with primary healthcare centers` services

BMI	Percentage of patient`s satisfaction score			p-value*
	Median	IQR	Mean rank	
Underweight (n=53)	90.0	82.2-94.4	334.58	
Normal (n=281)	92.2	86.7-96.7	399.46	
Overweight (n=256)	89.4	82.2-95.6	353.27	
Obesity I (n=127)	92.2	86.7-95.6	392.45	
Obesity II (n=43)	94.4	88.9-97.8	456.38	
Obesity III (n=10)	98.9	98.9-100	695.05	<0.001

*** Kruskal-Wallis test**

-Smoking

From table 7, it is shown that smokers were more satisfied with PHC centers` services compared to non-smokers (mean ranks were 509.30 versus 371.74), p<0.001.

Table 7: Association between patients` smoking status and their satisfaction with primary healthcare centers` services

Smoking	Percentage of patient`s satisfaction score			p-value*
	Median	IQR	Mean rank	
Yes (n=77)	95.6	91.7-98.3	509.30	
No (n=693)	90.0	84.4-96.7	371.74	<0.001

*** Mann-Whitney test**

-Physical activity

There was no statistically significant difference regarding satisfaction with PHC center`s services between patients who reported practicing of physical activity and those who reported not practicing.

Table 8

Table 8: Association between patients` physical activity and their satisfaction with primary healthcare centers` services

Physical activity	Percentage of patient`s satisfaction score			p-value*
	Median	IQR	Mean rank	
Yes (n=603)	92.2	85.6-96.7	390.92	
No (n=167)	90.0	85.6-96.7	365.91	0.198

*** Mann-Whitney test**

-Main reason for visiting the PHC center

There was no statistically significant between the main reason for visiting the PHC center and patients' satisfaction with PHC center`s services as shown in table 9.

Table 9: Association between patients` main reason for visiting the primary healthcare center and their satisfaction with its services

Main reason for visiting PHC	Percentage of patient`s satisfaction score			p-value*
	Median	IQR	Mean rank	
Acute disease (n=356)	91.1	85.6-96.7	389.71	
Chronic disease (n=64)	92.2	84.4-96.7	404.84	
Others (n=350)	91.7	85.6-95.6	377.68	0.593

*** Mann-Whitney test**

- **Healthcare education and promotion**

Table 10 shows that In the last six months, healthcare staff in accredited PHC centers was more likely than those in non-accredited PHC centers to speak with patients about screening of any disease ($p=0.019$), smoking cessation ($p=0.022$), healthy eating habits ($p<0.001$), physical activity ($p<0.001$), and a period when patients felt sad, empty, or depressed ($p<0.001$).

Table 10: Comparison between accredited and non-accredited primary healthcare centers regarding the health care education and promotion

Did this provider talk to you about	Primary healthcare center		p-value*
	Accredited N=385 N (%)	Not Accredited N=385 N (%)	
Screening of any disease?	62 (16.1)	40 (10.39)	0.019
Smoking cession?	34 (8.8)	18 (4.67)	0.022
Healthy eating habits?	169 (50.91)	96 (24.94)	<0.001
The physical activity you get?	110 (28.57)	63 (9.35)	<0.001
Ask you whether there was a period when you felt sad, empty, or depressed?	38 (9.87)	11 (2.86)	<0.001

* Chi-square test

-Screening test performed at PHC centers

Table 11 summarizes the rate of performing some important screening tests at the primary healthcare centers as well as their timing and results. It is concluded from table 11 the following:

-Lipid panel was performed for 11.2% of patients. Half of them performed it since a period ranged between >6 months and one year and the results were abnormal in 45.3% of them.

--Fasting plasma glucose was performed for 14% of patients. About 44.4% of them performed it since 6 months or less and the results were abnormal in 47.2% of them.

-HBA1c was performed for 11.9% of patients. About 46.7% of them performed it since a period ranged between >6 months and one year and the results were abnormal in 36.9% of them.

--Fecal occult blood was performed for 4.2% of patients. More than half of them (53.1%) performed it since a period ranged between >6 months and one year and the results were abnormal none of them.

-Colonoscopy, Flexible Sigmoidoscopy, Mammogram, Pap test, and Bone densitometry were not performed at all.

