

Factors Effectuated the Utilization of Laboratory Medicine Services on Government Hospitals Care Services in Makkah City, Saudi Arabia in 2022

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Abstract:

Background

Government Hospitals Care Services ensure that patients receive comprehensive care from promotion and prevention to treatment, rehabilitation, and palliative care in a familiar environment. It is designed to provide first-contact, continuous, comprehensive, and coordinated patient care that will help achieve equity in the specialty healthcare system. The healthcare in Saudi Arabia is undergoing transformation to Accountable Care Organizations (ACO) model. In order for the Kingdom of Saudi Arabia (KSA) to achieve its transformational goals in healthcare, the improvement of government Hospitals quality and utilization is crucial. An integral part of this service is the laboratory services. While government Hospitals performances are focused its laboratory service has been neglected in developing countries. A routine checkup is a general physical evaluation and is not performed for a specific injury, illness or condition.

Aim of the study: To evaluate factors effectuated the Utilization of Laboratory Medicine Services on Government Hospitals Care Services in Makkah City, Saudi Arabia in 2022.

Methods: A cross-sectional descriptive study was conducted on laboratory services on government Hospitals in Makah at Saudi Arabia. The study employed a self-administered questionnaire to collect data from patients attending to government Hospitals (or outpatient in Hospitals) in makkah city. The questionnaire was designed to collect data on a number of variables related both to government Hospitals laboratory services users and providers.

Results: most of the participants (32.0%) were in the age group 50-60 years, majority of them were males (54.0%) also regarding Nationality the majority of participant are Saudi were (72.0%), regarding the Marital state the majority of participant married were (72.0%), regarding Employment status the majority of participant are Employed were (68.0%), regarding the Monthly income the majority of participant less than 5,000 were (31.0%).

Conclusion centralization of government Hospitals laboratory Care Services to an accredited reference laboratory and implementing the national accreditation standards improved the testing process and lowered the cost, for the mass majority of the routine laboratory testing. Moreover, the

model shed the light on how crucial the pre-analytical phase for laboratory quality improvement process, its effect on cost reduction, and the importance of staff competency and utilization.

Keywords: Factors, Effectuated, Utilization, Laboratory, Services, government, hospitals, Care, Services, makkah al-mokarramah

Introduction

Providing Utilization of Laboratory Medicine Services on Government Hospitals Care Services in Saudi Arabia is a complex problem.(1) Recent reports call for more resources to assist in the prevention and treatment of diseases that affect the population, but policy makers, clinicians, and the public frequently fail to understand that diagnosis is essential to the prevention and treatment of disease. Access to reliable diagnostic testing is severely limited in this city region, and misdiagnosis commonly occurs. (2) Understandably, allocation of resources to diagnostic laboratory testing has not been a priority for resource-limited health care systems, but unreliable and inaccurate laboratory diagnostic testing leads to unnecessary expenditures in a region , promotes the perception that laboratory testing is unhelpful and compromises patient care.(3) We explore the barriers to implementing consistent testing within this region and illustrate the need for a more comprehensive approach to the diagnosis of diseases, with an emphasis on making laboratory testing a higher priority(). Healthcare transformation is a global move, across countries and across the healthcare disciplines (medical, nursing, laboratory, etc.) (4), the move globally is towards becoming an accountable Care Organization (ACO).(5) With ongoing technological and industrial developments in healthcare, Utilization of Laboratory Services and coupled with the market-driven behaviors of the patients seeking medical care, there is now an urgent need to find the most cost-effective healthcare system/Utilization of Laboratory Services model without compromising the quality of care and patient safety.(6) This raises many questions about the effectiveness of these developments on patient care and healthcare transformation efforts, and whether these technologies are market-driven or patient-driven, or whether patients are in need of healthcare services or are consumers, and how the current patient care model impacted patients, families, overall population, Utilization of Laboratory Services on Government Hospitals and governmental expenses.(7,8) Answers to the aforementioned questions are consequential to the patient's expectations (demand) and on the services provided (supply) in the global health industry, regardless of a country's level of income (9). The Saudi Ministry of Health (MOH) provides around over 60% of the Laboratory Medicine Services on government hospitals Care Services HealthCare services while the rest are shared among other government agencies (for example, hospitals operated by other ministries including the ministry of education, defense, national guard and security forces) as well as the private sector medical institutes(10). Around 80% of the Laboratory Medicine healthcare services provided by MOH and other governmental sectors is provided free of charge to the eligible service beneficiaries (11). The Kingdom has made huge positive developments in the infrastructure and organization of its Laboratory Medicine Services , which was positively reflected on the life of its residents, for example; the strategic step of the national children immunization program against infectious diseases, another example is the national newborn screening program for inborn errors of metabolism.(12)The country also introduced the Primary Health Care (PHC) concept as a basic healthcare delivery system in 1978. All of these developments in the Laboratory Medicine services has positively changed the health map of KSA (13)

