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Telephone consultation services in Saudi Arabia: utilization pattern and satisfaction among health care providers and consumers

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Abstract

Background: Telephone consultation services have been recently introduced in Saudi Arabia through the Seha Mobile Application (Seha App) and Medical Consultation Call Center (937). Based on the previous studies, the pattern of utilization and public satisfaction with such services is still unclear.

Aim: To determine the utilization pattern of telephone consultation services in Saudi Arabia and appraise the level of satisfaction towards these services among health care providers and consumers.

Methodology: A cross-sectional study was undertaken at the Medical Consultation Call Center in Saudi Arabia. The health reports for the period of January to June 2018 were reviewed to determine the utilization pattern. Data regarding the satisfaction of health care providers were collected through an online questionnaire, and data on the satisfaction of consumers was collected through telephone interviews from June to August 2018.

Results: Telephone consultation services are highly utilized by the Saudi population, with about (80,000) 937 calls and (20,000) Seha App calls per month. Most consumers were highly satisfied with the service, with overall mean satisfaction of 2.87 ±0.33 out of a 3-point Likert scale. The main criteria for satisfaction included the ability of health care providers to interact with the callers (2.92±0.33), consultation and waiting time (2.92±0.35 and 2.82±0.50, respectively) and outcome of consultation (2.84±0.49). The overall satisfaction of healthcare providers was satisfactory (3.64 out of 5-point- Likert scale).

Conclusion: The public is increasingly utilizing telephone consultation services in Saudi Arabia. Compared with the total number of primary healthcare visits, it represents about 2% of the total visits of the study year. The overall satisfaction of consumers and health care providers was adequate. Increasing the number of healthcare providers with continuous on-job training, introducing an array of specialties, and creating a supportive environment is highly recommended to improve the satisfaction among both the consumers and the providers.

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1. Introduction

The use of telephone consultation services to provide health care has grown considerably in recent years [1, 2, 3, 4, 5]. A telephone consultation is the process of providing advice or referral to a more appropriate service through the phone [4]. Telephone consultation services comprise a variety of healthcare services, including the delivery of routine and emergency care, health education, and health care for people with chronic conditions [6]. Services can be provided in different settings and facilities, including primary healthcare and nursing facilities, and are available in-service or out of hours. Different healthcare workers could deliver these services; in most cases, they are provided by GPs, but they can also be delivered by qualified nurses, health assistants, and, to a minor degree, clinical clerks [4]. Such services aim to help users self-manage their problems as well as offering support to caregivers. The services are also an effective means of managing and reducing unnecessary demands on healthcare systems [4, 7, 8, 9].

A substantial body of research has found a high user satisfaction with telephone consultations (4). Factors accounting for such a high level of satisfaction included waiting time, length, and outcome of the consultation. Other important factors associated with consumers' satisfaction were related to the perceived quality and the communication skills of the healthcare providers (e.g., sounding unrushed, being emphatic, providing reassurance, and delivering advice and information in ways that allayed concerns) [3].

Despite healthcare workers' appreciation for the flexibility and convenience that telephone consultation services provide [6], many healthcare providers find telephone consultation services stressful—often because users' expectations are not being met [3].

In Saudi Arabia, medical consultations via telephone are provided by the Medical Consultation Call Center (937), which is based in the Ministry of Health (MOH), in addition to an e-health application (Seha Mobile Application) [10]. The Medical Consultation Call Center (937) is one of the Saudi Ministry of Health' key transformation initiatives, aimed primarily at delivering timely and appropriate health services to every citizen. It is an integral part of the Vision 2030 for boosting healthcare services in the Kingdom. The center began operation early in 2017 and provides 24/7 emergency and routine health care via telephone through a toll-free number (937) [11].