Table 12 shows that lipid panel, fasting plasma glucose and HBA1c screening were more significantly performed in accredited PHC centers than non-accredited centers. However there was no statistically

significant difference between accredited and non-accredited PHC centers regarding fecal occult blood screening.

Table 11: Screening tests done at the primary healthcare centers and their results.

Screening Test N (%)	When was it done?		The result was	
	Time	N (%)		N (%)
Lipid Panel 86 (11.2)	≤6 months >6 months-1 year >1 year	31 (36.0) 43 (50.0) 12 (14.0)	Normal Abnormal Do not know	28 (32.6) 39 (45.3) 19 (22.1)
Fasting Plasma Glucose 108 (14.0)	≤6 months >6 months-1 year>1 year	48 (44.4) 47 (43.5) 13 (12.1)	Normal Abnormal Do not know	43 (39.8) 51 (47.2) 14 (13.0)
HBA1c 92 (11.9)	≤6 months >6 months-1 year >1 year	39 (42.4) 43 (46.7) 10 (10.9)	Normal Abnormal Do not know	41 (44.6) 34 (36.9) 17 (18.5)
Colonoscopy 0 (0.0)				
Fecal Occult Blood 32 (4.2)	≤6 months >6 months-1 year >1 year	3 (9.4) 17 (53.1) 12 (37.5)	Normal Abnormal Do not know	18 (56.3) 0 (0.0) 14 (43.7)
Flexible Sigmoidoscopy 0 (0.0)				
Mammogram 0 (0.0)				
Pap test 0 (0.0)				
Bone densitometry 0 (0.0)				

Table 12: Comparison between accredited and non-accredited primary healthcare centers regarding performing of screening tests

	Primary healthcare center		p-value*
	Accredited N=385 N (%)	Not Accredited N=385 N (%)	
Lipid Panel (n=86)	59 (15.3)	27 (7.0)	<0.001
Fasting Plasma Glucose (n=108)	66 (17.1)	42 (10.9)	0.015
HBA1c (n=92)	67 (17.4)	25 (6.5)	<0.001
Fecal Occult Blood (n=32)	15 (3.9)	17 (4.4)	0.718

* Chi-square test

Awareness of patients regarding PHC center accreditation:

Only 5.8% of patients knew correctly the meaning of accreditation of a primary healthcare center as shown in figure 9.

There was a statistically significant association between awareness of the patients about accreditation of the PHC center and its actual accreditation as for example 43.7% and 35.4% of patients who reported that the visited PHC center is accredited were right compared to 4.2% and 16.7% visited non-accredited centers, $p<0.001$. Table 13

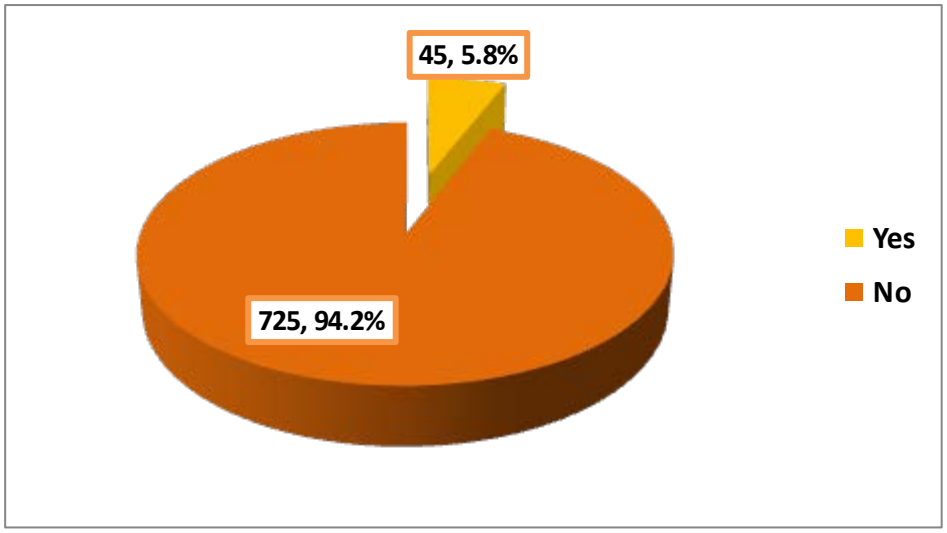

Figure 9: Knowledge of the patients regarding meaning of accreditation of a primary healthcare center

Table 13: Association between accreditation of the PHC centers and awareness of patients regarding that.