Quality laboratory testing is crucial to confirm clinical diagnoses, conduct accurate disease surveillance, and direct public health care policy. But, in this time of crisis, the current laboratory and health care infrastructures are insufficient to meet these needs and perhaps have been ignored. To date, the vast majority of financial resources from funding organizations have been focused on disease prevention and provision of care, whereas relatively little funding has been allocated to build laboratory capability (14,15).

Literature Review

With the increasing global aging population (16) and the move toward urbanization (17), the Kingdom of Saudi Arabia launched the NTP with the aim of improving the quality and efficacy of the Utilization of Laboratory Medicine Services on Government Hospitals Care Services(18). One of the major initiatives of the NTP was improving the primary healthcare services. Previously, the majority of studies on PHCs within the KSA were cross-sectional studies that focused on patient satisfaction surveys, outbreak(19).

The study on US hospitals showed that clinical technology inclusive of laboratory technology drives the hospital clinical quality and financial performance (20). However, in government hospitals care was not found to be a significant predictor of overall government hospitals performance in multivariate analysis, which was unexpected. Further, the large confidence interval indicates that some precautions are needed in interpreting the absolute effect in government hospitals on hospitals performance.(21) These findings suggest in government hospitals could be a strong trigger to improve the PHC performance, but alone it is not an enough condition to improve the PHC performance. In the Saudi Arabia context, patient could access public laboratory facility only on referral from medical doctor (22). Thus, the laboratory can help the physician in better decision-making, which could lead to better PHC performance. The literature had suggested that laboratory results could contribute up to two-third of medical decision-making (23). Further, the literature had identified various reasons that could disrupt physician role in PHC like lack of resources and medical doctor motivation (24).

Studies in Saudi Arabia majority of clinicians were satisfied with the laboratory services. This finding is not far from the studies conducted in eastern Saudi Arabia (25) and southwest Ethiopia (26), Tanzania, the finding appeared higher than studies conducted in southern Ethiopia, public hospitals of Ethiopia (27), Gondar, Addis Ababa and Nekemte, Ethiopia, and a maternity hospital in Saudi Arabia (28). However, those studies covered only hospitals, not primary health centres, or only physicians, not all clinicians. On the other hand, the finding is lower than the findings of the Q-Probes studies performed in the USA (29). The discrepancy with these studies reflects the better service quality and user experiences in such resource-rich settings with more advanced diagnostic facilities.

In the study, the strong positive correlation was obtained between laboratory service-related parameters and overall hospital performance (composite of patient results, staff and work system result, hospital efficiency and effectiveness result and flexibility performance) for Jordanian Hospitals(27). The study on US hospitals showed that clinical technology inclusive of laboratory technology drives the hospital clinical quality and financial performance (22).

