Original Article

Client's perception toward services of smoking cessation clinics in Riyadh, Saudi Arabia

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Abstract

Background: In Saudi Arabia, approximately 70,000 deaths yearly occur from diseases caused by smoking. Assessing patients' smoking behavior in primary care has apparent benefits. Assisting patients with smoking cessation is one of the essential roles of primary care. This study evaluated the quality of smoking cessation clinic counseling in Riyadh, Saudi Arabia, based on customer opinions of such services. **Methods:** This research employed a cross-sectional approach involving individuals attending smoking cessation clinics located within primary health care centers in Riyadh city. The participants were chosen through random selection. They were informed about the study's objectives, and those who consented to take part were contacted and provided with an online questionnaire to complete. **Results:** A total of 340 subjects participated (95.6%) of them were males, and 41.2% were in the age group of 25 to 35 years old. The common modality of tobacco use was cigarettes (82.6%), and 87.9% reported consuming tobacco daily. The mean (±SD) total score of the Fagerstrom Test of Nicotine Dependence was 5.03 (±2.36), and the highest percentage (44.4%) of the participants had a moderate level of nicotine dependence. The vast majority (93.8%) of the participants had former quitting experiences. Half (50.9%) of the participants showed complete satisfaction with the cessation clinics, while 13.2% and 9.1% of them were not satisfied or slightly satisfied, respectively. **Conclusion:** The majority of smoking cessation clinic visitors were satisfied with the services provided, exceeding three-quarters of them, with half totally satisfied.

Keywords: Care, cessation, clinics, counseling, primary, Riyadh, smoking

Introduction

An estimated 1.3 billion people worldwide use tobacco, with more than 80% of them living in low- and middle-income countries.[1] An estimated 8 million people die each year as a result of smoking-related causes.[1] Those who smoke regularly die 10 years younger than those who do not.[2] The leading causes of smoking-related deaths are cancer (34%), cardiovascular disease (32%), and respiratory illness (21%).[2]

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Tobacco use has been linked to the development of several cancers, including lung, oropharynx, larynx, esophageal, stomach, liver, pancreas, kidney, bladder, uterine cervix, colon, and rectum cancers.[2] Smoking is responsible for approximately 80% of deaths from chronic obstructive pulmonary disease.[2] Every year, approximately 70,000 Saudis die as a result of smoking-related diseases.[3]

Smoking cessation has been shown to reduce the risk of smoking-related disease and premature death.[4,5] To reduce morbidity and mortality caused by smoking, the Centers for Disease Control and Prevention (CDC) recommends tobacco cessation programs.[6] Previous researches has found that smoking cessation (SC) lowers the risk of cardiovascular

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disease, stroke, and malignancies associated with tobacco use.[7,8]

The Kingdom of Saudi Arabia provides and improves the quality of health care services for disease prevention and treatment as part of the Kingdom Vision 2030.[9,10] The Ministry of Health initiates anti-smoking clinics, which provide qualified physicians' education, counseling, and treatment to support and facilitate smoking and cessation.[9,10]

The United States Preventive Services Task Force (USPSTF) strongly recommends that all adults be screened for tobacco use and that those who use tobacco be helped to quit using pharmacological and behavioral interventions (Grade A recommendation). Furthermore, it suggests that primary care physicians use the five A's as a counseling model (Ask, Advise, Assess, Assist, and Arrange).[11] The five A's model can be used as part of the behavioral change model, which is widely used as a multi-functional counseling model used by physicians to provide preferred behavioral changes such as SC.[12-14] The five A's model takes about 5-10 minutes to complete, making it suitable for inclusion in clinical visits.[13,15] Assessing patients' smoking habits in primary care has been shown in studies to have obvious benefits. Given the excellent rapport that primary care physicians have with their patients and knowledge of their environment and social activities, it is a huge advantage to conduct efficient counseling.[16,17]

However, several factors can have a negative impact on counseling, such as a lack of clinic time, the patient's lack of motivation to quit, and physicians' lack of confidence in their knowledge and skills.[18-20] Counseling is effective in encouraging people to quit smoking.[21]

A study conducted at Armed Forces Hospital, Al-Jubail, Saudi Arabia, showed a significant proportion of SC clinic male attendees are satisfied with the services provided, with no differences based on demographic, smoking-related, or SC clinic-related characteristics.[22]

The is lack of studies assessing the clients' attitudes toward SC clinic services in Saudi Arabia. Thus, this study aimed to assess the quality of SC clinic counseling in Riyadh, Saudi Arabia, based on clients' perceptions of such service.