	Washhaa N=177 N (%)	Seel Sagheer N=170 N (%)	Eastern Aziziah N=208 N (%)	Alsharaee-AlMogahedeen N=215 N (%)
Yes (n=48)	21 (43.7)	2 (4.2)	17 (35.4)	8 (16.7)
No (n=114)	17 (14.9)	39 (34.2)	21 (18.4)	37 (32.5)
Don`t know (n=608)	139 (22.9)	129 (21.1)	170 (28.0)	170 (28.0)

χ^2=34.61, df=6, p<0.001

The impact of accreditation of primary healthcare centers: Staff`s opinions

Forty-seven primary healthcare staff members were enrolled in the study. Table 14 presents their demographic characteristics. About two thirds of them (61.7%) were recruited from Makkah (Eastern Aziziah PHC center). More than half (53.2%) were males. Most of them (70.2%) aged 45 years and less. Almost two-thirds (66%) had experience of 5 years or less in the PHC settings. More than one-third of them were either nurses (42.6%) or physicians (34%).

Table 14: Demographic characteristics of the primary healthcare staff (n=47)

	Frequency	Percentage
City and PHC center		
Taif, Washhaa	18	38.3
Makkah, Eastern Aziziah	29	61.7
Gender		
Male	25	53.2
Female	22	46.8
Age (years)		
≤45	33	70.2
>45	14	29.8
Experience of work at the current PHC center (Years)		
≤5	31	66.0
6-10	6	12.8
>10	10	21.2
Job nature		
Director of the center	2	4.3
Physicians	16	34.0
Nurse	20	42.6
Others*	9	19.1

* Social worker, technician, administration/management and others

Regarding the surveyed scales of the impact of accreditation of primary healthcare centers, from staff`s perspectives, the mean scores computed for the scales and subscales were all high. Staff involvement had the highest mean score (3.83), followed by Accreditation awareness (3.82), Human resource utilization (3.77), Quality results (3.64), Customer satisfaction and Accreditation impact (both having a mean score of 3.60), Management and (3.57), Strategic quality planning (3.40), and finally Quality Management (3.02). Table 15

Table 15: Characteristics of the surveyed scales of the impact of accreditation of primary healthcare centers: staff`s perspectives

Scales	Number of items	Range of score	Mean±SD of score
Management and leadership	9	1.56-5	3.57±0.93
Strategic quality planning	7	1.86-5	3.40±0.90
Quality management	6	1.33-5	3.02±1.06
Human resource utilization	6	1.67-5	3.77±0.95
Quality results	5	1.60-5	3.64±0.92
Customer satisfaction	7	1.43-5	3.60±0.91
Accreditation impact	14	1.21-5	3.60±1.06
Staff involvement	22	1.32-5	3.83±0.90
Accreditation awareness	5	1.40-5	3.82±0.91

Factors affecting different scales of the impact of accreditation on PHC centers` services:

-Management and leadership scale

From table 16, it is clear that staff from Makkah (Eastern Aziziah) had higher management and leadership score than those from Taif (Washhaa) (mean rank was 29.11 versus 20.83), p=0.043. Female staff had higher management and leadership score than males (mean ranks was 28.32 versus 20.20), p=0.042. Older staff (>45 years) had higher management and leadership score than those aged 45 years or less (mean ranks was 33.07 versus 20.15), p=0.003. Staff experience of work in PHC center and job nature were not significantly associated with management and leadership score.

Table 16: Factors associated with management and leadership scale score among staff.

