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Stages of change, smoking behavior and acceptability of a textmessaging intervention for tobacco cessation among cigarette, dokha and shishasmokers: A qualitative research study

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ABSTRACT

Objectives To explore: (A) the underlying motivators and barriers to smoking cessation among young Arabic speaking smokers and (B) to examine the suitability and preferences for tobacco cessation interventions (specifically text messages) and study the possibility of enrollment methods for a randomised controlled study using text messages as an intervention for tobacco cessation.

Design Qualitative research using focus group discussions and content analysis.

Setting(s) Two universities, one of them is the first and foremost comprehensive national university in the United Arab Emirates (UAE). The third setting is the largest hospital in the UAE and the flagship institution for the public health system in the emirate of Abu Dhabi.

Participants Six focus group discussions with a total of 57 participants. Forty-seven men and 10 women. Fifty-three of them were current smokers.

Results The analysis of six focus groups was carried out. Main themes arose from the data included: preferences for tobacco cessation interventions and acceptability and feasibility of text messaging as tobacco cessation intervention. Different motives and barriers for quitting smoking including shisha and dokha were explored.

Conclusion Interventions using text messaging for smoking cessation have not been used in the Middle East and they could potentially be effective; however, tailoring and closely examining the content and acceptability of text messages to be used is important before the conduction of trials involving their use. Social media is perceived to be more effective and influential, with a higher level of penetration into communities of young smokers.

Strengths and limitations of this study

- This study is the first study in the Middle East region that explored text messaging intervention's acceptability and feasibility among dokha and shisha smokers.
- This study assessed tobacco smokers' preferences of cessation techniques including re-emerging tobacco use patterns such as dokha and shisha.
- The findings of this study will assist in tailoring and examining the content and acceptability of text messages to be used in tobacco cessation intervention among young dokha and shisha smokers.
- Limitations included the small number of focus group discussions.
- Selection bias have been encountered due to the fact that the smokers seen in the healthcare setting (Shaikh Khalifa Medical City) were already experiencing smoking and might have more awareness of the smoking negative effects as they have been exposed at least once to antismoking awareness activities by healthcare providers.

INTRODUCTION

Tobacco is a major risk factor for mortality producing 9% of total deaths in the world[1]; the negative health effects of tobacco and its alternatives are well documented.[2 2–9] Alternative forms of tobacco are well known to be used in the Middle East (ME) among younger adults such as 'shisha' or 'waterpipe'.[10–12] Another alternative form that has increasingly gained popularity in the region is 'dokha' or 'midwakh'.[13–15] Dokha smoking is not a new phenomenon in the ME region, specifically in the United Arab Emirates (UAE); Bedouin and sailors in the UAE have traditionally used it[15]; however, this phenomenon is re-emerging with an increased popularity among younger adults.

In the UAE, the prevalence of current tobacco smoking is 20.5%.[1] In the UAE, it

was found that dokha smoking has become the second popular form of tobacco smoking following cigarettes.[16] Smoking levels in UAE men (mainly cigarette and midwakh) are about 28.1% and 2.4% in women (WHO).[2] It has been reported by some studies that this trend will be transferred to other parts of the world including Europe and USA as a result of the use of technology and globalisation.[17 18] As a result of this increasing trend, new tobacco cessation interventions tailored for these smokers are urgently needed, especially that existing ways of helping people to stop tobacco use are perceived by many smokers as very costly or ineffective.[19]

Although many smokers successfully quit unaided, a Cochrane review presented evidence that many smoking cessation interventions are effective and increase chances of successful quitting.[20] Many smokers who want to stop smoking engage in quit attempts; however, they are unsuccessful in their attempts to quit smoking on their own. Many young UAE smokers are willing to quit but most do not use existing smoking cessation services, such as medication therapy and counselling.[21] A review of studies (n=12 studies) of mobile phone-based tobacco cessation interventions showed that primarily SMS-based interventions were effective in helping people quit smoking (Relative Risk (RR)=1.67; 95% CI 1.46 to 1.90)), with interventions involving biochemical verification showing the best results (RR=1.83, 95% CI 1.54 to 2.19).[22] Another review of studies (n=5 studies) conducted by Ybarra *et al*[23] looked at quit rates across several countries and found that 7-day continuous abstinence at 4 weeks post-SMS intervention was greater in the intervention versus control participants (absolute RR=2.34, 95% CI 2.12 to 2.58) after adjusting for demographic characteristics. While the reviews of SMS-based smoking cessation interventions were generally positive, it is important to note that the content of the messages and frequency is key to the intervention success. All of the intervention components addressed participants' intention to quit, were highly personalised and linked participants to existing helpline and nicotine replacement therapy.[24 25]