The Seha App launched in late 2017, is one of the Ministry's endeavors to employ cutting-edge technologies that enhance effective communication with service-beneficiaries as well as facilitating access to needed specialized medical consultations via smartphones. The Seha App is designed to enable audio-video communication, and accordingly, users can log in to the app, communicate directly with a specialist, and have their cases diagnosed through the application. Both the Medical Consultation Call Center (937) and Seha App are provided by the same team of health care providers, and both systems allow the consumers to evaluate the quality of the service at the end of the call [12].

Satisfaction is one of the most widely researched outcomes for telephone consultation services, as it is critical to improving the quality of the provided services [13]. This study was undertaken to

determine the utilization pattern of telephone consultation services and to appraise the satisfaction level of both consumers and health care providers towards this service to identify areas that could be targeted for services improvement.

2. Subjects and Methods

2.1 Study design

A cross-sectional study was undertaken at the Medical Consultation Call Center (937) and Seha Mobile Application, MOH, Riyadh, Saudi Arabia.

2.2 Study population

The study included 5000 consumers and all the healthcare providers working at the different 937 centers across the Kingdom who responded to the online questionnaire (n=100) during the period June - August 2018

2.3 Data collection:

Records of the Medical Consultation Call Center (937), for the period between January and June 2018, were reviewed to determine the number of received and lost calls and to draw patterns among consultations. The Seha application's records for the period of January to March 2018 were also reviewed to determine the number of received calls, the background characteristics of callers (sex and age), the communication methods used by callers (text message, video, audio), and the challenges encountered by callers in using the application.

A comprehensive self-reported online questionnaire was designed to collect data on healthcare providers' job satisfaction from June to August 2018. From all 937 centers across the Kingdom (n=140), only 100 healthcare providers responded (71% response rate) to the questionnaire, of whom 82% were males, and only 18% were females.

Experts reviewed the questionnaire for content validity, accuracy, and clarity of different items. The questionnaire included a mix of open and closed-ended questions. Closed-ended questions aimed to rate the level of health providers' satisfaction with the services in terms of appropriateness of the work environment, ease of use of the Seha App, the number of phone calls received during work shifts, the length of consultations, the length of shifts, interaction with callers, perceived benefit of the advice provided to callers, their role as healthcare providers working at the center, and general satisfaction with the service. Open-ended questions included the challenges encountered and recommendations for improvement, grouped into the work environment and administrative problems.

Concerning consumers' satisfaction, a semi-structured telephone interview was used to collect data for two months (June to August 2018). The interview was done by trained interviewers who were MOH employees working at other departments. The calculated sample size was 4898 (rounded up to 5000) calculated by Epi Info package [14] based on an assumed satisfaction level of 85% and the absolute precision required of 0.01 at a 95% confidence level. A systematic random sample was used to select the study sample. A list of all calls received on the previous day was prepared each morning by Medical Consultation Call Center (937) officials for data collectors to make the calls. The interview included a mix of open and closed-ended questions. The closed-ended questions aimed to

extract information on the following: frequency of using the services (previous caller, first time), knowledge about the service and satisfaction with the length of consultation, waiting time for the call to be answered, interaction with health care providers and perceived benefit of advice and information received. Open-ended questions included whether the callers would recommend the call service to others and suggestions for improvement.

2.4 Statistical analysis

Data were tabulated and statistically analyzed using the SPSS program (Statistical Package for Social Science) version 21 [15]. The result was considered significant at a P-value < 5% level. The frequency of calls over the first six months of 2018 and the study period was calculated to determine the utilization pattern. Health care providers' satisfaction with 937 services was assessed on a 5-points-Likert scale in five different areas: 1= very dissatisfied, 2 = dissatisfied, 3=neutral, 4 = satisfied, and 5= very satisfied. A mean satisfaction of > 3.5 was considered adequate. Cronbach's Alpha Coefficient of more than 0.7 was considered to indicate acceptable internal consistency. Furthermore, callers' satisfaction was measured on a three-point Likert scale where 1= not satisfied, 2 = neutral, and 3 = satisfied. A mean satisfaction of > 2 was considered acceptable. The satisfaction of health care providers and consumers was related to their background variables using the Chi-squared test.