	Management and leadership scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	4	3.44-4.67	29.11	
Makkah, Eastern Aziziah	3.33	2.83-4.0	20.83	0.043*
Gender				
Male	3.44	2.28-4.0	20.20	
Female	3.89	3.33-4.28	28.32	0.042*
Age (years)				
≤45	3.33	2.56-4.0	20.15	
>45	4.11	3.86-4.50	33.07	0.003*
Experience of work at the current PHC center (Years)				
≤5	3.44	3.22-4.0	21.68	
6-10	3.56	2.0-4.75	24.0	
>10	4.11	3.11-5.0	31.20	0.160**
Job nature				
Director of the center	3.44	3.44-3.44	20.5	
Physicians	4.0	3.33-4.08	26.16	
Nurse	3.56	3.11-4.61	24.73	
Others˚	3.33	2.56-3.89	19.33	0.651

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Strategic quality planning scale

Table 17 shows that female staff had higher strategic quality planning score than males (mean rank was 29.80 versus 18.90), p=0.006. Older staff (>45 years) had higher strategic quality planning score than those aged 45 years or less (mean rank was 33.61 versus 19.92), p=0.002. City and PHC center, staff experience of work in PHC center and job nature were not significantly associated with strategic quality planning score.

Table 17: Factors associated with strategic quality planning scale score among staff.

	Strategic quality planning scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	3.86	2.71-4.43	28.22	
Makkah, Eastern Aziziah	3.43	2.57-3.86	21.38	0.095*
Gender				
Male	2.71	2.14-4.0	18.90	
Female	3.79	3.43-3.89	29.80	0.006*
Age (years)				
≤45	3.14	2.43-3.71	19.92	
>45	3.86	3.82-4.21	33.61	0.002*
Experience of work at the current PHC center (Years)				
≤5	3.43	2.71-3.86	23.18	
6-10	3.14	1.86-4.54	21.0	
>10	3.79	2.57-4.71	28.35	0.493**
Job nature				
Director of the center	4.14	4.14-4.14	38.50	
Physicians	3.43	2.79-3.86	24.41	
Nurse	3.71	2.57-4.32	25.33	
Others˚	3.14	1.93-3.64	17.11	0.191**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Quality management scale

From table 18, it is shown that staff from Taif (Washhaa) had higher quality management score than those from Makkah (Eastern Aziziah) (mean rank was 29.9 versus 20.29), p=0.018. Female staff had higher quality management score than males (mean rank was 28.34 versus 20.18), p=0.041. Older staff (>45 years) had higher quality management score than those aged 45 years or less (mean ranks was 30.18 versus 21.38), p=0.043. Staff experience of work in PHC center and job nature were not significantly associated with quality management score.

Table 18: Factors associated with quality management scale score among staff.

	Quality management scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	3.58	2.54-4.75	29.97	
Makkah, Eastern Aziziah	2.50	2.17-3.50	20.29	0.018*
Gender				
Male	2.67	2.0-3.50	20.18	
Female	2.83	2.50-4.13	28.34	0.041*
Age (years)				
≤45	2.67	2.08-3.50	21.38	
>45	3.50	2.33-4.54	30.18	0.043*
Experience of work at the current PHC center (Years)				
≤5	2.67	2.17-3.50	23.24	
6-10	2.67	2.17-4.67	25.50	
>10	3.17	2.04-4.50	25.45	0.869**
Job nature				
Director of the center	3.50	3.50-3.50	32.0	
Physicians	3.08	2.25-4.0	26.16	
Nurse	2.83	2.0-4.5	23.70	
Others˚	2.50	2.25-2.75	19.06	0.518**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Human resource utilization scale

Table 19 demonstrates that female staff had higher human resource utilization score than males (mean rank was 28.25 versus 20.26), p=0.045. Older staff (>45 years) had higher human resource utilization score than those aged 45 years or less (mean ranks was 34.61 versus 18.50), p=0.001. Higher experienced staff (>10 years) had higher human resource utilization score than less experienced staff (5-10 years) (mean rank was 34.30 versus 19.25), p=0.025. City/PHC center and job nature were not significantly associated with human resource utilization score.

Table 19: Factors associated with human resource utilization scale score among staff.

