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ORIGINAL ARTICLE

Current Tobacco use, Anti-smoking Campaigns, and support Available for Smokers in Jordan

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ABSTRACT

To assess support available for smokers in Jordan. To assess prevalence of second hand smoking (SHS) in closed areas and in public places. To assess compliances with smoking advertisement ban in Jordan. This national project was a cross-sectional study on adults aged 18 to 79 and conducted in five governorates in Jordan. Study questionnaire was based on the Global Adult Tobacco Questionnaire (GAT) and data was collected through face-to-face interviews between July 2014 and December 2014. A total of 874 participants with mean age of 33.9±13.3 years were interviewed Cigarettes smoking rate was 59.1% amongst males and 23.3% amongst females, while the hookah smoking rate was 18.9% amongst males and 23.1% amongst females. Nearly two-thirds of our sample had tried to quit (69.0%). The most commonly reported reasons for failure to quit or relapse: withdrawal symptoms, lack of support, pressure from friends, and coping with stress. Only 7.5% of regular smokers reported having received advice from health professionals about smoking. There was a high rate of smoking at home and at close worked areas. 72.5% of participants reported that someone smoked in closed areas at work in the last 30 days. A large proportion of study participants noticed smoking-related health promotion activities (86.8%) in the media or in other places. On the other hand, 39.9% of females and 45.1% of males reported seeing information in the media or public places encouraging smoking. This study provides the first published quantitative evidence from Jordan on the poor compliance with smoking cessation laws in closed workplaces and in public areas. We strongly recommend revising anti-smoking laws and their application in Jordan. There is a need to provide more support to smokers to enable them quitting. Active involvement of health care professionals in future anti-smoking programmes is also recommended.

Keywords: SHS, Tobacco, Anti-smoking

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INTRODUCTION

Smoking has become epidemic in many countries in the world [1]. In Jordan, recent figures indicate that cigarettes and hookah-smoking rates are increasing. A national survey published in 2014 showed a high overall smoking prevalence (32.3%; 54.9% males and 8.3% females) [2]. Results from universities also support these findings and raise an alarm on the growing burden of hookah smoking in Jordan [3].

Since late 1990s, Jordan has adopted several strategies to control smoking (e.g. general ban on tobacco advertisements, raising public awareness about smoking hazards) [4]. In 2008, the government

prohibited smoking in all public facilities including hospitals, health care centres, schools, cinemas, theatres, libraries, museums, public and nongovernmental buildings, public transport vehicles, airports, closed playgrounds, and lecture halls [5]. Unfortunately, the compliance with these laws is limited and the enforcement of the law is extremely poor in most locations, including health care settings [6].

Advertising of tobacco products can promote smoking behaviour, particularly amongst young age groups [6]. Therefore, it is essential to have total bans on tobacco advertising and tobacco industry-sponsored events. Although these bans have existed for more than 10 years 6, assessment of compliance has not yet been conducted.

World Health Organization (WHO) initiated different strategies to control tobacco across the world. These include regulation of the market, litigation and product liability, smoke-free environments, education, public information and support for smoking cessation[7]. However, compliance with smoke-free laws varies between countries 8. E.g. results from China showed the prevalence of smoking in restaurants was highest (89.4%), followed by government buildings (59.6%), health care facilities (38.8%), schools (37.7%) and public transportation (34.4%) [8].

A Cochrane Review reported that doctors' advice to quit smoking increased quit rates significantly (relative risk=1.66) 9. Another study showed the duration of doctors' advice was positively associated with high quit rates 10. This suggests that increasing the frequency and duration of doctors' advice to quit smoking are important actions for tobacco control [10, 11].

WHO recommends that good surveillance of the tobacco epidemic is one of the keys to success in tobacco control programmes [12]. In the current environment of increased smoking in Jordan, it is essential that a number of factors be examined: overall smoking burden, support available for smokers in Jordan, health advice, reasons for failed attempts to quit, compliance with smoking bans at work and in public places, publishing observed rates of smoking cessation in the media and posted in public places and observed compliance with bans on pro-smoking information and tobacco advertising campaigns. This data has not been previously published.

METHODOLOGY

Results published in this paper are based on data collected in the Jordan national smoking study. This national project was a cross-sectional study conducted in five governorates in Jordan: Irbid and Jerash governorates in the north of Jordan; Amman and Zarqa governorates in the middle of the country; and Karak governorate in the south of Jordan.

Multistage sampling technique was used in this study, i.e. dividing the whole country of Jordan into three regions: Southern, Middle and Northern. Cluster sample for governorates was obtained from each region. The main city in each governorate was stratified by socioeconomic status into low, middle and high ranges. Two villages and two towns were selected randomly from each governorate. A random sample was selected from each area.

Eligibility criteria

Inclusion criteria: adults aged 18 to 79 years; speaks Arabic fluently and permanently lives in Jordan. Exclusion criteria: not living permanently in Jordan or has lived in Jordan for less than one year; patients with psychiatric conditions; and those having difficulty in communication or any other medical conditions limiting their ability to complete the survey.

Study questionnaire: The Global Adult Tobacco Questionnaire (GAT) was developed as a standard approach to monitor adult smoking worldwide. [13] The validated Arabic version was obtained with permission for use in this study from the Office of Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Diseases Control and Prevention, USA. We added some questions to the baseline characteristics to cover items such as income, region in Jordan, nationality and medical history. We piloted the questionnaire in study regions on 30 subjects in each region. The questionnaires distributed in the pilot phase were not used in the final analysis.