2.5 Ethical issue

To ensure that confidentiality was maintained, the interviewers explained the purpose of the study before proceeding with the interview. They assured the privacy of the information and its use only to improve and develop the service without any mention of names. Afterward, they obtained the caller's verbal consent for inclusion in the study.

3. Results

3.1 Utilization pattern

Over the first six months of 2018, a total of 94,147 people around the Kingdom sought medical advice through the Seha App The calls substantially increased from January to March 2018, after which they became stable, reaching around 20,000 users per month (Figure 1). The majority of users were 19 and above, and males and females were almost equal in number. The preferred methods of the Seha App used by the consumers were: text messages (SMS) (76%); SMS and audio calls (21%); SMS and video calls (2%); and SMS, audio, and video calls (0.4). The diagnosis made by health care providers, based on the complaints of users, fell into several medical specialties: internal medicine (28.8%), dermatology (14.4%), pediatrics (12.1%), and obstetrics and gynecology (9.4%).

Figure 1: Frequency of Seha Application calls during the study period.

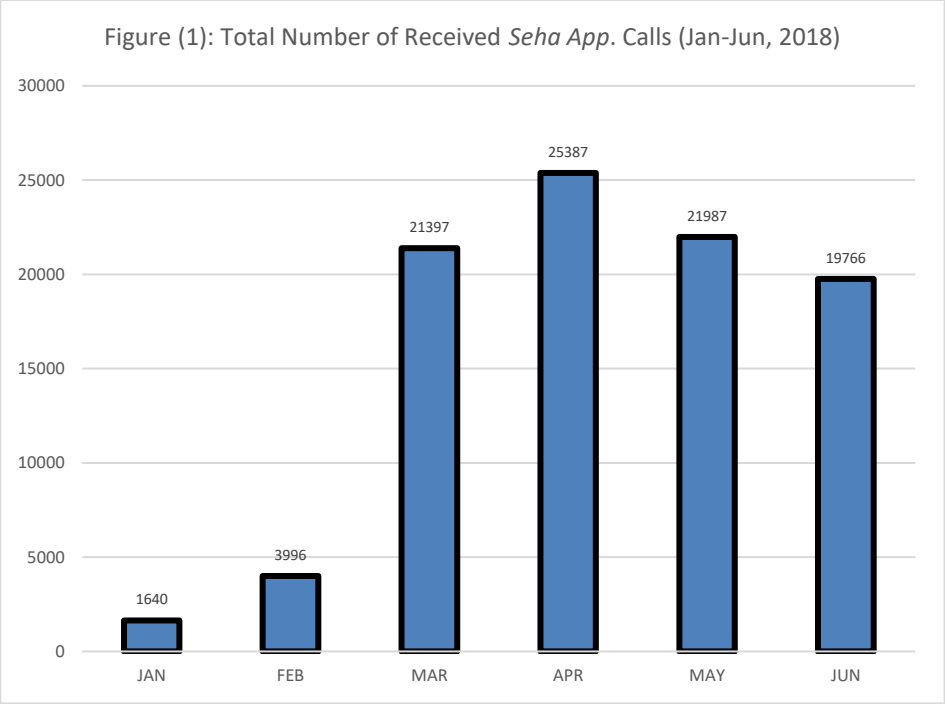


Figure (2) explains the frequency of weekly distribution of 937 phone calls during the study period. It shows that more than half a million calls (525379) were received by the Medical Consultation Call Center (937) during the same period. There was a gradual increase in the number of calls after week 9, with a weekly average of 20213 calls and, reaching around 80,000 users per month. About 75% of users utilized the service more than once. The service is mostly provided by family physicians/general practitioners (70.9%), by pharmacists (23%), and to a lesser extent by other specialists (5.3%).

Concerning the pattern of the daily distribution of 937 calls, it was observed that calls peaked at two intervals—from 1 pm to 4 pm and from 7 pm to 2 am—while the center received the lowest numbers of calls from 2 am to 11 am (figure 3). A total of 6694 (1.3% of total calls) incoming calls were unanswered by healthcare providers working at the center during the same period.