WHO Guide Laboratory users' guidebook is important to communicate relevant information and instructions to users . In the study, the helpfulness of the handbook was the lowest-rated aspect (3.3), and most clinicians lacked a handbook (75.1%). This finding is consistent with studies where most physicians were dissatisfied with the availability or ease of understanding the handbook (30).

Rationale

Previous studies have rarely explored health care works in Laboratory Medicine Services on government hospitals Care' satisfaction in relation to objective measures of laboratory practice according to the researcher's knowledge there was no much research about Factors Influencing the Utilization of laboratory services on government hospitals Care Services in Makkah al-mokarramah City, the laboratory services could be investigated from the government hospitals perspective, such as the availability of ordered tests, courier services, availability of a helpful user guidebook, courtesy and respect, laboratory report format, turnaround time of results, notification of critical results, and reliability of results . Further, the study is not performed temporally but only longitudinally. Another possible weakness is have missed other laboratory-related important parameters that may play an important role in government hospitals Care Services performance, also previous studies in Saudi Arabia have shown that health care worker and physicians were most dissatisfied with the provision of timely results, advisory services and notification of panic values, including the behavioral manners of providers. However, many argue the validity of user satisfaction as a measure of quality, particularly technical aspects, as users could be more sensitive to behavioural aspects .

Aim of the study:

To evaluate factors effected the Utilization of Laboratory Medicine Services on Government Hospitals Care Services in Makkah City, Saudi Arabia in 2022.

Methodology:**Study design:**

This study is descriptive cross-sectional study was conducted among 300 participant of the was conducted on laboratory services on government hospitals in Makah al-mokarramah 2022 Saudi Arabia, was conducted from December to January 2022 in makkah al-mokarramah government hospitals under supervision of Directorate of Government Hospitals of Makkah Al-Mukarramah in Saudi Arabia..

Study Area

The study has been carried out in the city of Makkah Al-Mokarramah Makkah is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. It is located in the western area in Kingdom of Saudi Arabia and called the Holy Capital. Contains a population around 2 million. This study was conducted at a tertiary care hospital in Makkah, Saudi Arabia. During the December to January 2022, participants were a tertiary care hospital in Makkah, and it reflects a diversified demographic profile with a considerable portion of the population comes from rural descent, while others come from an urban one. This difference translates into biological, socioeconomic and lifestyle differences in the Makkah population.

Study Population

The study has been conducted regarding evaluate factors effected the Utilization of Laboratory Medicine Services on Government Hospitals Care Services in Makkah City, Saudi Arabia in 2022 among patients attending both Laboratory Medicine Services on Government Hospitals 2022 .

Selection criteria:

Inclusion criteria

- Clinicians and nursing of the randomly selected primary health care.
- Using laboratory services during the study period were the study population.
- Attending in Government Hospitals.
- Resident in Makkah province.
- Sound cognitive abilities
- All nationalities
- Both males and females.

Exclusion criteria :

- Clinicians and nurses who did not voluntarily participate were excluded
- Patients with severe cognitive impairment such as dementia or delirium.
- Patients unwilling to give written consent to participate.

Sample size

The sample size has been calculated by applying Raosoft sample size calculator based on (The margin of error: 5%, Confidence level: 95%, and the response distribution was considered to be 20%) accordingly the Sample size is 300 of Saudi Population attending in PHC and adding 10 more to decrease margin of error. After adding 5% oversampling, the minimum calculated sample has been 300. Computer generated simple random sampling technique was used to select the study participants.

Sampling technique:

Systematic random sampling technique is adopted. After that, by using random number generator, then simple random sampling technique has been applied to select the participant. Also, convenience sampling technique will be utilized to select the participants in the study. By using systematic sampling random as dividing the total clinicians and nurse on work at clinical units by the required sample size; (300).

Data collection tool

The study employed a self-administered questionnaire to collect data from patients attending Government Hospitals (or outpatient of the government hospitals) in makkah city. The questionnaire was designed to collect data on a number of variables related both to health services users and providers. Descriptive statistics socio-demographic and medical data were used to determine the significant variables which may influence the utilization of this service.

