CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
http://doi.org/10.5281/zenodo.4469079

Avalable online at: http://www.iajps.com *Research Article*

PHYSICIANS AND NURSES PERCEPTION TOWARD THE SERVICES PROVISION AT WORKPLACE AT PRIMARY HEALTHCARE CENTERS IN DAMMAM AND ALKHOBAR AT EASTERN PROVINCE, SAUDI ARABIA IN THE YEAR 2019.

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Article Received: November 2020 **Accepted:** December 2020 **Published:** January 2021

Abstract:

Aim: *The aim was to evaluate physicians' and nurses' perceptions toward services provision at primary healthcare centers in Dammam and AlKhobar, Saudi Arabia.*

Methods: *An analytical cross-sectional study at Ministry of health Primary Health care centers in Dammam and AL Khobar eastern province, Saudi Arabia. Thirteen (13) primary health care centers in AL Khobar and 30 centers in Dammam were included. A structured multi-item questionnaire was used to collect data from physicians and nurses about their perception toward workplace services as workforce, infrastructure, health care service, and teamwork barriers at primary healthcare centers.*

Results: *Out of 364 of the participants, 94.2% were Saudi nationals, and 78.3% were female. About 51% of the studied sample were general practitioners, specialists, and consultants, while the rest were nurses (49%). The highest agreement score regarding the barriers at workforce were the unavailability of adequate social workers and dieticians, then lab technicians.; While for the infrastructures the unavailability of cafeteria services has the highest agreement score followed by the unavailability of the library, staff rest room, electronic medical records and comprehensive electronic healthcare system follow close behind it.; For the health care services, unavailability of ultrasound equipment had the highest percentage as a barrier, followed by the unavailability of X-ray equipment, essential clinical equipment, ECG machine, and lab services. most of of the participants were not aware of their job description and not satisfied with their colleague (83.2% and 76.9%, respectively).*

Conclusion: *Physicians and nurses at primary health care centers in Dammam and ALKobar faced multiple barriers related to workforce, infrastructures and healthcare services. Which consequently affect the quality of health care provided by healthcare professional to targeted populations.*

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Please cite this article in press Aisha Mohammed Alhemel et al, ***Physicians And Nurses Perception Toward The Services Provision At Workplace At Primary Healthcare Centers In Dammam And Alkhobar At Eastern Province, Saudi Arabia In The Year 2019.,*** *Indo Am. J. P. Sci, 2021; 08(1).*

INTRODUCTION:

Primary health care (PHC) was defined by the World Health Organization in 1978 as essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to all individuals and families in the community et al. [1]. Primary care is an essential part of the healthcare system that reduces hospital load, hospital admissions, and complications by prevention, early intervention, and detection. It is the most cost-effective strategy for providing essential health services. It addresses the main health problems in the community. It provides promotive, preventive, curative and rehabilitative services, which depends on well trained health workers including physicians, nurses, midwives and community workers, to work as a health team that deliver the expected health services to the patients and community [2]. Most of the countries experience significant challenges to their primary health care systems due to many barriers and obstacles facing the primary healthcare workers in the primary healthcare centers, which will affect the provided services to the patients. In several Arab countries as Saudi Arabia, Bahrain, Lebanon, Qatar, UAE, and Oman, the PHC centers are inadequately equipped, most of which are old houses converted into clinics to provide the mainly general curative service and a few preventative programs. At the same time, the secondary and tertiary hospitals are well built and furnished. As a result of these problems, the primary healthcare physicians have less job satisfaction comparison to the primary healthcare physicians in western countries or other hospital physicians. This inequity, if not addressed, may lead to the deterioration in the overall quality of Family Medicine and PHC [3]. A study conducted in Africa, 2015 found that South Africa and Sudan faced a big problem related to the workforce; there areis very limited primary healthcare worker in isoncompare to secondary and tertiary hospital force [4] .

A recent study conducted in Jeddah region, Saudi Arabia, published inat 2015, found that difficulties related to transportation formed one of the main difficulties encountered by physicians, radiology technicians, absence of the internet and computer access, unavailability of laboratory services, X-ray equipment, and ultrasound equipment, an electronic medical records system, preliminary laboratory tests, and low building maintenance [5] . To strengthen the health care system in primary healthcare centers, there is a need to identify all these obstacles related to infrastructure, provided health services, and teamwork. These barriers must undergo a careful appraisal,; That's will help to overcome the ongoing situation and improve the quality of health care services and health care system [6].

There are limited researches done all over the world that study different barriers or challenges that faced the primary health care workers. Further researches are needed in Saudi Arabia to explore the different barriers that adversely affect the delivery of health care services in an ideal way. The current study aimed to evaluate physicians' and nurses' perceptions toward services provision at primary healthcare centers in Dammam and AlKhobar, Saudi Arabia with a comparison between Dmmama and Al Khobar regarding infrastructure, workforce, healthcare services, and teamwork.

METHODOLOGY:

Study design and study subjects:

A cross-sectional study was carried out in Ministry of health Primary Health care centers in Dammam and AL Khobar eastern province, Saudi Arabia, 2019. There are 13 primary health care centers in AL Khobar and 30 centerscentres in Dammam. The sample population included were Primary care physicians and nurses working in Ministry of health centers. The sample size was calculated using raosoft. As the total number of physicians and nurses working in Dammam and AlKobar was 926, at confidence level 95%, with 5% margin error and 50% response distribution, the sample size was calculated to be 272 by adding 20% non-response the accepted sample was 326. The actual sample participated in the study was 364.