Methods

Study design, setting, and time frame

A cross-sectional study was conducted at the SC clinics at primary health care centers in Riyadh City's Second Health Cluster (RC2) in the period from June 2022 until January 2023.

Study participants

The inclusion criteria for this study were attendees of SC clinics who are 18 years and older, speak Arabic, live in Riyadh city, and have attended an SC clinic in the past six months. There are 11 PHCs in RC2 that provide SC services, and we could only obtain the data of eight PHCs.

Sample size and sampling methodology

The sample size was the attendees of the study setting during the study period, where participants were selected randomly from the SC clinic data using a systemic sampling method.

Data collection

Data was obtained by contacting the head of RC2 PHCs through the King Fahad Medical City (KFMC) research center. Participants who met the inclusion criteria and agreed to participate in the study were contacted by phone and asked to complete the questionnaire online. The data collection tool for the current study was a questionnaire that was designed based on previous questionnaires used in previous studies about the counseling quality of SC.[23-28] The questionnaire was validated by two family medicine consultants and translated and reviewed by two translators. The questionnaire consisted mainly of items that covered participants' sociodemographic characteristics, smoking status, Fagerstrom scale nicotine dependence,[27] quitting, counseling quality, and 5 A's counseling module.

Ethical considerations

The study was conducted after obtaining ethical approval from the Ethical Review Committee of KFMC research center, number: FWA00018774. The aims of the study were explained to the participants, and they were informed that their data would be kept confidentially and anonymously and will be used for research purposes only. In addition, they had the right to withdraw from the study at any time.

Data analysis

Data were coded, tabulated, and analyzed using (SPSS) version 26 (Armonk, NY: IBM Corp.). Qualitative data was expressed as numbers and percentages, and quantitative data was expressed as mean and standard deviation (mean ± SD).

Results

A total of 340 subjects participated in the current study; the vast majority of them were males (95.6%), 60.6% were married, and 41.2% had an age of 25-35 years.

Smoking status

The common modality of tobacco used was cigarettes, 82.6%, and the highest percentage (33.5%) of the participants started smoking cigarettes at the age of 20 to 29 years.

For tobacco users, 34% started at 11 to 20 years old. The majority (87.9%) of the participants reported consuming tobacco daily; from them, almost half (50.9%) were smoking 11 to 20 cigarettes per day. About 43% (43.5%) reported other smokers in their homes [Table 1].

Results of Fagerstrom test of nicotine dependence (FTND)

The mean total score of FTND was 5.03 ± 2.36, and the highest percentage (44.4%) of the participants had a moderate level of nicotine dependence [Table 2].

Table 3 shows that 74.1% of the participants were smoking more frequently during the first hours after waking up than during the rest of the day, and 65.5% said that they hate to give up on the first morning cigarette. A percentage of 32.6% of the participants reported smoking their first cigarettes after 60 minutes of waking up. Of them, 46.8% reported that it is difficult to refrain from smoking in places where it is forbidden, and 57.9% reported keeping smoking despite their sickness.