There is a global recognition of the effectiveness of mobile phones in the control of non-communicable risk factors including smoking.[26 27] The WHO/International Telecommunication Union (ITU) mHealth Initiative for NCDs is considering text messages as a cost-effective technique that can be widely used to tackle tobacco epidemic worldwide.[28]

Previous studies have found that irrespective of income personalised text messaging programmes can be an effective tool for smoking cessation.[29 30] In a randomised control trial in the UK, participants who received supportive cessation messages via text were two times more likely to maintain their quit smoking status than the control group.[31] Previous studies on the use of technology to assist with smoking cessation have largely been carried out in North America and Europe.[30 32] However, these studies looked at this technology impact on conventional cigarette smokers not dokha and shisha smokers. The impact of technology-based cessation interventions in the ME where dokha and shisha are more prevalent is unknown. New tobacco cessation programmes that aim to support and assist dokha/shisha smokers in their attempt to quit tobacco smoking among the UAE population is needed.

This study aimed to uncover underlying motivators and barriers to smoking cessation among young Arabic speaking smokers and to test specific message content for clarity and resonance with the intended audience and to explore young adults' preferences of cessation techniques including the use of social media and other new communication modes. The evidence of the acceptability and feasibility of text messaging interventions to reduce smoking behaviour is well established among cigarettes smokers. This study is the first study in the ME region that explored this intervention's acceptability and feasibility among dokha and shisha smokers. This study is part of a larger study that aims to investigate the effect of a text messaging intervention tailored for cigarette, dokha and shisha smokers.

METHODS

The study was conducted between October 2016 and June 2017 using focus group discussions.[32] Purposive samples of participants for focus groups were recruited through New York University Abu Dhabi, United Arab Emirates University and Shaikh Khalifa Medical City (SKMC). Six focus group discussions (57 participants) were moderated by a qualitative research expert and an observer and used a generated topic guide which explored topics such as tobacco cessation motivators and barriers.

Text messages were in the Arabic language. The content of text message was based on theories of smoking cessation and behaviour change, perspectives on change model, previous research and qualitative work with smokers.[33–36] Focus group participants were asked to comment on the messages clarity, understandability and supportiveness to quit smoking, based on which stage of behaviour change they fall. They were also asked to identify messages that were considered potentially problematic. All participants gave a written informed consent before participating in the study.

Purposeful sampling was used; participants who are former/current smokers were selected as they can best engage in tobacco cessation discussion and answer questions pertaining to their own experience.

The focus group discussions were conducted for 45–60 min. An audio recorder was used to record each session, and transcription was done verbatim and then anonymised. Data saturation was achieved on finishing the sixth focus group discussion, no new themes emerged and redundancy was achieved. Participants were not mentioning new information and categories guided by the theoretical framework (transtheoretical model (TTM)) were prominent and framed.

Data analysis

The data generated from the group discussion revealed different concepts and themes related to smoking as most participants were current smokers and using different forms of tobacco. This resulted in rich information that required deep analysis. The main aim is to organise and elicit meaning from the data collected and draw realistic conclusions. Content analysis was thought to be a suitable technique for data analysis because of its flexibility in addressing an inductive or a deductive inquiry.[29 30 37] Content analysis also is helpful in addressing complex phenomenon that has a range of meanings and involved behaviours such as smoking, especially here when participants smoke different types of tobacco (cigarettes, shisha and dokha). Since the study used the TTM as a theoretical framework, a directed approach was used adhering to the naturalistic paradigm. Transcripts were analysed by frequent reading cycles and codes identification. Categories were then generated and codes were grouped into them. Major and minor themes were developed, and all researchers agreed on them. Patterns were looked at within and between major themes to reach a meaningful conclusion. Analysis involved the use of NVivo 11, which helped in organising the data generated (codes). The software facilitated the retrieval and categorisation of codes into themes patterns.