Data collection tools:
A Self-administered questionnaire adopted from a study done in Jeddah 2015 [5] was used. Then pilot study was done by asking 30 expert physicians to fill the questionnaire and then assess the clarity of language; any additives and minor modification were done accordingly. The questionnaire consists of 5 parts:

1. Sociodemographic data: which included age gender, nationality, years of experience and the sectors.
2. Barriers related to the workforce: unavailability of adequate receptionist number, lab technician, radiologist, radiologist technician, adequate pharmacist, nursess and doctors' numbers, unavailability of dietician, and social workers.
3. Barriers related to infrastructures: unavailability of comprehensive electronic health care system, patient files, electronic medical record, organized referral system, appointments system, appropriate clinic settings, library, internet connection, staff rest room, staff toilets, cafeteria, adequate staff parking and poor building maintenance.
4. Barriers related to health care services: unavailability of basic clinical equipment, ECG machine, lab services, sufficient lab tests, X-ray equipment's, US equipment's, adequate vaccination, adequate medication, possibility of receiving radiology report from referral facility and receiving results from reference lab.
5. Barriers related to teamwork satisfaction with the administrative team, authority and colleagues and awareness of job description.

Scoring of the questionnaire:
The barrier sections used 3-point Likert scale from "strongly agree" to "strongly disagree". Agreement percentage of the participants >more than 50% was considered to be a barrier.

Ethical considerations:
Agreement to fill the questionnaire was taken as consent. Information was kept confidential and used only for the purpose of this research. The study was approved by the ethics committees (IRB).

Data management and analysis:
Data were analyzed using SPSS (the Statistical package for Social Sciences for Windows) version 23.0. Continuous data were presented by mean and standard deviation. Categorical data was presented as percentage and frequency. Total percentage of barrier score was tested for normal distribution by Kolmogorov-Smirnov test. Average percentage of barriers between Dammam and Al Khobar was compared by using independent-t test. Chi-square test was used for comparing 2 or more qualitative variables. p value less than 0.05 was considered as significant.

RESULT:
Out of 364 of the participants, 94.2% were Saudi nationals, and 78.3% were female. About 51% of the studied sample were general practitioners, specialists, and consultants, while the rest were nurses (49%) The work experience of the participants varied; 42% of the respondents had around 5 to 10 years of experience. The study was conducted in Dammam and Al Khobar, gaining (68.7%) and (31.3%) respondents respectively (table, 1).

Table 1: Demographic characteristics (n =364)

	Number	Percentage
Age in yrs.		
Mean (SD)	33.0 (6.5)	
Minimum – Maximum	20 – 58	
Gender		
Male	79	21.7
Female	285	78.3
Job title		
General practitioner	98	26.9
Specialist	68	18.7
Consultant	19	5.2
Nurse	179	49.2
Nationality		
Saudi	343	94.2
Non-Saudi	21	5.8
Year of experience		
Less than 5 years	74	20.3

5 – 10 years 11 – 15 years More than 15 years	153 67 70	42.0 18.4 19.2
Sector Dammam AL Khobar	 250 114	 68.7 31.3

Table 2: Barriers related to workforce

Unavailability of	Strongly agree/ agree N (%)	Neutral N (%)	Strongly disagree/ disagree N (%)
adequate receptionist numberR Number	223 (61.3)	46 (12.6)	95 (26.1)
lab technicianT	241 (66.2)	54 (14.8)	69 (19.0)
Radiologist	240 (65.9)	35 (9.6)	89 (24.5)
radiologist technicianT	219 (60.2)	48 (13.2)	97 (26.6)
adequate pharmacist numberP Number	126 (34.6)	46 (12.6)	192 (52.7)
adequate nurses' numberN' Number	226 (62.1)	56 (15.4)	82 (22.5)
adequate doctors' number D' Number	228 (62.6)	59 (16.2)	77 (21.2)
dietician	266 (73.1)	42 (11.5)	56 (15.4)
social workerW	272 (74.7)	44 (12.1)	48 (13.2)

Table 2 shows the respondents' perception of the barriers related to workforce. The respondents agreed (strongly agree) with all the barriers related to workforce, except unavailability of adequate pharmacist numbers (less than 50%).

The highest percentage was for the unavailability of adequate social worker taking (74.7%), followed by dietician (73.1%) then lab technician (66.2%).