	Human resource utilization scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	4.08	3.42-5.0	28.78	
Makkah, Eastern Aziziah	3.67	3.17-4.17	21.03	0.058*
Gender				
Male	3.67	2.33-4.50	20.26	
Female	4.0	3.79-4.29	28.25	0.045*
Age (years)				
≤45	3.67	2.75-4.0	18.50	
>45	4.25	4.17-4.75	34.61	0.001*
Experience of work at the current PHC center (Years)				
≤5	3.83	3.17-4.17	21.60	
6-10	3.17	2.33-4.75	19.25	
>10	4.42	4.04-5.0	34.30	0.025**
Job nature				
Director of the center	4.33	4.33-4.33	35.50	
Physicians	3.67	3.29-4.54	22.44	
Nurse	4.0	3.54-4.67	25.58	
Others˚	3.67	2.75-4.17	20.72	0.489**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Quality results scale

From table 20, it is shown that staff from Taif (Washhaa) had higher quality results score than those from Makkah (Eastern Aziziah) (mean rank was 33.19 versus 18.29), p<0.001. Female staff had higher quality results score than males (mean rank was 28.11 versus 20.38). However, the difference was borderline not significant, p=0.052. Older staff (>45 years) had higher quality results score than those aged 45 years or less (mean ranks was 32.75 versus 20.29), p=0.004. Staff experience of work in PHC center and job nature were not significantly associated with quality results score.

Table 20: Factors associated with quality results scale score among staff.

	Quality results scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	4.10	3.90-5.0	33.19	
Makkah, Eastern Aziziah	3.60	3.0-3.8	18.29	<0.001*
Gender				
Male	3.60	2.10-4.20	20.38	
Female	3.80	3.60-4.10	28.11	0.052*
Age (years)				
≤45	3.60	2.60-4.0	20.29	
>45	4.20	3.80-4.65	32.75	0.004*
Experience of work at the current PHC center (Years)				
≤5	3.80	3.60-4.0	23.40	
6-10	3.0	2.0-4.85	19.17	
>10	3.8	3.70-4.45	28.75	0.360**
Job nature				
Director of the center	4.20	4.20-4.20	37.0	
Physicians	3.80	3.60-4.55	26.69	
Nurse	3.80	3.40-4.0	23.45	
Others˚	3.60	2.50-3.80	17.56	0.211**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Customer satisfaction scale

Staff from Taif (Washhaa) had higher customer satisfaction score than those from Makkah (Eastern Aziziah) (mean rank was 32.17 versus 18.93), p=0.001. Older staff (>45 years) had higher customer satisfaction score than those aged 45 years or less (mean ranks was 30.36 versus 21.30), p=0.038. Director of the PHC centers had the highest customer satisfaction score (mean rank =36.5) whereas other employees (social worker, technician, administration/management and others had the lowest score (mean rank=11.50), p=0.013. Staff gender and experience of work in PHC center were not significantly associated with customer satisfaction score. Table 21

Table 21: Factors associated with customer satisfaction scale score among staff.

	Customer satisfaction scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	4.0	3.68-4.89	32.17	
Makkah, Eastern Aziziah	3.29	3.14-3.86	18.93	0.001*
Gender				
Male	3.57	2.57-4.29	22.14	
Female	3.64	3.29-4.07	26.11	0.319*
Age (years)				
≤45	3.57	3.14-3.93	21.30	
>45	4.14	3.29-4.39	30.36	0.038*
Experience of work at the current PHC center (Years)				
≤5	3.71	3.14-4.0	23.29	
6-10	3.14	1.86-4.43	17.58	
>10	3.93	3.50-4.61	30.05	0.185**
Job nature				
Director of the center	4.29	4.29-4.29	36.50	
Physicians	3.89	3.57-4.39	28.0	
Nurse	3.64	3.18-4.50	25.18	
Others˚	3.14	2.50-3.29	11.50	0.013**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Accreditation impact scale

Table 22 shows that female staff had higher accreditation impact score than males (mean rank was 29.39 versus 19.26), p=0.011. Older staff (>45 years) had higher accreditation impact score than those aged 45 years or less (mean ranks was 35.11 versus 19.29), p<0.001. City/PHC center, experience in PHC center and job nature were not significantly associated with accreditation impact score.

Table 22: Factors associated with accreditation impact scale score among staff.