Theoretical framework

The TTM behaviour change was used as a guide for text messages development.[30] The stages of change model is very useful in guiding studies involving selecting appropriate interventions. By identifying a participant's position in the change process, investigators can tailor the intervention using text messages developed for each stage (see table 1); the table presents examples of text messages developed for each stage of change; local cardiologists and psychologists (experts) helped in the development of messages.

Young adults considering serious behavioural change like tobacco cessation require an intense and specifically tailored techniques to aid in the process.[33 34] The stages of change model provides a framework to base smokers who want to quite in to different stages. Resistance may appear if interventions did not consider the model in their design.[35] Using the TTM when designing interventions proved to increase the likelihood of behaviour change, especially with tobacco cessation.[36]

However, there has been no study conducted using this model on designing interventions for shisha and dokha smokers. This study was therefore conducted to evaluate TTM-based text messages designed to help cigarette, shisha and dokha smokers to quit smoking. Each text message was designed to anticipate the participant's move along the stages of change.

Thus, the goal of the focus group discussion is to help in the evaluation of each text message and to anticipate the participant's move along the stages of change.

RESULTS

Focus group participants included students or staff members from UAE University, New York University Abu Dhabi and patients at the SKMC smoking cessation clinic who are native Arabic speakers, own a mobile phone and whom are potential users (current smokers who wish to quit or whom are former smokers who quit in the past). This provided insight to cultural aspects, user preferences, user needs and local language (see table 2).

The analysis of transcripts from the focus group discussions revealed five themes: (1) barriers to quitting, (2) motives for quitting, (3) preferences for tobacco cessation interventions, (4) acceptability and feasibility of text messaging as tobacco cessation intervention and (5) preferences for study recruitment and retention methods.

Barriers to quitting

Perceived smoking as a tool for stress management

Smokers identified stress as a major factor contributing to their smoking initiation and continuation. Many male students believed that increasing smoking was precipitated by a stressful event such as exams periods. Three participants from the same discussion group reported that smoking helped them during exam periods to cope with heavy study load. The participant explained 'When I'm headed off to class, if I have a tough course exam, I know I'm going to be stressed out, I try to calm myself down, I smoke midwakh which makes me feel better and relaxed, ….it is magical'.

Dokha is a better concentration/mood enhancer than cigarettes and shisha/hookah

Other smokers were convinced that smoking dokha positively improve mood and performance as it enhances concentration. A student said 'I always smoke before classes begin to increase my attention and focus on new tough subjects, cigarettes doesn't give this effect'. Another student said, 'smoking midwakh before training or matches improves my performance …. deep inside I believe it is just psychological…. hahaha… what matter that I perform well'.

Lack of supportive environment and peer pressure

The environmental support is also a major influencer of smoking cessation. Some participants stated that 'despite having the needed support from the family,… social gatherings where all friends are smokers continue to make quitting extremely difficult'.

Social relationships, networking and peers pressure were identified as major barriers for smoking cessation. Many of the participants admitted that their social environment plays a major role in keeping up this bad habit. A participant stated that 'I tried several times to quit smoking but because of my fellow workers who also smoke I was not successful, as soon as I smell the smoke I crave for one….'.

Lack of awareness and disbelieve in quitting techniques

Many participants either lack awareness about available supporting resources for quitting or disbelieved in them.