Figure 2: Frequency of weekly distribution of 937 phone calls during the study period

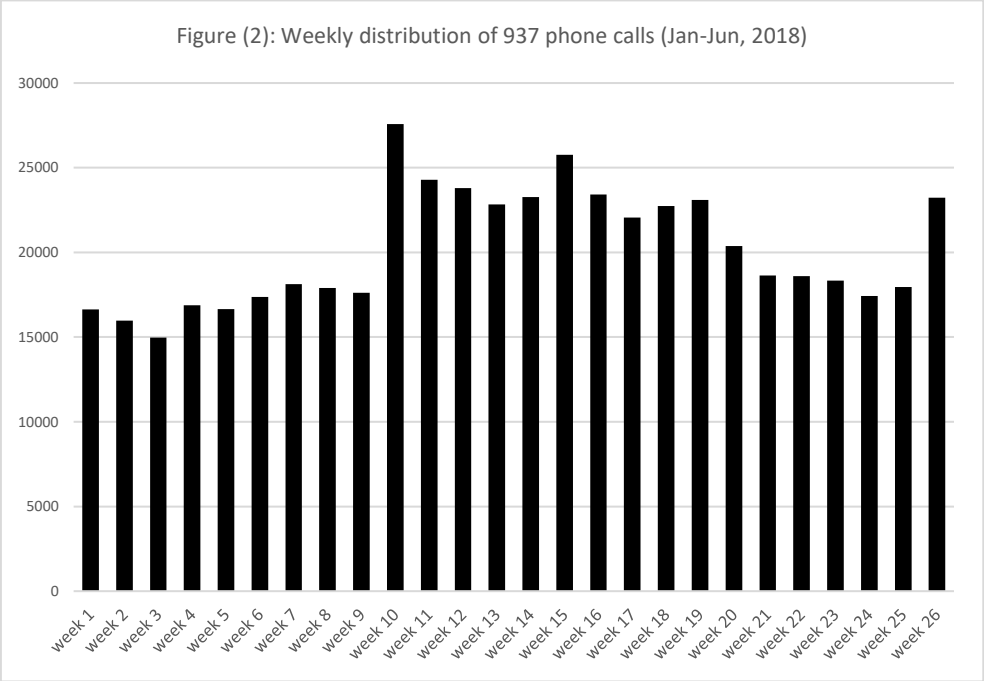
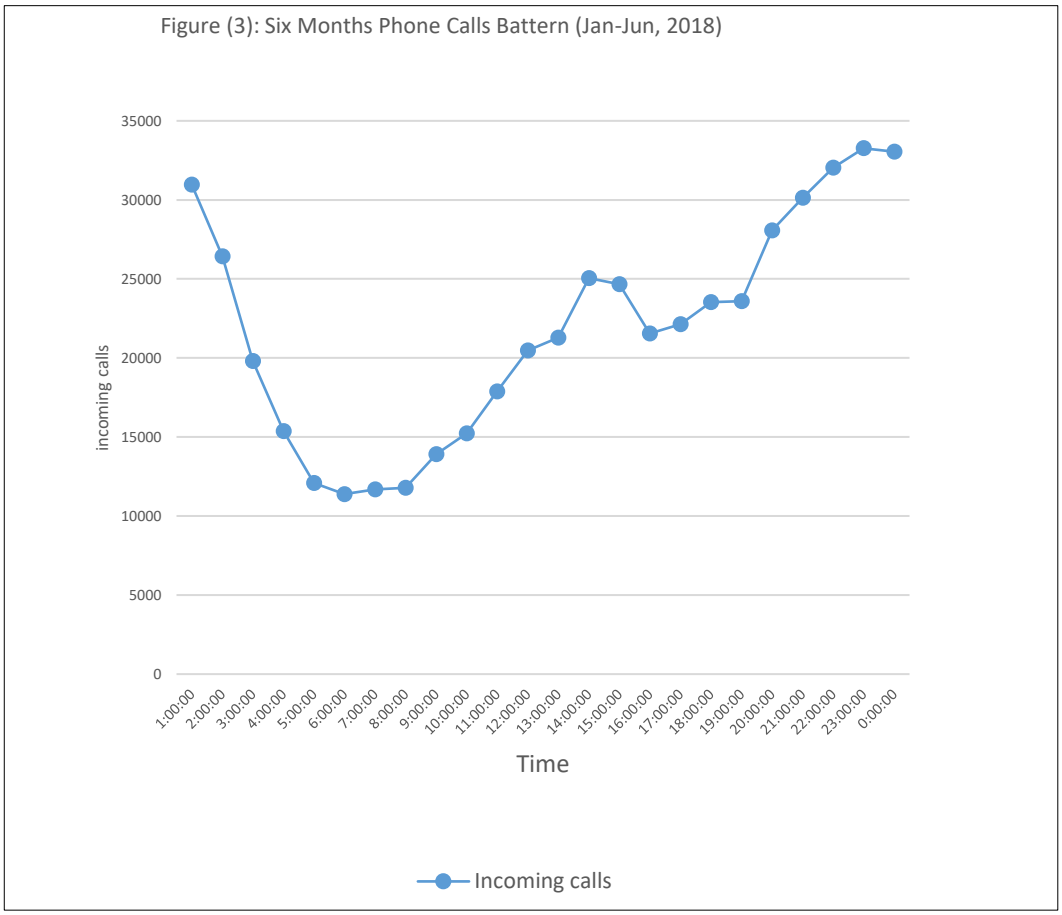