Data collection technique:

Researcher has been visiting the Outpatient Clinics at government hospitals Makkah City, Saudi Arabia in 2022 after getting the approval from the ministries of health . The researcher has been obtained permission from participants. After the arrival of the participants has been explained the purpose of the study to all participants attending .

Data entry and analysis:

The data were coded and introduced to the Statistical Package of Social Sciences (SPSS, version 24). The data were analyzed to present the findings in descriptive and inferential statistics. The descriptive statistics include frequencies and percentages for categorical variables, while means, median and standard deviations were used to summarize numerical data. The significant associations between demographic and background variables were detected at < 0.05 significance level.

Pilot study:

A pilot study has been conducted in the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study. As a feedback, the questionnaire has been clear and no defect has been detected in the methodology.

Ethical considerations:

Permission from the Directorate of health , verbal consents from all participants in the questionnaire were obtained. All information was kept confidential, and results will be submitted to the department as feedback. The researcher described the aim and objectives of the study for the residents. No names were required to assure confidentiality of data, and all information was kept confidential only for this study's purposes.

Budget: Self-funded

Table 1 Table 1 Distribution of socio-demographic data in our study in Makkah City, Saudi Arabia. (n=300)

	N	%
Age		
30-40	96	32
40-50	45	15
50-60	96	32
<60	63	21
Gender		
Female	138	46
Male	162	54
Nationality		
Non-Saudi	63	21
Saudi	237	79
Marital state		
Married	216	72
Unmarried	84	28
Employment status		
Employed	204	68
Unemployed	96	32
Monthly income		
Less than 5000	93	31
5,000-10,000	84	28

10,000-15,000	72	24
More than 15,000	51	17

Table 1 shows that most of the participants (32.0%) were in the age group 50-60 years follow by the (32.0%) were the age group 30-40 years, the majority of them were males (54.0%) while female(46.0%), also regarding Nationality the majority of participant are Saudi were(72.0%) while Non- Saudi were(21.0%). Regarding the Marital state the majority of participant married were (72.0%). While unmarried were(28.0%), regarding Employment status the majority of participant are Employed were(68.0%) while Unemployed were(32.0%). Regarding the Monthly income the majority of participant less than 5,000 were (31.0%) while from(5,000-10,000) were(24.0%)

Table 2 Distribution of socio-demographic data factor effected to Utilization of Laboratory Services on Government Hospitals Care our participant .

	N	%
Registration with Hospitals (HC)		
Yes	228	76
No	72	24
Health status		
Good	138	46
Poor	162	54
Clinical unit		
Maternal	102	34
Chronic	111	37
Outpatient	66	22
Emergency	21	7
Profession category		
Nurse	243	81
Specialist	57	19
Laboratory technician availability		
Yes	255	85
No	45	15
Work experience		
Less than 5 years	111	37
5–10 years	117	39
More than 10 years	72	24

Table 2 shows that most of the participants were (76.0%) registration with Hospitals Health Care follow by the not registration in Hospitals Health Care were(24.0%), also regarding Health status the majority of participant are poor health stat were(54.0%) while good were(46.0%). Regarding the Clinical unit the majority of participants Chronic were (37.0%). While Maternal were(43.0%), regarding Profession category the majority of participant are nurse were(81.0%) while Specialist were(19.0%), regarding the Laboratory technician availability the majority of participant answer

Yes than were (85.0%) while No were(15.0%), regarding the Work experience the majority of participant 5-10 years were (39.0%) while less than 5 years were(37.0%) .

Table (3): distribution of the overall satisfaction level with laboratory services according to laboratories performance in our study on Government Hospitals .