	Accreditation impact scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	3.93	3.16-4.86	26.06	
Makkah, Eastern Aziziah	3.93	2.71-4.14	22.72	0.417*
Gender				
Male	3.21	1.96-4.14	19.26	
Female	4.07	3.91-4.21	29.39	0.011*
Age (years)				
≤45	3.64	2.36-4.07	19.29	
>45	4.21	4.07-4.95	35.11	<0.001*
Experience of work at the current PHC center (Years)				
≤5	3.93	3.0-4.21	23.79	
6-10	2.71	1.93-4.23	16.50	
>10	4.11	3.16-4.48	29.15	0.199**
Job nature				
Director of the center	5.0	5.0-5.0	45.50	
Physicians	3.93	3.64-4.29	25.47	
Nurse	3.86	3.0-4.14	22.28	
Others˚	3.21	2.32-4.21	20.44	0.109**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Staff involvement scale

Table 23 illustrates that female staff had higher staff involvement score than males (mean rank was 28.27 versus 20.24), p=0.044. Older staff (>45 years) had higher staff involvement score than those aged 45 years or less (mean ranks was 33.04 versus 20.17), p<0.001. City/PHC center, experience in PHC center and job nature were not significantly associated with staff involvement score.

Table 23: Factors associated with staff involvement scale score among staff.

	Staff involvement scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	4.16	3.95-4.90	28.56	
Makkah, Eastern Aziziah	4.0	3.5-4.05	21.17	0.071*
Gender				
Male	3.68	2.59-4.52	20.24	
Female	4.04	4.0-4.10	28.27	0.044*
Age (years)				
≤45	3.95	2.82-4.05	20.17	
>45	4.27	4.05-4.47	33.04	0.003*
Experience of work at the current PHC center (Years)				
≤5	4.0	3.55-4.05	22.27	
6-10	3.68	2.73-4.45	20.17	
>10	4.27	3.91-4.95	31.65	0.127**
Job nature				
Director of the center	4.41	4.41-4.41	37.50	
Physicians	4.02	3.65-4.61	25.13	
Nurse	4.02	3.06-4.31	23.25	
Others˚	3.95	3.20-4.05	20.67	0.445**

*** Mann-Whitney test** **** Kruskal-Wallis test**

˚ Social worker, technician, administration/management and others

-Accreditation awareness

Staff from Taif (Washhaa) had higher accreditation awareness score than those from Makkah (Eastern Aziziah) (mean rank was 31.44 versus 19.38), p=0.002. Female staff had higher accreditation awareness score than males (mean rank was 28.32 versus 20.20). Older staff (>45 years) had higher accreditation awareness score than those aged 45 years or less (mean ranks was 29.64 versus 21.61), p=0.057. However, the difference was borderline not significant, p=0.057. Experience of work in PHC center and job nature were not significantly associated with accreditation awareness score. Table 24

Table 24: Factors associated with accreditation awareness scale score among staff.

	Accreditation awareness scale score			p-value
	Median	IQR	Mean rank	
City and PHC center				
Taif, Washhaa	4.30	4.0-5.0	31.44	
Makkah, Eastern Aziziah	4.0	3.0-4.0	19.38	0.002*
Gender				
Male	4.0	2.60-4.20	20.20	
Female	4.0	4.0-4.35	28.32	0.036*
Age (years)				
≤45	4.0	2.9-4.0	21.61	
>45	4.0	4.0-4.50	29.64	0.057*
Experience of work at the current PHC center (Years)				
≤5	4.0	3.8-4.0	22.06	
6-10	4.0	2.4-4.35	22.75	
>10	4.30	3.7-4.85	30.75	0.190**
Job nature				
Director of the center	4.0	4.0-4.0	25.0	
Physicians	4.0	3.8-4.30	23.0	
Nurse	4.0	3.0-4.80	25.20	
Others*	4.0	3.20-4.0	22.89	0.954**

*** Mann-Whitney test** **** Kruskal-Wallis test**

DISCUSSION:

It has been documented that accreditation of PHC centers result in improving the role played by the primary health care within the healthcare system as well as ensuring healthcare quality improvement[22]. Assessing the impact of the accreditation on health care from the patients` and healthcare providers` view is an essential part in this regard. Therefore this study was conducted in Makkah Region with that aim. Up to our knowledge, this study is the first of its kind in the Kingdom of Saudi Arabia, despite the fact that KSA has a pioneering PHC program in its Region that has achieved considerable success within a few years of its establishment [23].