Figure 3: Pattern of the daily distribution of the 937 phone calls during the study period



3.2 Health care providers' satisfaction

Table (1) presents the five-point Likert scale of the frequency and mean job satisfaction among studied healthcare providers of the 937 center. The results showed that 76% of the 937 workers were satisfied/very satisfied. The mean satisfaction was 3.64 out of 5. Satisfaction was rated highest by health care providers for most items mainly for the advice they provide to callers (4.23±0.89) and their role as healthcare providers working at 937 Center (4.13±1). However, a low satisfaction rate was recorded by them for workload per shift (mean= 2.9±1.27) and appropriateness of the work environment (mean=3.42±1.2). The challenges encountered by health care providers, as suggested by their response to open-ended questions, included mainly those of the work environment (e.g., background noise from incoming calls, frequent malfunctioning of devices and telephone sets, weak internet connection and unavailability of references and protocols) as well as administrative problems (e.g., insufficient administrative support during shifts, a lack of structured training, short rest hours during the shifts and an insufficient number of health care providers to deal with a high workload).

Table 1: Frequency and mean job satisfaction among 937 center health Care Providers (N=100) *

Satisfaction Domain	**Frequency (%) of satisfaction**			**Mean (SD)**
	Very satisfied/ satisfied	**Neutral**	**Very dissatisfied/ dissatisfied**	
overall satisfaction	76 (77%)	10 (10%)	13 (13%)	3.64 (0.82)
satisfaction with the advice provided to callers	91 (91%)	3 (3%)	6 (6%)	4.23 (0.89)
satisfaction with the role as a physician working at the center	80 (81%)	13 (13%)	6 (6%)	4.13 (1.00)
satisfaction with working hours	67 (67%)	16 (16%)	17 (17%)	3.71 (1.21)
satisfaction with the interaction of the callers	64 (64%)	22 (22%)	14 (14%)	3.56 (0.88)
satisfaction with time allowed for each consultation	68 (68%)	14 (14%)	18 (18%)	3.62 (1.07)
satisfaction with workload per shift	41 (41%)	18 (18%)	41 (41%)	2.90 (1.27)
satisfaction with ease of use of Seha App	52 (53%)	34 (35%)	12 (12%)	3.54 (0.98)
satisfaction with the appropriateness of the work environment	61(61%)	12 (12%)	27 (27%)	3.42 (1.20)

- Cronbach alpha =0.923

Table (2) presents the relationship between 937 healthcare providers' job satisfaction and their background variables. It shows that gender, age, and type of specialty were insignificant factors affecting job satisfaction (P=0.326, 0.281, and 0.68, respectively).