Table 1 Stages of change model and text messages

Message no.	Stage in transtheoretical model of change	Patient stage*	Message content
1.	Precontemplation	'Not thinking about change'. 'Feeling of no control'. 'Denial: does not believe it applies to self'. 'Believes consequences are not serious'.	We know it is hard, but it is a decision you will not regret. Keep getting the support you need and remind yourself of your smoke free reasons.
2.	Contemplation	'Weighing benefits and costs of behavior, proposed change'.	Nervous about quitting? Stick with us and you will not have to rely on willpower alone. We will show you HOW to quit–1 craving at a time. We will help you break unhelpful habits and teach you how to understand how to create more positive, helpful habits.
3.	Preparation	'Experimenting with small changes'.	Tell a friend! Try quitting with someone. You will have a friend to talk to about how you feel and this support will help keep you on track.
4.	Action	'Taking a definitive action to change'.	Counselling and medications can increase your chances of quitting. Talk to your doctor about the best options for you.
5.	Maintenance	'Maintaining new behavior over time'.	Remember to pay attention to smoking – the taste, smell, touch, temperature. The more you do this, the more you are being conscious. When we smoke, we usually do it automatically. Paying close attention can help us realise that it is not as nice as we once thought or that we are only smoking out of habit – like with a cup of tea or coffee. Keep doing this and see what you notice about smoking and your triggers.
6 & 7	Relapse	'Experiencing normal part of process of change'. 'Usually feels demoralised'.	What makes you want to smoke? Stress? Boredom? Do you smoke after a good meal or when you are talking on the phone? Write down your top three smoking triggers. Knowing your triggers is the only way to avoid them and work through them! Next time you have the urge to smoke, try and resist for 5 min. Stop and notice what thoughts are going through your mind and what feelings you have in your body. Often, our minds tell us that we need to smoke, that we will not be able to cope if we do not smoke or that we will not enjoy our time. This is just a habit our brains have gotten into and are not facts – you can cope without smoking and you will enjoy yourself. You may notice tension in your body, try and notice and relax yourself. The more you face these times with a gently awareness, the more you can take control and not allow smoking to control you. Or skip the cigarette entirely. Think of it as practice for quit day! Take it one step at a time and try not to be hard on yourself – encourage yourself.

*Patient stage was adopted/quoted from Knodel, 1995; Erol *et al*, 2008 and Krippendorff, 2004.[32 36 37]

Table 2 Participants' characteristics

Characteristics	N (%)
Gender	
Male	47 (82.5)
Female	10 (17.5)
Nationality	
UAE national	40 (70)
Non UAE national (Arab)	17 (30)
Education	
Primary	1 (1.8)
Secondary	10 (17.5)
Tertiary	46 (80.7)
Employment	
Working	5 (8.8)
Not working (students)	52 (91.2)
Smoking	
Current	53 (93)
Daily	40 (75.5)
Weekly	7 (13.2)
Occasionally	6 (11.3)
Former	4 (7)
Type of tobacco	
Cigarettes	50 (94.3)
Shisha	3 (5.7)
Midwakh	40 (75.5)
Cigar	2 (3.8)
Chew	0
Combined (all types except chew)	53 (100)
Living with smoker(s)	
None	4 (7)
Yes, smoked outside home	2 (3.5)
Yes, smoked inside home	51 (89.5)
Secondhand smoke (SHS) exposure at workplace/college	
None	7 (12.3)
Exposed	50 (87.7)
SHS exposure at other places	
None	2 (3.5)
Exposed	55 (96.5)
Phase of smoking cessation (smokers 53)	
Precontemplation	31 (58.5)
Contemplation	11 (20.8)
Preparation	6 (11.3)
Action	1 (1.9)
Maintenance	4 (7.5)
Attempts to quit	
Never	42 (79.3)
1-3	3 (5.7)
>3	8 (15)
Motives to stop smoking	
Health concern	23 (40.4)
Damages health of others	11 (19.4)
Poor example to children	10 (17.5)
Economic	1 (1.7)
Bad habit	2 (3.5)
Bad smell	2 (3.5)
No motive	8 (14)

UAE, United Arab Emirates.

Many participants never knew about the availability of smoking cessation clinics or cessation interventions such as nicotine patches or gums. A participant stated that 'do we really have such clinics and doctors who can help smokers to quit?…. I don't believe that'. Others who used cessation interventions like gums and patches did not recommend them. Participant said, 'I used both gums and patches… none of them worked, the gums actually made me feel nauseous…they don't work'. A third participant believe that cessation clinics and interventions are designed for cigarette and more suitable to it, but they are not influential in the case of dokha or shisha: 'dokha and shisha have more concentration of tobacco and other stuff… I don't think using gums or patches will affect my crave… my friend was using the patch and kept smoking, it has no effect on him'.