Satisfaction items	Very/Dissatisfied		Neutral		Very Satisfied		% Of satisfaction	Chi square	
	N	%	N	%	N	%		X ²	P-value
Location of the laboratory in the hospitals	54	18	21	7	225	75	85.67	239.820	0.000
Staff in laboratory feeling courtesy and friendliness	36	12	27	9	237	79	89.00	281.940	0.000
Internal organization and procedures	27	9	30	10	243	81	90.67	306.780	0.000
Availability of health information	30	10	24	8	246	82	90.67	319.920	0.000
Working hours	39	13	18	6	243	81	89.33	308.940	0.000
Cleanliness and tidiness of the facility	21	7	33	11	246	82	91.67	320.460	0.000
Reputation of the health facility	36	12	39	13	225	75	87.67	234.420	0.000
Availability of specialized doctors	57	19	36	12	207	69	83.33	173.940	0.000
Waiting time	39	13	33	11	228	76	87.67	245.940	0.000
Availability of ancillary services	81	27	39	13	180	60	77.67	104.820	0.000

Table (3) Shows the overall satisfaction level with laboratory services according to laboratories performance in our study in Government Hospitals patients. Regarding the satisfaction with location of the health facility, were significantly associated with the very satisfied were(75.0%) also % of satisfaction were(85.67%) were $P < 0.000$ and X^2 (239.820) followed by Very/Dissatisfied were(18.0%) , regarding the satisfaction with Staff in laboratory feeling courtesy and friendliness were significantly associated with the very satisfied were(79.0%) also% of satisfaction were(89.00%) were $P < 0.000$ and X^2 (281.940) followed by Very/Dissatisfied were(12.0%), Regarding the satisfaction with Internal organization and procedures were significantly associated with the very satisfied were(81.0%) also % of satisfaction were(90.67%) were $P < 0.000$ and X^2 (306.780) but neutral were (10.0%), regarding the satisfaction with Availability of health information, were significantly associated with the very satisfied were(82.0%) followed by Very/Dissatisfied were(10.0%) also % of satisfaction were(90.67%) were $P < 0.001$ and X^2 (319.67), regarding the satisfaction with Working hours were significantly associated with the very satisfied were(81.0%) also % of satisfaction were(89.00%) were $P < 0.000$ and X^2 (308.940). Regarding the satisfaction with Cleanliness and tidiness of the facility were significantly associated with the very satisfied were(82.0%) also % of satisfaction were(91.67%) were $P < 0.000$ and X^2 (320.460), regarding the satisfaction with Reputation of the health facility, were significantly associated with the very satisfied were(75.0%) also % of satisfaction were(87.67%) were $P < 0.001$ and X^2

(234.420), regarding the satisfaction with Availability of specialized doctors were significantly associated with the very satisfied were(69.0%) also % of satisfaction were(83.33%) were $P < 0.000$ and X^2 (173.940), regarding the satisfaction with Waiting time were significantly associated with the very satisfied were(76.0%) also % of satisfaction were(87.67%) were $P < 0.000$ and X^2 (245.940), regarding the satisfaction with Availability of ancillary services were significantly associated with the very satisfied were(60.0%) also % of satisfaction were(77.67%) were $P < 0.001$ and X^2 (104.820).

Table 4 Distribution of the Frequency of the patient's with Satisfaction .

		Total Satisfaction		Score	
		N	%	Range	Mean+SD
Satisfactory		246	82	18-30.	22.157+5.170
Non satisfactory		54	18		
Total		300	100		
Chi-square	X ²	121.603			
	P-value	<0.001*			

Table 4 Regarding distribution of the patient's with satisfaction and have a significant relation between the satisfaction and frequency show the majority of participant had Satisfied were(82.0%) while Non satisfied were(18.0%) but total (100%), while Range were(18-30) while Mean + SD(22.157+5.170), while P-value <0.001 and X^2 121.603, participant toward Satisfaction study results