Table 2: Relation between the satisfaction of 937 health care providers and their background variables (N=90)

	Satisfied		Dissatisfied		Total	P-value
	N	%	N	%		
Males	70	92.1	10	83.3	80	0.326
Females	6	7.9	2	16.7	8	
*missed data= 1						
Registrar	34	44.7	3	26.0	37	0.68
GP	9	11.8	5	41.7	14	
Consultant	20	26.3	2	16.6	22	

Pharmacist	13	17.1	2	16.7	15	
*Missed data= 1						
<35	32	46.4	3	33.3	35	0.281
35-44	28	40.6	3	33.3	31	
45+	9	13.0	3	33.3	12	
*missed data= 11						

** neutral cases removed from the analysis

3.3 Consumers' satisfaction

Table (3) presents the frequency and mean satisfaction of 937 consumers towards the services on a three-point Likert scale. Callers' mean satisfaction was high for all domains included in the study, with an overall mean satisfaction of 2.87±0.33. The recorded 937 callers' suggestions for improving their satisfaction included training health providers on how to deal with complicated queries and unifying responses to the same caller.

The relation between callers' satisfaction and some background characteristics was explained in table 4. It shows that 55.7% were males, and 44.3% were females. The majority were in the age group 20-44 (87%). 75% had used the service more than once. 56.9% callers learned about the service from social media and 31.7% from friends and relatives. There was a significant association between satisfaction and gender (P=0.044), where females were more satisfied than males (99.2% vs. 98.6%). It also shows a significant association with the frequency of use of the service, where those who used the service more than once (99.2% vs. 98.0, P<0.005) were more satisfied than others. There was no significant association with nationality or age (P=0.789 and 0.607, respectively)

Table 3: Mean satisfaction of consumers of (937) services (N=5005) (Cronbach's alpha =0.754).

Satisfaction Domain	**Frequency (%) of satisfaction**			**Mean (SD)**
	Satisfied	**Neutral**	**dissatisfied**	
overall satisfaction with service	4794 (95.8%)	112 (2.2%)	98 (2.0%)	2.87 (0.33)
communication with the provider	4477 (89.5%)	253 (5.1%)	275 (5.5%)	2.92 (0.33)
consultation time	4724 (94.7%)	138 (2.8%)	128 (2.6%)	2.92 (0.35)
the outcome of the consultation	4738 (94.8%)	148 (3.0%)	114 (2.3%)	2.84 (0.49)
waiting time	4416 (88.3%)	310 (6.2%)	276 (5.5%)	2.82 (0.50)

Table 4: The relation between overall satisfaction of callers and their background variables (N=5000)

Background characteristic		Satisfied		Dissatisfied		Total		P-value
		N	%	N	%	N	%	
Gender	male	2743	98.6%	38	1.4%	2781	55.7	.044
	females	2199	99.2%	17	0.8%	2216	44.3	
Nationality	Saudi	4783	99.0%	49	1.0%	4832	97.4	.789
	Non-Saudi	128	99.2%	1	0.8%	129	2.6	
Use of service	one time	1234	98.0%	25	2.0%	1259	25.2	.000
	more than one	3711	99.2%	30	0.8%	3741	74.8	
Age groups	>19	81	100.0%	0	0%	81	1.6	.607