Figure 1: Perception to barriers related to workforce

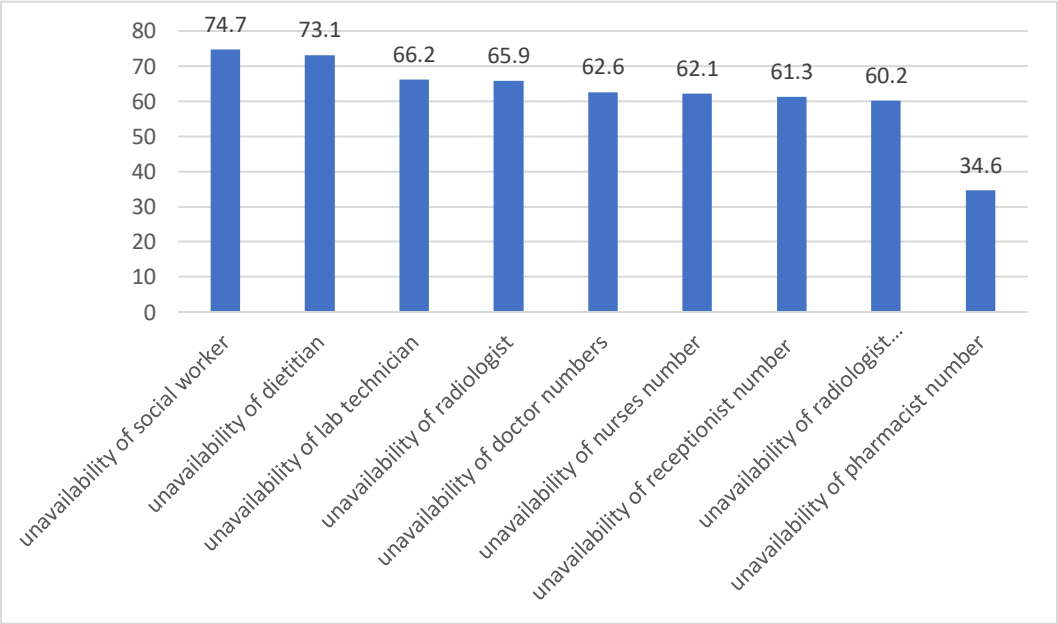

Table 3: Barriers related to infrastructure

	Strongly agree/Agree N (%)	Neutral N (%)	Strongly disagree/Disagree N (%)
Unavailability of comprehensive electronic health care system	254 (69.8)	48 (13.2)	62 (17.0)
Unavailability of patient files	181(49.7)	69 (19.0)	114 (31.3)
Unavailability of electronic medical records	259 (71.2)	38 (10.4)	67 (18.4)
Unavailability of organized referral system	161(44.2)	73 (20.1)	130 (35.7)
Unavailability of appointment system	107(29.4)	79 (21.7)	178 (48.9)
Poor building maintenance	200 (54.9)	68 (18.7)	96 (26.4)
Unavailability of appropriate clinic settings	225 (61.8)	60 (16.5)	79 (21.7)
Unavailability of library	283 (77.7)	42 (11.5)	39 (10.7)
Unavailability of internet connection	191(52.5)	65 (17.9)	108 (29.7)
Unavailability of staff rest room	270 (74.2)	35 (9.6)	59 (16.2)
Unavailability of staff toilets	194 (53.3)	55 (15.1)	115 (31.6)
Unavailability of cafeteria	314 (86.3)	21(5.8)	29 (8.0)
Unavailability of adequate staff parking	222(61.0)	69(19.0)	73 (20.1)

Table 3 describes the barriers related to the infrastructure of the institutions. The highest agreement percentage was for lack of cafeteria services (86.3%) followed by unavailability of a library (77.7%) and a staff restroom (74.2%). Other barriers had varied agreement scores except for the unavailability of patient files, an organized referral system, and an appointment system, which had a score of <50%. Figure 2 presents a visual summary of these findings.