Table 1: Sample characteristics (demographics and smoking status) (*n*=340)

Characteristics	*n* (%)
Demographics	
Sex	
Female	15 (4.4)
Male	325 (95.6)
Marital status	
Single	130 (38.2)
Married	206 (60.6)
Divorced	2 (0.6)
Widow	2 (0.6)
Age, years	
<25 years old	56 (16.5)
25-35 years old	140 (41.2)
36-40 years old	70 (20.6)
41-50 years old	48 (14.1)
>50 years old	26 (7.6)
Smoking status	
Types of tobacco use (common modality)	
Cigarettes	281 (82.6)
Electronic	40 (11.8)
Chewing	4 (1.2)
Shisha	15 (4.4)
Age at first use of tobacco (cigarettes)	
≤ 10 years	21 (6.2)
11-15 years	52 (15.3)
16-17 years	66 (19.4)
18-19 years	74 (21.8)
20-29 years	114 (33.5)
≥30 years	13 (3.8)
Duration of smoking in years	
1 year	5 (1.5)
2-5 years	71 (20.9)
6-10 years	97 (28.5)
11-20 years	116 (34.1)
>20 years	51 (15.0)
Frequency of tobacco use	
Daily	299 (87.9)
Less than daily	35 (10.3)
Weekly	2 (0.6)
Occasionally	4 (1.2)
How many cigarettes/day do you smoke?	
≥ 31	12 (3.5)
21–30	80 (23.5)
11–20	173 (50.9)
≤10	75 (22.1)
Other smokers at home	
Yes	148 (43.5)
No	192 (56.5)

Smoking quitting status

Most (93.8%) had former quitting experiences, and around half had more than twice quitting attempts. The main reported indication for quitting smoking was to improve health (53.2%). However, the main reason for unwillingness to quit smoking was due to fear of mood changes (48.8%) [Table 4].

Reasons for unwillingness to quit smoking

Table 5 shows that the main reason for the unwillingness to quit smoking (No: 29) was that smoking helps smokers to accommodate the pressure in their work setting and other daily life events.

Participants' perception toward the smoking cessation clinics

Tables 6 and 7 show a high satisfaction with the services at the SC clinics among the participants (77.6% were completely satisfied, very satisfied, and satisfied).

Reasons for noncompliance with smoking cessation clinics

The provided treatment (26.8%), availability of appointment (19.1%), and physician knowledge and attitude (9.4%) are examples of reasons for noncompliance with SC clinics. The unavailability of drug and nicotine patches and appointments that do not fit with participants' work schedules were other main reasons (30.5%) [Tables 6 and 7].

Participants' responses about applying the 5 A's

Table 8 shows that questioning the health care provider for a client about smoking was the highest implemented strategy (81.2%), followed by advising the client to quit smoking (63.8%) and discussing how to quit smoking (59.1%).

Discussion

Cigarette smoking is considered a chronic condition that is relapsing in nature. It mostly starts in youth and is linked to both a physical nicotine addiction and a taught behavior,[2] and the results of the current study came in line with this. Nicotine attaches to the α4β2 nicotinic acetylcholine receptors in the brain, releasing neurotransmitters, such as dopamine, the pleasurable benefits of which become connected with specific circumstances or behaviors, as well as the relief of stress or negative emotions.[29] These behaviors, feelings, and events become smoking triggers. When nicotine blood levels decline due to repeated nicotine use, tolerance and

Table 2: Total score and categories Fagerstrom Test of Nicotine Dependence (FTND) (*n*=340)

Item	Mean (±SD) or *n* (%)
Total score FTND	5.03 (2.36)
Categories of FTND	
Minimally dependent	91 (26.8)
Moderately dependent	151 (44.4)
Highly dependent	98 (28.8)

Table 3: Descriptive findings of Fagerstrom Test of Nicotine Dependence (FTND) (*n*=340)

FTND Item	*n* (%)
How soon after you wake up do you smoke your first cigarette?	
Within 5 min	102 (30.0)
6–30 min	76 (22.4)
31–60 min	51 (15.0)
After 60 min	111 (32.6)
Do you find it difficult to refrain from smoking in places where it is forbidden?	
Yes	159 (46.8)
No	181 (53.2)
Which cigarette would you hate most to give up?	
The first one in the morning	223 (65.6)
All others	117 (34.4)
How many cigarettes/day do you smoke?	
≥31	12 (3.5)
21–30	80 (23.5)
11–20	173 (50.9)
≤10	75 (22.1)
Do you smoke more frequently during the first hours after waking up than during the rest of the day?	
Yes	252 (74.1)
No	88 (25.9)
Do you smoke if you are so ill that you are in bed most of the day?	
Yes	197 (57.9)
No	143 (42.1)

physical dependency develop, resulting in nicotine withdrawal symptoms.[30] Family history of smoking was noted in almost 43.5% of smokers.[31]