Perceived higher addiction to dokha than cigarettes or shisha

Some participants who used the three forms of tobacco smoking (cigarettes, shisha and dokha) argued the addiction level to each form. They strongly believed that dokha was the most addictive form as one need to take to buffs only to feel dizzy. In addition to that, they believed that the herb mix that is burned in the pipe along with the tobacco (dokha mix) is the main cause of the strong addiction. A participant said: 'I used to smoke cigarettes and shisha, both are addictive but not as high as midwakh…. in two buffs only you will feel high (dizzy)… this what makes it very appealing to young adults… and quitting it is extremely difficult'. A second current smoker said: 'the stuff we buy to put in the pipe is the key to addiction…a good stuff will make you dizzy faster'.

Motives for quitting

Health concerns

Health concerns and health condition of smokers were among the strongest motivators for quitting. Although our participants were young, they all expressed worries about smoking related diseases. A former smokers reported that deterioration of his breathing status obligated him to quit.

Table 3 Participants feedback on text messages contents

Response	Message 1	Message 2	Message 3	Message 4	Message 5	Message 6	Message 7
Positive		Shows some support to some extent.	Good advice.	Adding information about quitting techniques. Brief.	Has clear instructions. Should be used in conjunction with message 2. Adds some information.	Good to remind you stop and analyse your unique motives.	
Negative	Not strong. Does not show any support. Very general and vague. Has no effect. Unreliable. Has no point. Lack focus.	The introduction is like an advertisement. Offensive 'who are you to tell me'. Should be preceded by an introduction of who you are?	Friend is not suitable; family member is more suitable.		Reminds about pleasure of smoking. General and vague. Long and boring.		Too long; must be summarised. Has no focus.

He said 'I was playing basketball in the college team and I was smoking midwakh frequently, around 5–10 times a day, but I started having shortness of breath while training and I feel easily tired and nauseated… so I had to quit to keep my health'.

Another motive was having a close relative who was dealing with negative health effects from smoking. A participant reported that after seeing his father suffering, he immediately gave up smoking because he does not want his kids to suffer from his illnesses or he is afraid to be a bad role model for his kids: 'I immediately gave up smoking after seeing my dad in the ICU suffering from heart failure and at the same time craving for a cigarette to smoke, this made me decide to quit smoking for good, I never went back to it despite many temptations'.

Cost

According to the smokers, the high cost of cigarettes, shisha/hooka and dokha is a discouraging factor to continue smoking. The rising price of tobacco was a concern for many participants as most of our participants were students; they had to buy cigarettes from their monthly allowance, which was limited. This have pushed many of them to stop smoking:

'Cigarettes and shisha/hooka are very expensive. Sometimes I had to lie in order to get extra money from my parents especially if I spent all of my monthly allowance before the beginning of the month, I hate that…'. Another participant said, 'the tobacco mix which I smoke in my midwakh is expensive…there are many kind of mixes…none is cheap'.

Rewards and incentives

Some of the current smokers expressed their willingness to quit smoking if they were given incentives or rewards. Some of the participants preferred rewards such as adventure trips or offers for group activities such as bowling, billiard or video games as these activities can distract their cravings for smoking. A participant said, 'I would definitely not think of smoking if me and all my friends were bowling or surfing…. I might not smoke for hours because of fun'. Another female participant said, 'If I will be giving up smoking…the reward has to be big…like iphone seven or maybe a new car…. otherwise I won't give up smoking'.

Preferences for tobacco cessation techniques

Most dokha smokers disbelieved in most tobacco cessation techniques. The main reason behind that they think that dokha is highly addictive, and these methods are conventional and could be more successful with other forms of less addictive tobacco such as cigarettes or shisha. A participant said, 'the gums or patches or even tablets are not beneficial,… they are a waste of money and gives false hope…. especially with us who smoke midwakh, these look like cookies… they don't work with such a strong addiction'. Another dokha smoker said, 'I think these methods could work with cigarettes but not midwakh'.