20-44	4276	99.0%	45	1.0%	4321	87.0	
45+	555	98.4%	9	1.6%	564	11.4	

4. Discussion

4.1 Utilization pattern

The current study showed that more than half a million calls (525379) were received by the Medical Consultation Call Center (937) during the study period, with a gradual increase in the utilization of the Seha App services reaching around 94,147 calls during the same period. The increase in the number of users could be a result of increased awareness about the service among the public, mainly obtained from social media (56.9%) and to a minor degree from friends and relatives (31.7%), as recorded in the present study. On reviewing the Saudi Arabian Ministry of Health (MOH) Statistical Yearbook of 2017 [16], it was observed that there were about 50 million primary healthcare visits that year. Calls received by the (937) center were equivalent to about 2% of the total visits to primary healthcare centers during that year, reflecting the center's contribution in reducing the pressure on primary healthcare services. In England, telephone consultations accounted for 3% (224.5 million) of all consultations in 1995, and 12% (313.6 million) of all consultations in 2009—a 4-fold increase [1]. In Denmark, following the introduction of telephone consultation by doctors, the demand for home visits fell by 28% [8], and in the UK, there was a small decrease in the use of General Practitioner (GP) Cooperatives [9]. Also, Dahlgren et al. (2017) found that the utilization rate of the telephone advice service for older people was high: 533 per 1000 person-years [17]. Such services aim to help users self-manage problems and offer support to caregivers. They are also an effective means of managing and reducing unnecessary demands on healthcare systems [4,7]. Moreover, Car and Sheikh concluded that users value telephone consultations due to convenience, speed, improved access, less waiting time, reduced travel time, cost-saving, and increased frequency of contact [6].

The present study revealed that Seha App services were mainly utilized by those aged 19 and older (21239 users) and by males (53.7%) more than females (47.3%). This finding was in contrast with Gonzalez et al. (2018), who stated that women requested more telephone consultations than men, and the highest demand occurred over the age of 85 for both men and women [18]. Similarly, Wang et al. (2013) recorded the crude consultation rate as 32% lower among males than females between the ages of 16 and 60, though not among the younger and older generations [19]. Also, Dahlgren et al. (2017) found that women had 1.17 times higher consultation rate than men, while older people used the service more at a rate of 533 per 1000 person-years [17]. At the same time, Charante et al. (2006) found that the nurse telephone advice rate was 27.5%. It was higher during the night and decreased with increasing age or when the patient presented with >2 problems [20]. Gender variation between our study and others could be attributed to the Saudi culture and traditions.

In the current study, the preferred method of communication with the Seha App healthcare providers was through text messages (76%) despite the added value of communicating by audio/ video calls provided by the app. This finding is most likely due to the privacy dimension preferred by the

consumers. Similarly, Gonzalez et al. (2018) recorded that in 10.9 % of cases, telephone consultations required further face-to-face consultation [18].

The range of specialties in 937-call center is somewhat limited, where most of the services are provided by family physicians/general practitioners (70.9%) and pharmacists (23%) and, to a lesser extent, by other specialists (5.3%). This finding justifies suggestions made by health providers and callers to provide diverse specialties to cover the full range of complaints received through both the Seha App and 937 Center. The diagnosis made by healthcare providers in the present study fell into several medical specialties; internal medicine (28.8%), dermatology (14.4%), pediatrics (12.1%), and obstetrics and gynecology (9.4%). Dahlgren et al., (2017) recorded the most common reason for telephone consultation was drug-related questions (17% of all contacts) [17]. Bali and Singh (2007) examined the acceptability and feasibility of consultation by mobile phone in a rural area of Northern India and found that 63% of calls were for seeking advice, 22% for outpatient follow-up, 4% for seeking appointments, and the remaining 11% were for other reasons. The most common problems were skin, respiratory, mental health, and sexual problems [21].