The results of the current study showed that participants had mostly a moderate level of physical nicotine dependence based on the FTND score of 5.03 ± 2.36, and categorization (44.4%) moderate level of nicotine dependence. Such results are considered comparable to previous similar studies.[32,33] One study in Nepal[32] showed that almost 48% of smokers had medium and high levels of nicotine dependency, and another study conducted by Aryal *et al.*[33] where about 51% had medium and high levels of nicotine dependency. According to the WHO, high nicotine dependence is associated with lower motivation to quit, difficulty quitting, and failure to quit.[34] Furthermore, high dependency is linked to an increase in the number of nicotine receptors.[34]

Table 4: Smoking quitting status of the participants (*n*=340)

Smoking status	*n* (%)
Previous attempts at quitting	
Yes	319 (93.8)
No	21 (6.2)
Number of smoking quitting attempts	
Once	78 (22.9)
Twice	75 (22.1)
> Twice	166 (48.8)
Never	21 (6.2)
Reasons for quitting smoking	
Health	181 (53.2)
Personal	69 (20.3)
Familial pressure	48 (14.1)
Religious beliefs	16 (4.7)
Financial	14 (4.1)
Physician	8 (2.4)
Friends	4 (1.2)
Reasons for unwillingness to quit smoking	
Fear of mood changes	166 (48.8)
Failed previous attempt(s)	57 (16.8)
Peer pressure	54 (15.9)
Fear of failure	13 (3.8)
Cost of treatment	6 (1.8)
No reason	15 (4.4)
Other	29 (8.5)

Table 5: Other reasons for unwillingness to quit smoking (*n*=29)

Reasons for unwillingness to quit smoking	*n* (%)
Pressure in life and work setting	9 (31.0)
Feeling of boredom and emptiness	6 (20.7)
Lack of intention to quit	5 (17.2)
Lack of treatment or the appropriate doses of drugs and nicotine patches	4 (13.8)
Become a habit	3 (10.3)
Effect of community	1 (3.5)
Physician was not providing an effective plan	1 (3.5)

In line with a previous study,[32] the current study highlighted that almost one-third (30%) of tobacco users used their first tobacco within 5 minutes of waking up. Different findings were reported in the Global Adult Tobacco Survey (GATS): India 2016–17 Report,[35] where 18% of daily tobacco users resorted to tobacco use immediately or within 5 minutes. Such findings highlight that dependency on tobacco was high in our study population. Several studies have found a link between higher cotinine levels and a shorter time to smoke cigarettes after waking, which could be due to more intense smoking in response to overnight abstinence and can predict cancer.[36,37]

Compared to a previous study conducted in Jordan, 53% have the intention to quit smoking and 60.6% had previous quitting attempts,[26] and the one conducted in Nepal showed that 24% tried to quit tobacco,[32] a significantly high percentage (almost

Table 6: Participants' perception toward smoking cessation clinics (*n*=29)

Smoking cessation clinic	*n* (%)
Overall satisfaction with the smoking cessation clinic	
Completely satisfied	173 (50.9)
Very satisfied	43 (12.6)
Satisfied	48 (14.1)
Slightly satisfied	31 (9.1)
Not satisfied	45 (13.2)
Reasons for noncompliance with smoking cessation clinic	
Availability of appointments	65 (19.1)
Treatment provided	91 (26.8)
Physician knowledge and attitude	32 (9.4)
No reason	126 (37.1)
Other	26 (7.6)

Table 7: Other reasons for noncompliance with smoking cessation clinics (*n*=26)