Figure 2: Barriers related to infrastructure

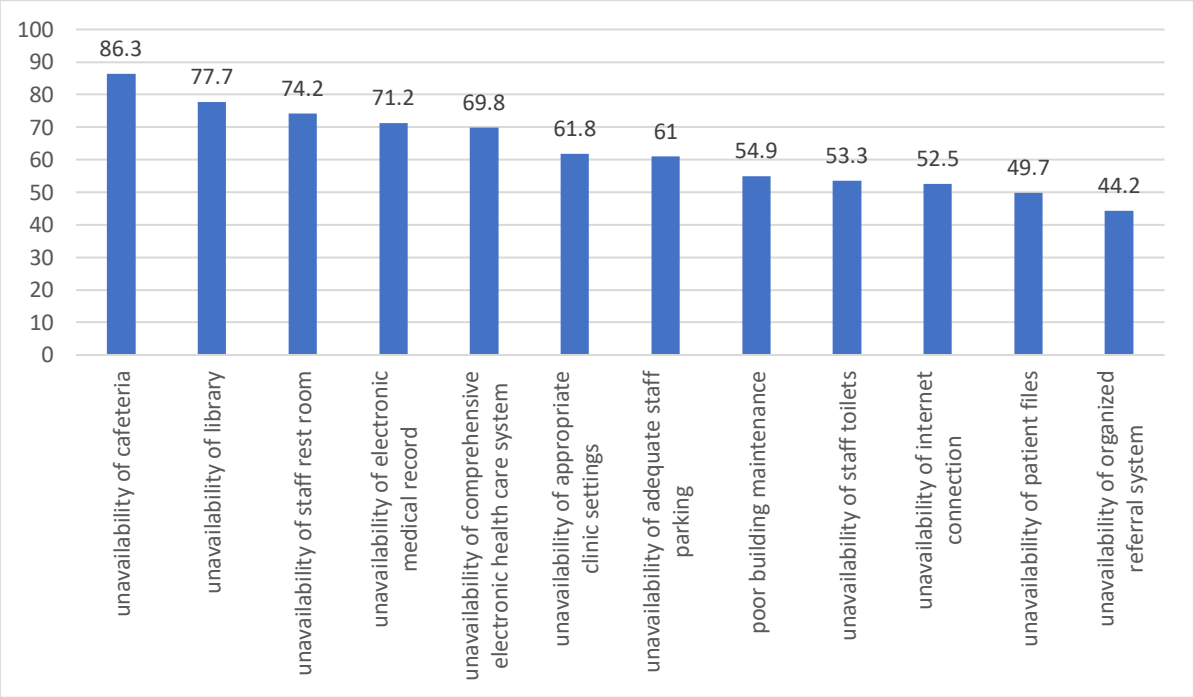

Table 4: Barriers related to health care services

	Strongly agree/Agree N (%)	Neutral N (%)	Strongly disagree/Disagree N (%)
Unavailability of basic clinical equipment	200 (54.9)	85 (23.4)	79 (21.7)
Unavailability of ECG machine	193 (53.0)	76 (20.9)	95 (26.1)
Unavailability of lab services	185 (50.8)	96 (26.4)	83 (22.8)
Unavailability of sufficient lab tests	144 (39.6)	97 (26.6)	123 (33.8)
Possibility of receiving results from reference lab	175 (48.1)	107 (29.4)	82 (22.5)
Unavailability of x-ray equipment	204 (56.0)	85 (23.4)	75 (20.6)
Unavailability of US equipment	221(60.7)	79 (21.7)	64 (17.6)
Possibility of receiving radiology report from referral facility	177(48.6)	85 (23.4)	102 (28.0)
Unavailability of adequate vaccination	68 (18.7)	48 (13.2)	248 (68.1)
Unavailability of adequate medication	159 (43.7)	74 (20.3)	131 (36.0)

Table 4 clarifies barriers related to healthcare services. Most participants (60.7%) agreed that the unavailability of US equipment is the main barrier related to healthcare services followed by x-ray equipment (56%), basic clinical equipment (54.9%), ECG machine (53%), and unavailability of lab services (50.8%). Figure 3 presents a visual summary of these findings.

Figure 3: Barriers related to health care service

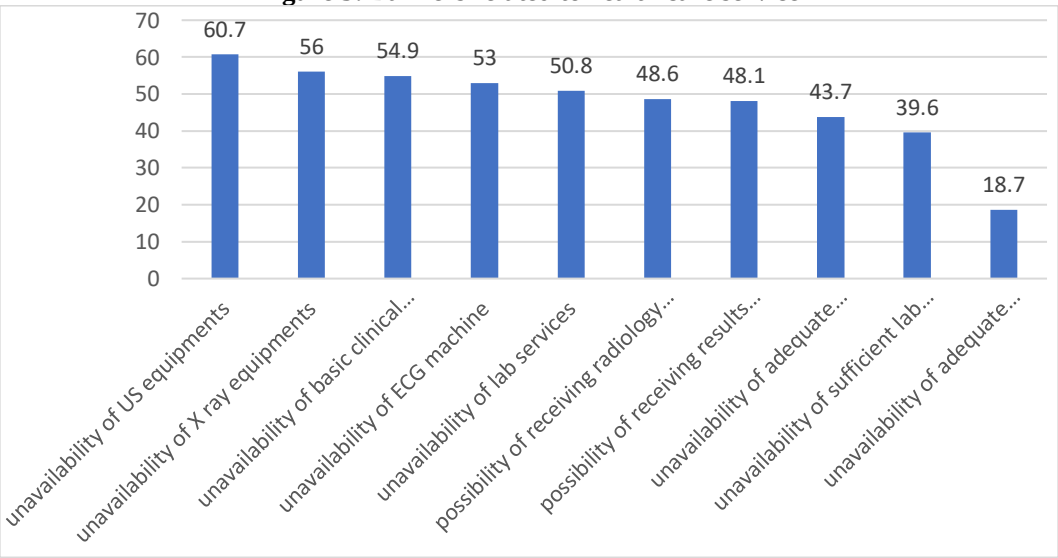

Table 5: Barriers related to teamwork

	Strongly agree/Agree N (%)	Neutral N (%)	Strongly disagree/Disagree N (%)
I am not satisfied with the administrative team.	218 (59.9)	76 (20.9)	70 (19.2)
I am not satisfied with my colleagues.	280 (76.9)	58 (15.9)	26 (7.1)
I am not aware of my job description.	303 (83.2)	25 (6.9)	36 (9.9)
I am not satisfied with the administrative authority.	190 (52.2)	104 (28.6)	70 (19.2)

Table 5 and Figure 4 show that 83.2% and 76.9% of the participants are not aware of their job descriptions and not satisfied with their colleagues, respectively.