Pharmacotherapy (gum/patch) was not favoured by most of our participants. A combination of pharmacotherapy and cognitive–behavioural counselling was seen as superior to using medications. Few participants reported using pharmacotherapy. One participant said, 'I used nicotine gum and patches….they are useless….I used to do them and keep smoking'. Other participant said, 'when using them (medication), it made me crave more for smoking… I smoke excessively while using them'. A former smoker reported using both techniques and being successful in quitting smoking, he said. 'seeing the doctor and talking to him made me hold on my decision to quit…. He (doctor) prescribed some products which helped me in my journey, however, without his guidance it would not be as beneficial as it can be alone'.

Participants who had quit or attempted to quit smoking described various methods they used to quit. Different factors/reasons arise and circumstances change forcing a decision to be made. Occasionally, participants mentioned contemplation for quitting, but they were hesitant about setting a quit date they had to have a strong trigger to push them for setting an immediate start of stopping smoking.

Only one smoker stated that he actually planned quitting and was preparing himself for that. Another case was the smoker who had to quit smoking because he was undergoing a bariatric surgery.

One of the smokers had a baby and experiencing fatherhood was a major trigger/motive to rethink of his bad habits including smoking: 'I started questioning myself about the reason of my smoking. I did not want to harm my son…'.

Acceptability and feasibility of text messaging as a tobacco cessation intervention

The majority of participants did not think text messaging would be an effective channel to use to support smoking cessation efforts. This was rooted in several reasons. For example, many participants described their habit of ignoring and deleting text messages from their phones. A participant said, 'I never read text messages coming to my phone, even the important ones… like bank or telecommunication bills…. I just delete them all to empty my inbox'. Another participant said, 'text messages usually include bills or bank transactions…nobody is interested in that'. Others thought that text messaging is not very technologically advanced, especially when challenged with dokha smokers it was seen as too conventional and an intervention using smartphones could use other features such as social media apps (eg, Snapchat, Instagram or Facebook) or videos instead of texts would be more favourable by younger adults. 'Nobody reads text messages now… everybody has an Instagram, Snapchat and Facebook account…. all my friends use them'. Some participants doubted the success of text messages and thought it could have an opposite effect. One participant said that, 'receiving regular text messages about smoking cessation is risky, it might cue the individual to think about smoking when they were trying to put it out of their mind'.

Few participants (n=2) welcomed the idea of using text messages as an intervention technique for quitting smoking. They suggested the use of religious quotes as messages. One participant stated that, 'I think text messages might work if religious quotes were used…. another thing to do is to personalize the messages… for example put their names as dear ____ before the message text to add warmth and trust'.

They also discussed the timing of text messages; they thought the text messages maybe effective if it was sent early in the morning to make smokers put smoking off for the rest of the day. A participant stated, 'I crave for a cigarette early in the morning, if I receive the message in the afternoon, it will be worthless'.

Participants reviewed sample messages provided in both Arabic and English. They were asked to share their initial thoughts about the message effectiveness, appeal and appropriateness for a text-messaging intervention (table 3). The messages were met with mixed results; there were an equal amount of positive and negative reactions from participants. Some participants found a few of the messages to be offensive, while others lacked a clear focused message and were therefore confusing. However, some participants thought that some of the messages could provide helpful information for someone seeking to quit smoking.

Preferences for study recruitment and retention methods

Participants were asked to give their opinions on recruitment and retention methods for an interventional study that involve sending text messages to participants and following up them after they had made a choice to quit smoking. We asked questions such as: (1) do you think text messaging is an attractive intervention for potential participants?, (2) what methods we should use to communicate information/advertise about the study? and (3) how do you think we can keep participants involved and retained in the study?[4] What would keep you in a 6-month-long text, picture and video messaging smoking cessation programme? Participants mentioned multiple recruitment methods including using social media applications and forming collaborations with community organisations. For those participants who reported on it, using Facebook and snapchat/word-of-mouth was a very effective means of recruitment. For retention of study members, many participants reported that frequent contact with them is the key for retention.

DISCUSSION

This study looked at the perceptions/attitudes of young smokers about quitting motivators and barriers of different types of tobacco including dokha and shisha. It also explored their perspectives and views on the wording, content and delivery style of cessation text messages that may have an influence on the acceptance of this kind of interventions in the future.