Reasons for noncompliance with smoking cessation clinic services	*n* (%)
Drug and nicotine patches were not available	7 (30.5)
Time constraints and appointments do not fit with work schedule	4 (17.4)
Smoking cessation clinic was only for citizen	2 (8.7)
Movement to other areas	2 (8.7)
Laziness	2 (8.7)
Personal issues	1 (4.3)
Transportation issues	1 (4.3)
Treatment plan was not clear	1 (4.3)
Nicotine patches were not appropriate	1 (4.3)
Not convinced about nicotine patches	1 (4.3)
Duration of prescribed drugs	1 (4.3)

Table 8: Participants' responses about applying 5A's strategy in the smoking cessation clinic (*n*=340)

Participants' responses about the application of 5 A's strategy in the smoking cessation clinic	*n* (%)
At your last clinic visit, did the health care provider ask you if you are a smoker?	
Yes	276 (81.2)
No	64 (18.8)
Have you ever been advised to quit smoking by health care provider?	
Yes	217 (63.8)
No	123 (36.2)
Did the health care provider ask you about your interest in quitting smoking?	
Yes	190 (55.9)
No	150 (44.1)
Did the health care provider talk with you about how to quit smoking?	
Yes	201 (59.1)
No	139 (40.9)
Did the health care provider suggest a follow-up visit or phone call about quitting smoking?	
Yes	141 (41.5)
No	199 (58.5)

94%) of our participants reported previous attempts of smoking quitting, and even almost half of them tried more than twice, indicating that the clinics contribute to the tobacco control efforts in the country and may decrease the health burden of tobacco smoking. This rate is also higher compared to previous similar studies conducted in Bahrain (56.5%), China, and Jordan.[24,26,38] This high quitting attempt observed in Saudi Arabia was explained in a previous study by the increase in Saudi smokers' desire to quit smoking as they became more aware of smoking cessation clinics, supported tobacco product taxes, and implemented strict smoking indoors rules.[39]

According to the current study, most people who attended the SC clinic were satisfied with both the medical staff and the support they received to stop smoking. A local study published in the Eastern Region reported an equivalent finding.[22]

Reasons for noncompliance with SC clinics in the current study were mainly provided treatment, availability of appointment, and physician knowledge and attitude. Based on a previous Saudi study, physicians' knowledge about SC counseling was lacking, but their attitudes and practice level were above average.[40] More than half of the physicians in another study conducted in Riyadh were not enrolled in an educational program on SC in the previous year. Yet, most of them had a favorable attitude and practice with respect to SC.[41]

The current study's results can help fill the literature gap regarding assessing smokers' satisfaction with the assistance and services delivered by SC clinics in Riyadh, KSA. Additionally, health care policymakers may find this study beneficial in encouraging these clinics and boosting their productivity.

Limitations

The study's primary drawback was that it was only conducted in one region in the Kingdom, which may have affected how broadly the findings could be applied. Additionally, the study's cross-sectional design only supports association, not causality, between the dependent and independent variables.

Conclusion

A significant part of SC clinic attendees in the present study were satisfied with the provided services, exceeding three-quarters of them, while half were completely satisfied. However, the reasons for noncompliance with such clinics were mainly treatment provided, appointment availability, physicians' knowledge, and attitude. SC clinics in Saudi Arabia should consider reasons for noncompliance with the services offered. And a program for improving the client's satisfaction and services should be applied. Future studies may assess the determinants of noncompliance with such services, including the clients' demographics and smoking patterns.

Abbreviations

- CDC Centers for Disease Control and Prevention
- SC Smoking Cessation

- USPSTF United States Preventive Services Task Force
- KFMC King Fahad Medical City
- SD Standard Deviation
- FTND Fagerstrom Test of Nicotine Dependence
- GATS Global Adult Tobacco Survey
- SPSS Statistical Package for the Social Sciences
- χ^2 Chi-squared test.

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Conflicts of interest

There are no conflicts of interest.

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