Figure 4: Barriers related to teamwork

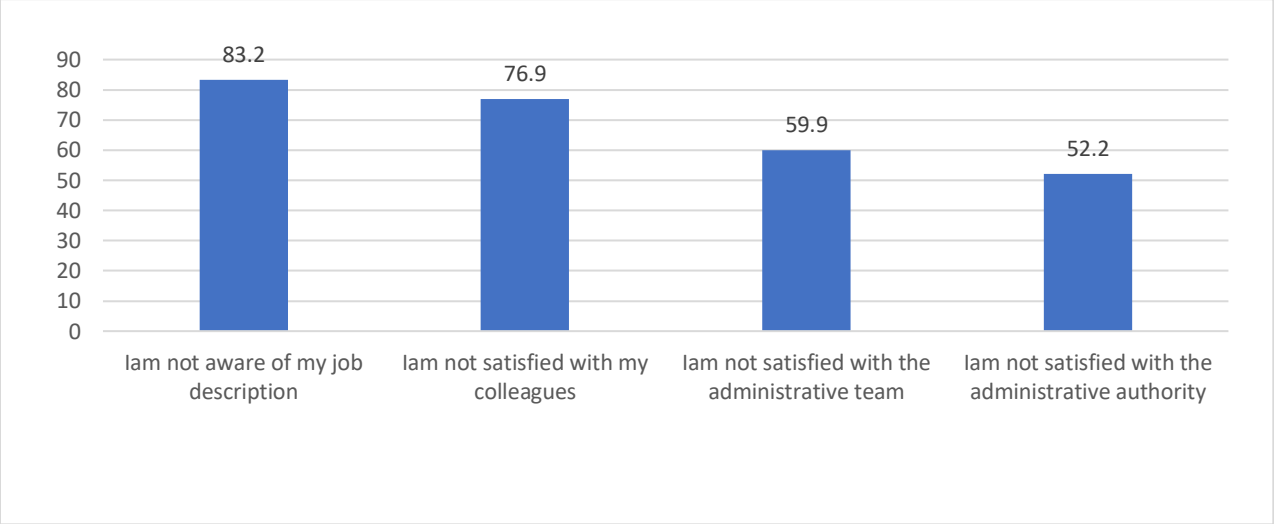

Table 6: Comparison of agreement scores among four categories in Dammam and Al-Khobar

	Dammam (n = 250)	Al Khobar (n = 114)	*p* value of Independent t-test
Workforce	75.5 (15.4)	71.1 (18.4)	0.020*
Infrastructure	74.9 (14.8)	75.4 (17.3)	0.787
Healthcare services	68. 2 (16.4)	67.8 (17.5)	0.837
Teamwork	42.5 (16.4)	45.4 (15.7)	0.109

Table 6 demonstrates the comparison of agreement scores among four categories in Dammam and Al-Khobar. There was a significant difference (p = 0.02) in the agreement scores regarding barriers related to workforce for Dammam (M = 75.5; SD = 15.4) and Al-Khobar (M = 71.1; SD = 18.4)

Table 7: Comparison between Dammam and Al-Khobar regarding barriers related to workforce

Unavailability of		Dammam (n = 250) N (%)	Al Khobar (n = 114) N (%)	*p* value of chi square
Adequate number of receptionists	Agree	149 (66.8)	74 (33.2)	0.587
	Neutral	32 (69.6)	14 (30.4)	
	Disagree	69 (72.6)	26 (27.4)	
Lab technician	Agree	169 (70.1)	72 (29.9)	0.604
	Neutral	37(68.5)	17 (31.5)	
	Disagree	44 (63.8)	25 (36.2)	
Radiologist	Agree	166 (69.2)	74 (30.8)	0.918
	Neutral	23 (65.7)	12 (34.3)	
	Disagree	61 (68.5)	28 (31.5)	
Radiologist technician	Agree	153 (69.9)	66 (30.1)	0.836
	Neutral	32 (66.7)	16 (33.3)	
	Disagree	65 (67.0)	32 (33.0)	
Adequate number of pharmacist	Agree	92 (73.0)	34 (27.0)	0.124
	Neutral	35 (76.1)	11 (23.9)	
	Disagree	123 (64.1)	69 (35.9)	
Adequate number of nurses	Agree	149 (65.9)	77 (34.1)	0.060
	Neutral	46 (82.1)	10 (17.9)	
	Disagree	55 (67.1)	27 (32.9)	
Adequate number of doctors	Agree	170 (74.6)	58 (25.4)	0.007*
	Neutral	35 (59.3)	24 (40.7)	
	Disagree	45 (58.4)	32 (41.6)	
Dietician	Agree	196 (73.7)	70 (26.3)	0.001*
	Neutral	19 (45.2)	23 (54.8)	
	Disagree	35 (62.5)	21 (37.5)	
Social worker	Agree	197 (72.4)	75 (27.6)	0.001*
	Neutral	31 (70.5)	13 (29.5)	
	Disagree	22 (45.8)	26 (54.2)	

*Statistically significant ($p < 0.05$).

Table 7 shows that Dammam was significantly higher than Al-Khobar in the agreement scores of unavailability of an adequate number of doctors ($p = 0.007$), dieticians ($p = 0.001$), and social workers ($p = 0.001$).

Table 8: Comparison between Dammam and Al-Khobar regarding barriers related to infrastructure

Unavailability of		Dammam (n = 250) N (%)	Al Khobar (n = 114) N (%)	*p* value of chi square
Comprehensive electronic healthcare system	Agree	174 (68.5)	80 (31.5)	0.498
	Neutral	36 (75.0)	12 (25.0)	
	Disagree	40 (64.5)	22 (35.5)	
Patient files	Agree	120 (66.3)	61 (33.7)	0.384
	Neutral	52 (75.4)	17 (24.6)	
	Disagree	78 (68.4)	36 (31.6)	
Electronic medical records	Agree	176 (68.0)	83 (32.0)	0.163
	Neutral	31 (81.6)	7 (18.4)	
	Disagree	43 (64.2)	24 (35.8)	
Organized referral system	Agree	96 (59.6)	65 (40.4)	0.001*
	Neutral	50 (68.5)	23 (31.5)	
	Disagree	104 (80.0)	26 (20.0)	
Appointments system	Agree	68 (63.6)	39 (36.4)	0.381
	Neutral	55 (69.6)	24 (30.4)	
	Disagree	127 (71.3)	51 (28.7)	
Poor building maintenance	Agree	133 (66.5)	67 (33.5)	0.604
	Neutral	49 (72.1)	19 (27.9)	
	Disagree	68 (70.8)	28 (29.2)	
Appropriate clinical settings	Agree	149 (66.2)	76 (33.8)	0.432
	Neutral	44 (73.3)	16 (26.7)	
	Disagree	57 (72.2)	22 (27.8)	
Library	Agree	195 (68.9)	88 (31.1)	0.959
	Neutral	29 (69.0)	13 (31.0)	
	Disagree	26 (66.7)	13 (33.3)	
Internet connection	Agree	131 (68.6)	60 (31.4)	0.994
	Neutral	45 (69.2)	20 (30.8)	
	Disagree	74 (68.5)	34 (31.5)	
Staff rest room	Agree	182 (67.4)	88 (32.6)	0.500
	Neutral	27 (77.1)	8 (22.9)	
	Disagree	41 (69.5)	18 (30.5)	
Staff toilets	Agree	137 (70.6)	57 (29.4)	0.109
	Neutral	42 (76.4)	13 (23.6)	
	Disagree	71 (61.7)	44 (38.3)	
Cafeteria	Agree	213 (67.8)	101 (32.2)	0.215
	Neutral	18 (85.7)	3 (14.3)	