Figure 1 distribution of the Frequency of the patient's with total Satisfaction

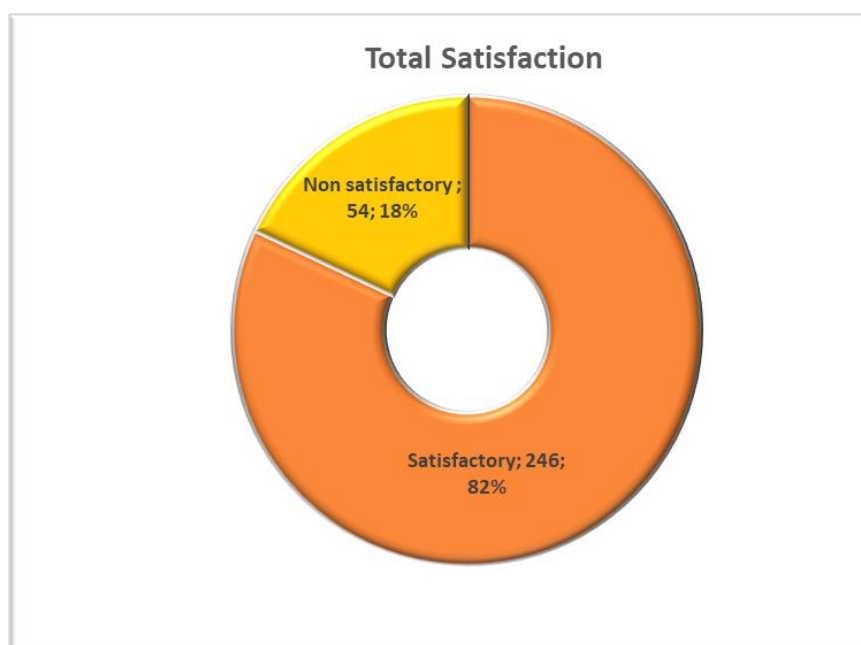
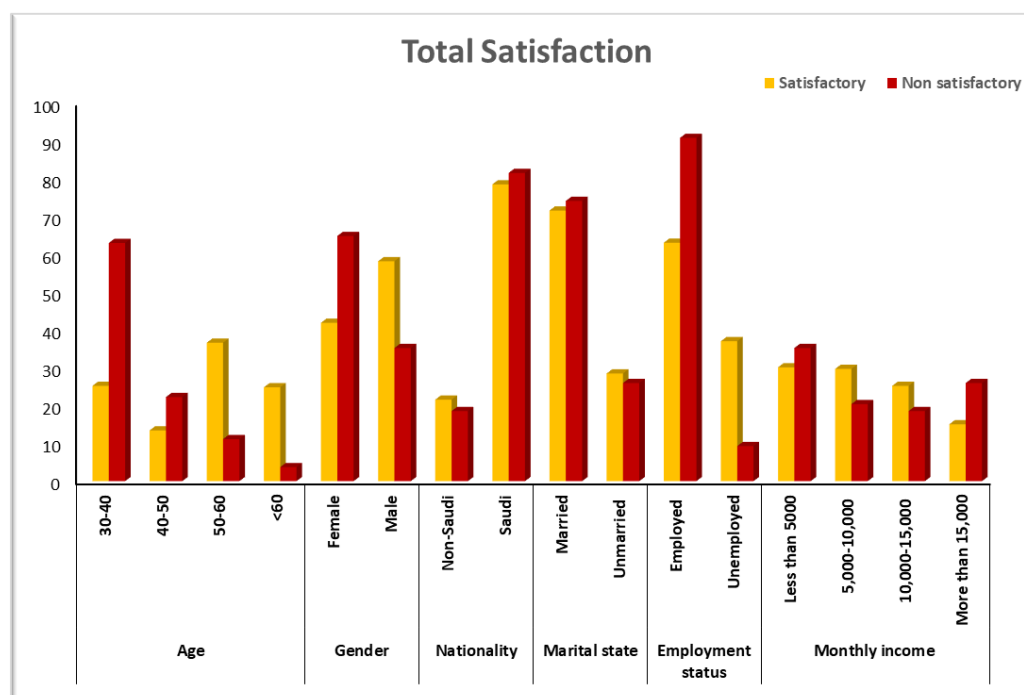


Table 5 Distribution of the relationship of the Satisfaction level and non-satisfaction with laboratory services in Government Hospitals Care patients and the demographic data .