Patients` satisfaction

High level of patient satisfaction with PHC services is a good indicator of the quality of health services to predict the steadiness of care, the physicians` communication skills, and confidence in the whole health system [24].

In the present study, the patients were highly satisfied with the finding that the health care staff treated them with dignity and respect, they spoke using a language they could understand, and they explained things in a way that was easy to understand. Also patients were highly satisfied by being confident that their health information had treated with the level of privacy they expect. However, they were less satisfied with the length of time patient had to wait in the reception/ waiting area and the inadequate involvement in decisions about their care and treatment. In a previous study carried out in Qateef, Eastern Saudi Arabia (2008), patients visiting PHC centers were less satisfied with their care if treated by non-Arabic staff and less willing to return to the same center if they need [25].

As regards consultation time with treating physicians in primary health care centers and its association with satisfaction, the study showed that most of the patients were satisfied with consultation time with treating physicians. Salem[26] reported that patients with longer consultation (fifteen minutes or more) time had a significant higher satisfaction score. Also, Al Hajeri 2009[27] found that longer consultation time has been associated with a higher satisfaction rate. Similarly, Hull et al 2009[28] reported a relation patient satisfaction and mean consultation time. Dousari et al, 2008[29] reported that patients were more satisfied when given sufficient consultation time by their physicians to express themselves in their own wards during the history taking.

Regarding waiting time in the primary healthcare centers and its influence on patient

satisfaction, our finding of lower satisfaction is supported by other studies. In Quassim Province (Saudi Arabia), Salem observed that waiting one hour or more in health centers was associate with low patient`s satisfaction [26]. Wassem et al, 2003[30] confirmed our results by reporting that long waiting time (two hours or more) was associated with lower patient`s satisfaction compared with usual waiting time (one hour or less).

As expected, patients in the present study were more significantly satisfied with their visits to accredited PHC centers than non-accredited centers as all services were more significantly performed in accredited than non-accredited centers. The same has been observed in other similar studies [14, 18, 22].

In a systematic review carried out by Saleh et al aimed to assess quality of care in primary health care settings in the Eastern Mediterranean region [8], the majority of the articles (66.1%) assessed the quality of care provided at PHC centers using a single dimension of the Donabedian model, with the highest proportion of articles (42.8%) examining the process dimension. Out of the eight identified areas of focus, 'clinical practice' was identified in more than half of the reviewed articles, with the remaining articles dispersed among the other seven areas of focus. All studies reviewed indicated patient dissatisfaction with the process of patient–provider interaction. Gaps in patient–provider relationships were identified to be related to 'unfriendly providers' or 'poor information exchange'. Contrary to that finding, in the present study majority of the patients were satisfied with relationship with the treating physicians. In Bahrain, patients were dissatisfied with receptionists' poor communication skills, long waiting time, short consultation time and poor physician examination/explanation [31].

Gender and age difference in satisfaction with PHC center`s services reported in this study was confirmed in other studies conducted among Omanis[32] Iraqi[33], Quatari[34] and Saudi[35] patients as male and older patients were more satisfied with services than female and younger patients.

Regarding nationality, the study didn't find any difference in satisfaction between Saudi and non-Saudi patients. Al Qatari and Haran 2008[25] didn't find any difference in satisfaction between Saudi and non Saudi patients and also Dousari et al, 2008[29] showed that Kuaiwiti patient`s satisfaction was not influenced their nationality. However, Salem[26] revealed that non-Saudi patients had significant higher levels of satisfaction and this finding was in agreement with Al Emadi et al 2010[36] who found that non Qatari patients were more satisfied with PHC services than Qatari patients.

Regarding educational level and its impact on degree of health care satisfaction, the study revealed that illiterates were significantly more satisfied particularly regarding health care than higher educated patients. Al Qatari and Haran, 2008[25], found that the less the education level, the more satisfaction but Scott 2004[37], mentioned that educational status may has a positive or negative influence on satisfaction depending on its interaction with other socio-demographic variables.

Finding that obese and smoker patients were more satisfied with PHC services compared to their counterparts may reflect the more specific services provided to these two special groups of patients. However, further in-depth investigation of such services is needed.