	Disagree	19 (65.5)	10 (34.5)	
Adequate staff parking	Agree	148 (66.7)	74 (33.3)	0.039*
	Neutral	56 (81.2)	13 (18.8)	
	Disagree	46 (63.0)	27 (37.0)	

Table 8 displays the comparative scores between the barriers related to infrastructure. Unavailability of an organized referral system and adequate staff parking were significantly higher as barriers reported by participants in Dammam (p = 0.001) more than Al-Khobar (p = 0.039).

Table 9: Comparison between Dammam and Al-Khobar regarding barriers related to healthcare services

Unavailability of		Dammam (n = 250) N (%)	Al Khobar (n = 114) N (%)	*p* value of chi square
Basic clinical equipment	Agree	133 (66.5)	67 (33.5)	0.288
	Neutral	57 (67.1)	28 (32.9)	
	Disagree	60 (75.9)	19 (24.1)	
ECG machine	Agree	139 (72.0)	54 (28.0)	0.296
	Neutral	51 (67.1)	25 (32.9)	
	Disagree	60 (63.2)	35 (36.8)	
Lab services	Agree	131 (70.8)	54 (29.2)	0.525
	Neutral	66 (68.8)	30 (31.3)	
	Disagree	53 (63.9)	30 (36.1)	
Sufficient lab tests	Agree	99 (68.8)	45 (31.3)	0.407
	Neutral	62 (63.9)	35 (36.1)	
	Disagree	89 (72.4)	34 (27.6)	
Possibility of receiving results from reference lab	Agree	119 (68.0)	56 (32.0)	0.254
	Neutral	69 (64.5)	38 (35.5)	
	Disagree	62 (75.6)	20 (24.4)	
X-ray equipment	Agree	135 (66.2)	69 (33.8)	0.394
	Neutral	59 (69.4)	26 (30.6)	
	Disagree	56 (74.7)	19 (25.3)	
US equipment	Agree	159 (71.9)	62 (28.1)	0.075
	Neutral	46 (58.2)	33 (41.8)	
	Disagree	45 (70.3)	19 (29.7)	
Possibility of receiving radiology report from referral facility	Agree	112 (63.3)	65 (36.7)	0.089
	Neutral	64 (75.3)	21 (24.7)	
	Disagree	74 (72.5)	28 (27.5)	
Adequate vaccination	Agree	40 (58.8)	28 (41.2)	0.119
	Neutral	32 (66.7)	16 (33.3)	

	Disagree	178 (71.8)	70 (28.2)	
Adequate medication	Agree	111 (69.8)	48 (30.2)	0.781
	Neutral	52 (70.3)	22 (29.7)	
	Disagree	87 (66.4)	44 (33.6)	

Table 9 compares the scores related to healthcare services. There was no statistical difference in any of the parameters between Dammam and Al-Khobar.

Table 10: Comparison between Dammam and Al-Khobar regarding barriers related to teamwork

		Dammam (n = 250) N (%)	Al Khobar (n = 114) N (%)	*p* value of chi square
I am not satisfied with the administrative team	Agree	48 (68.6)	22 (31.4)	0.325
	Neutral	47 (61.8)	29 (38.2)	
	Disagree	155 (71.1)	63 (28.9)	
I am not satisfied with my colleagues	Agree	19 (73.1)	7 (26.9)	0.774
	Neutral	38 (65.5)	20 (34.5)	
	Disagree	193 (68.9)	87 (31.1)	
I am not aware of my job description	Agree	21 (58.3)	15 (41.7)	0.202
	Neutral	15 (60.0)	10 (40.0)	
	Disagree	214(70.6)	89 (29.4)	
I am not satisfied with the administrative authority	Agree	53 (75.7)	17 (24.3)	0.307
	Neutral	72 (69.2)	32 (30.8)	
	Disagree	125 (65.8)	65 (34.2)	

Table 10 shows that Dammam had a higher agreement percentage than Al-Khobar in all items. However, this difference was not statistically significant ($p > 0.05$).

DISCUSSION:

Like most countries worldwide, the PHC centers (PHCCs) in Saudi Arabia represent the future of its healthcare system, as shown by the huge budget provided by the government to the Ministry of Health to strengthen the PHC system.

The 2030 vision plan considers the PHCCs essential components to achieve the optimum health care system.