4.2 Health care providers' satisfaction

In the present study, satisfaction was rated highest by health care providers for most items mainly for the advice they provide to callers (4.23±0.89) and their role as health care providers working at 937 Center (4.13±1). However, a low satisfaction rate was recorded by them for workload per shift (mean= 2.9±1.27) and appropriateness of the work environment (mean=3.42±1.2). The study also explained that gender, age, and type of specialty were insignificant factors affecting job satisfaction (P=0.326, 0.281, and 0.68, respectively). The current study revealed the challenges encountered by healthcare providers that could affect their job satisfaction, including mainly those pertaining to the work environment, lack of structured training, and a high workload divided among an insufficient number of health care providers. Consistent with our study, the Urban Cambridge family practice experience in the UK recorded an improvement of patients' satisfaction from 75% to 94% following one year of staff training implementation (1). Also, improved staff confidence in dealing with telephone consultations reduced face-to-face consultations, and home visits were documented (19). Similarly, Miller et al. 2013 (22) recorded the main causes of poor job satisfaction: not receiving appreciation, having a short time to accomplish a required assignment, and inconsistent messaging around provider compensation [18]. At the same time, Seke et al. (2013) (23) concluded that healthcare worker satisfaction does impact patient satisfaction, and the most significant effect was job satisfaction with the time required to accomplish the assigned tasks [19].

4.3 Consumers' Satisfaction

Concerning the satisfaction of 937 call center consumers, it was found that females were more satisfied with the services than males (P=0.004), and those who used the service more than once were more satisfied (P=0.00). The satisfaction was high for all domains in the study, with an overall mean satisfaction of 2.87 out of 3. In South East London, about 87% of the clients using the accident and emergency department calling center were either satisfied or very satisfied with the provided services

[5]. Kobayashi H and Sado (2019) investigated the satisfaction of consultation service users and found that over half of the participants declared that they agree/strongly agree regarding the quality of communication and were willing to use the service again [24]. Also, Bali and Singh (2007) stated that mobile phone consultation was acceptable to people in a rural area of northern India, with 78% of callers reporting that they had followed the advice provided and about 96% of users wishing to continue to use the service in the future [21]. Moreover, Car and Sheikh (2003) concluded that public satisfaction with telephone consultations is high and that patients increasingly wish to have this option [6].

4.4 Strengths and limitations

To the authors' knowledge, this is the first Saudi study to determine the utilization pattern of telephone consultation services and assess the level of satisfaction among both healthcare providers and consumers of this service. However, the data are particularly susceptible to distortion encountered in cross-sectional studies due to the introduction of bias into the research during sampling, creating the questionnaire, and interviewing.

5. Conclusion

Telephone consultation services are increasingly being utilized by the public in Saudi Arabia, representing about 2% of primary healthcare center visits. The overall mean satisfaction with the service was 2.87 out of 3 points among consumers, while among healthcare providers it was 3.64 out of 5 points . Healthcare providers were least satisfied with the high workload and appropriateness of the work environment. Also, most consumers suggested training for healthcare providers to deal with complicated queries efficiently. Increasing the number of healthcare providers with continuous in-job training, introducing an array of specialties, and creating a supportive environment is highly recommended to improve the satisfaction among both the consumers and the providers.

6. Implications for research

Further, follow-up studies on 937 call centers are needed to measure the improvement of services following recommendations implementation.

7. Declarations

7.1 Authors Contributions

Dr.Yahia Al-Khaldi, Dr.Hesham Alkhashan, Dr.Mustafa Hassanein, Dr.Nagla Mahmoud, Dr.Abdulrahim Farwati, Dr.Nashwa Radwan, Ms.Hana Alhumud, and Ms.Fatimah Rabhan, contributed to the concept and design of the study. Dr.Abdulrahim Farwati contributed to data acquisition, and Ms.Fatimah Rabhan and Ms.Hana.Alhumud to data collection, cleaning, and coding. Dr.Mustafa Hassanein, Dr.Nashwa Radwan, performed the data analysis. Dr. Mustafa Hassanein, Dr.Nagla Mahmoud, and Dr.Nashwa Radwan aided in interpreting the results, drafting, and review of manuscript and Dr.Yahia Al-Khaldi and Dr.Hesham Alkhashan discussion of results and final review.

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7.3 Conflict of interest

All the authors declare that there is no conflict of interest.

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