This study demonstrates that quitting smoking is a multidimensional and complicated issue involving social, individual lifestyle and socioeconomic factors. Barriers that prevent individual from quitting smoking include stress, habit, social acceptability of smoking, lack of support to quit and lack of access to quit resources, stressful life factors, cultural norms and socioeconomic disadvantage were commonly reported in different studies.[38–41] In this study, stress management was the most frequent reason mentioned by different participants. This was accompanied by the habit of smoking and perceived addiction status (participants perceived themselves as addicted to tobacco and anticipated difficulty to quit and less likely to engage in quitting attempts as these attempts were expected to be unsuccessful). The stress management was considered as a great barrier when discussing quitting smoking especially dokha. Most current dokha smokers thought that they will struggle to manage their stress and anticipated failing a cessation programme. Moreover, dokha was considered to be a focus enhancer and highly addictive by many students. Smoking serves as an idiom of distress as well as an opportunity to bond socially with another who feel stressed.[41]

The global increase in the prices of tobacco was mentioned by many of our participants as a motivator to quit smoking. The price of dokha varies and could be very high to the extent that students cannot afford. Price increases, usually via taxes, have been shown in many studies to be an effective method to deter young people from smoking.[42] Another strong motivator was concern about health effects; all participants in our study acknowledged the negative health effects of smoking. A study done by Sieminska *et al* similarly found that healthrelated concerns were a common motivator for quitting smoking in addition to occurrence of a family member's illness and concern about family members' health.[43–45] Many participants commented on the usefulness of tobacco cessation interventions offered by the government health sector such as tobacco cessation clinics. Many thought that it was not effective and it offers no help.

The study also found that text messaging was viewed as an outdated approach to motivate current smokers who are considering quitting in the near future. Mobile technology usage in the UAE has grown in the past decade. Since 2014, the number of smartphone users has increased by 1 million people to reach 4.1 million in 2018.[24] Mobile phone and more specifically smartphone users in the UAE most often use this technology to access the internet. As a result, users of this technology are turning towards more interactive forms of media consumption, which includes many forms of social media. In 2018, the most widely accessed social media platforms among UAE smartphone users were WhatsApp, Facebook and YouTube.[24] Therefore, smokers who are willing to quit may find enhanced support via more interactive media such as social media platforms rather than text messaging.

Dokha smokers doubted its effectiveness, as dokha was perceived to be more addictive and text messaging is very conventional technique. Social media (eg, Facebook, Snapchat and Instagram) was perceived as more influential. One major strength of social media over text messaging was mentioned as the use of audio and visual material when challenging the use of more highly addictive forms of tobacco such as dokha.

Our study used the stages of change model to guide the development, use and analysis of the text messages intervention. From the analysis, it was clearly shown that many of our participants were in the precontemplation and contemplation stages except for the participants who were recruited from the cessation clinic at SKMC. Miller *et al* reported that empathetic communication was linked to reduced drinking among 'problem drinkers', while a confrontational communication had a negative influence and was linked to increased drinking.[46] Similarly, among our study participants, there was a perception that some messages were overly directive and ultimately offensive. The way text message content is tailored directly affects participants' acceptance and willingness to change. A study done by Naughton *et al*[47] reported that pregnant women preferred personalised text messages (their names were added to the text). In our study, it was perceived that individually tailored text messages that are closely related to the individual's circumstances were more regarded by participants and less likely to be ignored or overlooked.

LIMITATIONS

One of the limitations of this study is the small number of focus group discussions. However, saturation was reached; selection bias might have been encountered due to the place of recruitment (SKMC Smoking Cessation Clinic). The selection bias have been encountered due to the fact that the smokers seen in the healthcare setting (SKMC) were already exposed to smoking cessation initiatives by the healthcare settings. Moreover, these participants might have been more aware of the smoking negative effects as they have been exposed at least once to antismoking awareness activities by healthcare providers.

CONCLUSION

Smoking cessation text messaging interventions have proven effective as a means to provide low-cost support to smokers seeking to quit. Since social media is already used by many people, it has the potential to increase the accessibility, interaction and engagement with tobacco cessation programmes and initiatives. Interventions using text messaging for smoking cessation have not been widely used in the ME and they could potentially be effective; however, tailoring and closely examining the content and acceptability of text messages to be used is essential for the success of these trials.

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