The purpose of this study was to evaluate PHCCs in the eastern province from the perspectives of doctors and nurses through different aspects such as workforce, infrastructure, healthcare services, and teamwork. This was the first study conducted in eastern Saudi Arabia to assess these barriers.

Our study covers almost all aspects of the PHCC with weaknesses and strengths of each aspect from doctors' and nurses' perspectives as they are the main

healthcare providers. The obstacles they face in their daily practice will affect the healthcare services provided by the PHCCs, which will be reflected in patients' health and satisfaction. All these defects will further influence healthcare quality in Saudi Arabia as PHC is the cornerstone of every strong and successful healthcare system.

In this study, various barriers were identified related to workforce, infrastructure, healthcare services, and teamwork. In comparison between Dammam and Al-Khobar, some barriers were significantly more deficient in one city than the other.

In terms of workforce, many barriers were reported by physicians and nurses such as unavailability of an adequate number of social workers, dietitians, lab technicians, radiologists, doctors, nurses, and others. This result was similar to a study conducted in Africa. In South Africa and Sudan, the biggest problem they faced was related to the workforce; there are very few primary healthcare workers compared to secondary and tertiary hospitals (Willcox et al., 2015). This may be because the environment in these hospitals is more comfortable and they are well-equipped to attract more health care workers than in PHCCs.

In addition,, other studies conducted in the USA (Stephen et al., 2020) and Iran (Nejatzadegan et al., 2016) found that there has always been a shortage of primary care physicians. A shortage of nurses was documented by a study conducted in Sudan (van Weel et al., 2017).
A survey conducted in Saudi Arabia in 2017 found a significant shortage of qualified family physicians in all health sectors because of a lack in strategic planning for training programs for family physicians (Al-Khaldi et al., 2017).

In the present study, a comparison between Dammam and Al-Khobar showed a lack of an adequate number of doctors in Dammam, although it has the highest population growth rate in Saudi Arabia and is much larger than Al-Khobar. This may be attributed to the unequal distribution of healthcare workers between cities. Considering the size and number of PHCCs in the city and increasing the number of qualified healthcare workers also play an important role.

These barriers can affect the comprehensive healthcare service that should be provided by family physicians in PHCCs as an inadequate workforce can delay work and lead to unsatisfied patients.

The infrastructure of the PHCCs, such as cafeteria, library, staff restroom, and EMRs, represents significant barriers faced by healthcare staff in both Dammam and Al-Khobar. Dammam's PHCCs face more difficulties regarding organized referral systems and adequate staff parking.

Similar barriers were reported by a study conducted in Jeddah as a significant proportion of MOH family physicians reported that unavailability of a cafeteria and poor building maintenance were obstacles faced by their physicians (Mumenah & Al-Raddadi, 2015). Some infrastructure barriers can affect the quality of care delivered by physicians and nurses as they make them uncomfortable in their workplace, such as the unavailability of cafeteria, library, staff restroom, staff toilet, and adequate staff parking. Previously, PHCCs received less attention than secondary and tertiary hospitals, which took most of the government budget given to health care. The 2030 vision aims to gradually change this and give increased attention to the PHC system.

Barriers to healthcare services, such as unavailability of EMRs and an internet connection, are consistent with other studies conducted in Jeddah and Riyadh (Mumenah & Al-Raddadi, 2015; Al Asmri et al., 2020). The absence of an electronic healthcare system was one of the major weaknesses of PHC services. High-quality computing services, including EMRs and clinical decision-making support tools, are essential to quality healthcare services (Al Asmri et al., 2020).

A national survey conducted in the USA about the effect of EMRs on the quality of health care revealed that 94% of healthcare providers found that EMRs make the patients' files readily available at the point of care, and 75% found that their EMRs helped them to deliver better patient care (Healthit.gov, 2020). PHCCs must be well equipped to provide the expected healthcare services. The current study reveals that immunization services are well established and available in almost all PHCCs. At the same time, the absence of US, x-ray, and ECG machines were significant barriers, which was emphasized by a similar study conducted in Jeddah (Mumenah & Al-Raddadi, 2015). A study conducted in the USA about ECG in the primary care office concluded that ECG is important for optimum management of patients and should be considered for patients who have known cardiovascular diseases or suspected cardiovascular conditions (Patel & Wu, 2005).

Another study conducted in India showed that the use of US by primary care physicians has many advantages because it is a cost-effective option and decreases the burden of referrals (Qureshi et al., 2019). Some of these services are considered alarming deficiencies since they play an essential role in detecting acute and emergency cases.

Effective teams are the cornerstone of the PHCCs, which is why we studied teamwork through four different aspects: satisfaction with the administrative team, colleagues, and administrative authority as well as awareness of job description. The main concern of our PHCC staff was unawareness of their job description followed by satisfaction with their colleagues, which represents a significant issue that needs more attention to be clarified and solved. A well-structured administrative authority with clear regulations via employee orientation programs and good leadership will help in forming and developing an effective team that delivers expected care to patients and the community, which will lead to the improvement of healthcare in PHCCs as well as the whole healthcare organization.

In conclusion**,** physicians and nurses at PHCCs in Dammam and Al-Khobar faced multiple barriers related to workforce, infrastructure, healthcare services, and teamwork. The most commonly reported workforce barriers were unavailability of adequate social workers, dieticians, and lab technicians. Infrastructure barriers included unavailability of cafeteria services, a library, a staff rest room, EMRs, and a comprehensive electronic healthcare system. Healthcare service barriers included unavailability of US, x-ray, basic clinical equipment, ECG machines, and lab services. The most common teamwork barriers were unawareness of job description and dissatisfaction with colleagues.