Staff` satisfaction

In the current study, regarding the impact of accreditation of primary healthcare centers, from staff`s perspectives, the mean scores computed for the utilized scales and subscales were all high. The same has been reported in a study carried out by El-Jardali in Lebanon [14]. Staff involvement had the highest mean score, followed by Accreditation awareness, Human resource utilization, Quality results, Customer satisfaction, Accreditation impact, Management and Strategic quality planning, and finally Quality Management. In a quite similar study carried out in Lebanon [14], Their ranking of subscales was different from ours as Management and leadership had the highest mean score, followed by Accreditation impact, Human resource utilization, Customer satisfaction, Staff involvement, Strategic quality planning, Quality results, Accreditation awareness and finally Quality management. The difference could be attributed to cultural background of physicians and their demographic characteristics as well as the nature of the job.

Improvements in quality of care were reflected by the increase in patient satisfaction which approved in the present study to be higher significantly in accredited centers and number of patients visiting PHC centers as also approved in the present study by observing that higher percentage of patients visited non-accredited PHCC received care from a health care provider(s) at a location other than the current practice.

In agreement with what has been reported by El-Jardali el al 14, a positive influence of accreditation was observed on different PHC services including screening services. However some important screening services were not requested for patients in either accredited or non-accredited PHC centers such

as colonoscopy, flexible Sigmoidoscopy, Mammogram, Pap test and bone densitometry

Another study was done in 2014, in Jordan among healthcare professionals and administrative staffs in accredited Primary healthcare centers and revealed that many patients were not fully aware of what the accreditation meant, despite of that, they became more confident about the services provided, and in turn, the health centers used this status to improve their image[15]. This is quite similar to has been observed in the present study.

In the current study, the influence of the impact of accreditation on the quality of care provided to patients is apparent as a relatively high score was reported. In a study carried out in Jordan [15], some of the healthcare professionals were reluctant about the impact accreditation actually made on quality improvement, while others felt that accreditation had a positive impact on their quality of care and services. They had divergent views about its effectiveness and efficiency; most believed that the accreditation process increased reporting requirements both internally and externally, as well as increased the documentation process.

Strengths of the present study includes that it is among few studies carried out in Arabic world and up to our knowledge the first in Saudi Arabia to assess impact of accreditation on the PHC centers` quality of provided services. Also the study investigated both patients and health care professionals. Finally, this survey accredited and non-accredited centers. However, the study has some important limitations that should be clearly mentioned. First, the self-reported nature of the utilized questionnaire with its inherited social desirability bias is a possible limitation. Second, patients were interviewed in the day time hours and this may gives rise to some bias in the results. Finally, the cross sectional design with its limited value in hypothesis testing is considered an important limitation.

CONCLUSION:

Patients attending primary healthcare centers in Taif and Makkah cities were quite satisfied with the services provided as well as the quality of care offered by healthcare staff working in these centers. However, there is a need for interventions regarding some issues concerning waiting time. Older, lower educated, male, smoker and obese patients were more satisfied with provided services compared to their counterparts. Patients attended accredited PHC center were more significantly satisfied with its services compared to those attended none-accredited center. Almost all services, including screening tests were more performed at accredited than non-accredited PHC centers.

Positive impact of accreditation of primary healthcare centers on their services was ascertained according to staff`s perspectives with supports the importance of accreditation of PHC cervices as an essential step towards improving the quality of delivered services.

RECOMMENDATIONS:

Based on the study results, the following are recommended.

1. All PHC centers in Makkah Region should be accredited and receive both in financial and non-financial support from the high authorities.
2. Patient satisfaction surveys should be implemented on an ongoing basis to assess patients views on services they have received at PHC centers and the data must be utilized as a tool for self-evaluation and improvement of health care services.
3. Patient experience should be included to improving the quality of care submitted in primary health care.
4. Improvement of patient satisfaction in the area of long waiting time by increasing the staff, prolonging the work time, etc.
5. Important screening test such as mammogram, Pap test, colonoscopy and bone densitometry should be performed for high risk patients at PHC centers, both accredited and non-accredited.
6. Further study including more primary health care centers from other areas of the kingdom is recommended to have a more clear profile of the situation in the kingdom.

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DEDICATION

This study is dedicated to

To my family and my wife for their encouragement and support

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APPENDICES

The questionnaires

Approval using the questionnaires

Research Committee approval