		Total		Satisfactory		Non satisfactory		Chi-square	
		N	%	N	%	N	%	X ²	P-value
Age	30-40	96	32	62	25.20	34	62.96	40.380	<0.001*
	40-50	45	15	33	13.41	12	22.22		
	50-60	96	32	90	36.59	6	11.11		
	<60	63	21	61	24.80	2	3.70		
Gender	Female	138	46	103	41.87	35	64.81	9.385	0.002*
	Male	162	54	143	58.13	19	35.19		
Nationality	Non-Saudi	63	21	53	21.54	10	18.52	0.244	0.621
	Saudi	237	79	193	78.46	44	81.48		
Marital state	Married	216	72	176	71.54	40	74.07	0.141	0.708
	Unmarried	84	28	70	28.46	14	25.93		
Employment status	Employed	204	68	155	63.01	49	90.74	15.651	<0.001*
	Unemployed	96	32	91	36.99	5	9.26		
Monthly income	Less than 5000	93	31	74	30.08	19	35.19	5.652	0.130
	5,000-10,000	84	28	73	29.67	11	20.37		
	10,000-15,000	72	24	62	25.20	10	18.52		
	More than 15,000	51	17	37	15.04	14	25.93		

Table (5) show the relationship of the Satisfaction level and non-satisfaction with laboratory services in government Hospitals Care patients and the demographic data, regarding age a significant relation in the non-satisfaction increase in (30-40) years were (62.96), follow by 50-60 age in satisfaction were (36.0%) while P-value=0.001, X²= 40.380, regarding gender a significant relation in the non- satisfaction increase in female were (64.81), follow by male in satisfaction were (58.13%) while P-value=0.002, X²= 9.385, regarding Nationality no significant relation in the non-satisfaction increase in Saudi were (81.48%), follow by satisfaction were (78.46%) while P-value=0.621, X²= 0.244, regarding Marital state no significant relation in the non- satisfaction increase in Married were (74.07%), follow by satisfaction were (71.54%) while P-value=0.708, X²= 0.141. regarding Employment status a significant relation in the non- satisfaction increase in Employed were (90.74%), follow by satisfaction were (63.01%) while P-value=0.001, X²= 15.651, regarding Monthly income no significant relation in the non- satisfaction increase in Less than 5000 were (35.19%), follow by satisfaction were (30.08%) while P-value=0.130, X²= 5.652

Figure 2 Distribution of the relationship of the Satisfaction level and non-satisfaction with laboratory services in Government Hospitals Care patients and the demographic data .



Discussion

government hospitals Care Services is an important health care facility in all areas, but the approach to ignore laboratory in government hospitals Care Services facility may not be appropriate to maximize the government hospitals Care Services performance. total of (300) participated in the study, the researcher selected the participated from Public Primary Health Care center in Makah, the study has been conducted regarding Factors Effectted the Utilization of Laboratory Medicine Services on government hospitals Care Services in Makkah al-mokarramah, among patients that attending in the public government hospitals in Makkah City. One of the most important characteristics of Makkah is its location, in our study showed that the most of the participants (32.0%) were in the age group 50-60 years follow by the (32.0%) were the age group 30-40 years, the majority of them were males (54.0%) while female(46.0%), also regarding Nationality the majority of participant are Saudi were(72.0%) while Non- Saudi were(21.0%(. Regarding the Marital state the majority of participant married were (72.0%). While unmarried were (28.0%), regarding Employment status the majority of participant are Employed were (68.0%) while Unemployed were (32.0%). Regarding the Monthly income the majority of participant less than 5,000 were (31.0%) while from (5,000-10,000) were(24.0%) . .(see table 1)