RECOMMENDATIONS:

Increase workforce in PHCCs in both Dammam and Al-Khobar, especially social workers, dieticians, and lab technicians.

1. Increase the number of doctors working in PHCCs in Dammam City, considering the size and population of the city.
2. Provide PHCCs with more facilities such as cafeterias, libraries, and staff rest rooms. This issue cannot be ignored as staff wellbeing plays an important role in increasing their satisfaction and productivity.
3. Provide more area for staff parking in PHCCs, especially in Dammam City. As women have started to drive in Saudi Arabia, there is an urgent need to re-evaluate the adequacy of staff parking. Moreover, Dammam City needs a clear and well-organized referral system.
4. Many studies were conducted worldwide about the positive impact of EMRs in health care services. Therefore, it is time to start implementing EMRs and comprehensive electronic health care systems in PHCCs that should be connected to secondary and tertiary hospitals to achieve continuity of care. This is the main objective of family medicine and will match the world's highest standards of healthcare systems.
5. Increase the medical equipment in PHCCs of Dammam and Al-Khobar, mainly US, x-ray, and basic clinical equipment as well as ECG machines to deliver proper and efficient healthcare services.
6. Clarify job descriptions for physicians and nurses working in PHCCs in Dammam and Al-Khobar via an employee orientation program to create a safe and productive work environment with clear rights and duties.

Significance and limitations of the study:

The significance of this study lies in its novelty in exploring the main barriers faced by physicians and nurses at PHCCs that affect the quality of services provided to targeted populations. As it is a cross-sectional study rapidly applied on a large sample, it provides baseline data for further studies. However, one limitation of the study is that it cannot be generalized to the larger Saudi population as this study was conducted only in two major cities in the eastern province. Hence, future studies must be conducted in different regions of Saudi Arabia.

Acknowledgments:

The authors would like to thank Dr. Hadeel Alshayji and Dr. Nesreen Alumair for their effort in data collection.

REFERENCES:

1. Al Asmri, M., Almalki, M., Fitzgerald, G., & Clark, M. (2020). The public health care system and primary care services in Saudi Arabia: A system in transition. Eastern Mediterranean Health Journal, 26(04), 468–476.
2. Al-Khaldi, Y., Al-Ghamdi, E., Al-Mogbil, T., & Al-Khashan, H. (2017). Family medicine practice in Saudi Arabia: The current situation and Proposed Strategic Directions Plan 2020. Journal of Family and Community Medicine, 24(3), 156.
3. Al-Kurashi, D. (2018). Future of the Arab family. PubMed Central (PMC). Retrieved October 31, 2018.

4. Bitton, A., Ratcliffe, H., Veillard, J., Barkley, S., Kimball, M., Wong, E., et al. (2017).
4. Primary health care as a foundation for strengthening health systems in low- and middle-income countries - dimensions. Retrieved November 6, 2018, from App.dimensions.ai
5. Green, L., Richard, L., & Potvin, L. (1996). Ecological foundations of health promotion. American Journal of Health Promotion, 10(4), 270–281.
6. Healthit.gov. (2020). Improved diagnostics & patient outcomes Healthit.Gov. Retrieved August 13, 2020, from https://www.healthit.gov/topic/health-it-and-health-information-exchange-basics/improved-diagnostics-patient-outcomes
7. Mumenah, S., & Al-Raddadi, R. (2015). Difficulties faced by family physicians in
7. primary health care centers in Jeddah, Saudi Arabia. Journal of Family and Community Medicine 22(3), 145.
8. Nejatzadegan, Z., Ebrahimipour, H., Hooshmand, E., Tabatabaee, S., Esmaili, H., & vafaeeNajar, A. (2016). Challenges in the rural family doctor system in Iran in 2013–14: A qualitative approach. Family Practice, 33(4), 421–425.
9. Okoro, C. (2018). Primary health care in London: Onwards from Alma Ata. PubMed Central (PMC). Retrieved November 6, 2018.
10. Patel, P., & Wu, W. (2005). The electrocardiogram in the primary care office. Primary Care: Clinics in Office Practice, 32(4), 901–930.
11. Qureshi, U., Bashir, K., & Rasool, M. (2019). Diagnostic utility and impact of ultrasonography by primary health care physician: An observational study. International Journal Of Community Medicine And Public Health, 6(4), 1707.
12. Stephen, C., Schimpff, M., Lauren, Roth R. M., Moseson, M. E., Erika Maria Moseson M., Agarwal, M., Agarwal, M., Garber, D. J., Garber, D., Kirch, M. M., Kirsch, M., et al. (2020, September). Why is there a shortage of primary care physicians? Retrieved September 21, 2020, from https://www.kevinmd.com/blog/2014/02/shortage-primary-care-physicians.html
13. van Weel, C., Alnasir, F., Farahat, T., Usta, J., Osman, M., Abdulmalik, M., et al. (2017). Primary healthcare policy implementation in the Eastern Mediterranean region: Experiences of six countries. European Journal of General Practice, 24(1), 39–44.
1. Willcox, M., Peersman, W., Daou, P., Diakité, C., Bajunirwe, F., Mubangizi, V., et al. (2015). Human resources for primary health care in sub-Saharan Africa: Progress or stagnation? Human Resources for Health, 13(1).