In similar study the (2020) found The level of laboratory service in government hospitals and number of OPD in government hospitals visits per day is positive, the strong positive correlation was obtained between laboratory service-related parameters and overall hospital performance (composite of patient results, staff and work system result, hospital efficiency and effectiveness result and flexibility performance) for Jordanian Hospitals' (22). In laboratory service, customers' perspective, including the clinicians' and nurses ones, has increasingly become an important tool to identify opportunities for quality improvement. Regarding relationship of the Satisfaction level and non-satisfaction with laboratory services in Government Hospitals Care patients and the demographic data . show the relationship of the Satisfaction level and non-satisfaction with

laboratory services in government Hospitals Care patients and the demographic data, regarding age a significant relation in the non-satisfactory increase in (30-40) years were (62.96), follow by 50-60 age in satisfactory were (36.0%) while $P\text{-value}=0.001$, $X^2= 40.380$, regarding gender a significant relation in the non- satisfactory increase in female were (64.81), follow by male in satisfactory were (58.13%) while $P\text{-value}=0.002$, $X^2= 9.385$, regarding Nationality no significant relation in the non-satisfactory increase in Saudi were (81.48%), follow by satisfactory were (78.46%) while $P\text{-value}=0.621$, $X^2= 0.244$, regarding Marital state no significant relation in the non- satisfactory increase in Married were (74.07%), follow by satisfactory were (71.54%) while $P\text{-value}=0.708$, $X^2= 0.141$. regarding Employment status a significant relation in the non- satisfactory increase in Employed were (90.74%), follow by satisfactory were (63.01%) while $P\text{-value}=0.001$, $X^2= 15.651$, regarding Monthly income no significant relation in the non- satisfactory increase in Less than 5000 were (35.19%), follow by satisfactory were (30.08%) while $P\text{-value}=0.130$, $X^2= 5.652$ (See Table 4,5)

Almatrafi. et al (2018) the finding appeared higher than studies conducted in southern Ethiopia (52.9%), public hospitals of Ethiopia (55.0%).(28), Ethiopia (51.3%-62.8%) , and a maternity hospital in Saudi Arabia (2.7) (2) . However, those studies covered only hospitals, not primary health centres, or only physicians, not all clinicians. On the other hand, the finding is lower than the findings of the Q-Probes studies performed in the USA (4.1–4.2) (29). The discrepancy with these studies reflects the better service quality and user experiences in such resource-rich settings with more advanced diagnostic facilities.

Regarding the relationship of the total Satisfaction level with laboratory services in primary health care patients and the demographic data . The study on US hospitals showed that clinical technology inclusive of laboratory technology drives the hospital clinical quality and financial performance (30). However, the level of laboratory service in PHC was not found to be a significant predictor of overall PHC performance in multivariate analysis, which was unexpected. That some precautions are needed in interpreting the absolute effect of the level of laboratory service (31) in PHC on PHC performance . These findings suggest that The level of laboratory service in PHC could be a strong trigger to improve the PHC performance, but alone it is not an enough condition to improve the PHC performance. In the Indian context, patient could access public laboratory facility only on referral from medical doctor (30) (See Figure1,2)

Conclusion

The study concludes that laboratory services could play an important role in maximizing the government hospitals Care Services performance. Higher level laboratory service in government hospitals Care Services could help in getting more visits in the government hospitals Care Services. The training of existing laboratory techniques could be a cost-effective approach in resource-constrained settings to maximize the returns from the existing medical workforce in government hospitals Care Services. Finally, study found that government hospitals Care Services with lower population coverage could benefit from higher level laboratory service as compared to other government hospitals Care Services in enhancing their performance in terms of number of government hospitals Care Services visits per day.

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