The questionnaire was divided into six sections. The first section contained baseline information covering demography, educational status, employment, family monthly income, religion and history of chronic illnesses.

The second section covered cigarette-smoking habits. It included items on number of daily cigarettes, age of initiation of daily smoking, reason(s) for smoking, time of day for first cigarettes, previous trial(s) of quitting, reasons for not quitting if participant tried unsuccessfully to quit previously; other questions addressed health advice received, awareness of smoking cessation helpline and awareness of pharmaceutical interventions for smoking cessation. The third section of the questionnaire was on hookah smoking. It covered the same questions included in the second section concerning smoking

habits. The fourth section targeted ex-smokers. It included questions on duration of smoking and reasons for quitting.

The fifth section was for all participants and included questions on knowledge, attitudes and perceptions towards smoking. The sixth section**,** and last part of this survey, dealt with passive smoking including at home, work and public places. It also contained questions on smoking and anti-smoking programmes. It assessed whether or not the participants noticed pro-smoking campaigns in the media or public places during the last 30 days.

In this paper, we are focusing on the second and sixth sections of this questionnaire, since the remaining sections will be published separately.

Ethical approval for conducting this study was obtained from the Central Ethics Committee at the Faculty of Medicine in Mutah University. Regarding confidentiality of the collected data, no personal data (e.g. participant's name, address, telephone number) was reported.

The questionnaire was administered through face-to-face interviews with participants meeting the inclusion criteria and agreement to participate in the study. Interviews were conducted by medical students from the fourth- to sixth-year of their academic study at Mutah University. These research assistants received two lectures on the topic and four training sessions on completing the study questionnaire; the principal investigator conducted all training.

Sample size calculations

Data from Jordan Behavioral Risk Factor Survey, conducted in 2004 and published in 2008, showed nearly 40% of all adults aged 25 years or older reported having smoked at least 100 cigarettes during their lifetime [14]. Age-standardized prevalence of current smoking was 28% with nearly half of men reporting current smoking behaviour compared to 5% of women.

Past 30-day hookah-smoking rates were 59% for males and 13% for females [3]. Therefore, a sample size of 385 males and 196 females at 95% significance level and 5% error margin would be sufficient. Being conservative, the authors agreed on sampling 530 males and 350 females; this allows for subgroup analysis.

Statistical analysis plan

Data analysis was carried out using R statistical analysis software version 3.1.2 [15]. Summary statistics including smoking habits were obtained and reported as necessary. For all performed statistical analyses, a significance level of 0.05 was assumed. The Chi-squared testing procedure was used to test for association between study factors in sections two and six and smoking status for cigarette smokers, hookah smokers, ex-smokers and 'never smokers'.

RESULTS

A total of 874 participants with mean age of 33.9±13.3 years were interviewed between July 2014 and December 2014. Males comprised 60.5% of study participants. Nearly half of the participants (51.1%) were in full time employment, 7.8% were in part-time employment, 24.1% were unemployed, 9.1% were housewives and the remaining 7.8% were retired. Around one-third of the participants were governmental employees and 13.4% were students. Most participants (97.8%) were literate with nearly half of them having completed either university education (41.6%) or postgraduate education (10.2%).

Smoking status of study participants

The overall prevalence of cigarette smoking in our sample (874) was 59.1% amongst males and 23.3% amongst females, while the overall prevalence of hookah smoking was 18.9% amongst males and 23.1% amongst females.

Smoking status of study participants and quit trials are shown in Table 1. The mean number of daily cigarettes for regular smokers was 24±14.3, while the mean number of monthly sessions for hookah smoking was 32.7±18.4 for heavy hookah smokers and 4.3±2.8 for light hookah smokers. Around one-quarter of our sample (28.2%) start smoking within the first five minutes after wakening, compared to 19.8% who start smoking one hour after wakening. Nearly two-thirds of our sample had tried to quit (69.0%). The most commonly reported reasons for failure to quit were: withdrawal symptoms (47.8%), lack of support (14.9%), pressure from friends (13.0%), and other unspecified reasons (23.6%). For smokers who quit and restarted smoking, stress was the most commonly reported reason for relapse (52.7%), followed by pressure from friends (19.4%). Interestingly, 29.2% of hookah smokers preferred to smoke at home, while 22.9% of them preferred to smoke at coffee shops.

Health advice and support to smokers:

Unexpectedly, only 1.9% of regular cigarette smokers and 14.7% of heavy hookah smokers were aware of the national smoking helpline and less than half of them (46.9% of regular smokers and 46.0% of heavy hookah smokers) were aware of smoking cessation clinics (Table 2). Only 7.5% of regular smokers

reported having received advice from health professionals about smoking. Around one-fifth of them (21.1%) reported duration of professional advice of less than two minutes, while 24.4% reported duration longer than ten minutes. Around one-quarter of the regular cigarette smokers (26.1%) reported knowing of pharmaceutical interventions for smoking cessation; electronic cigarettes (45.1%) followed by nicotine gum (30.4%) were the most reported interventions.

Table 1: Smoking status of study participants and quit trials

Question	Category	Cigarette Smokers				Waterpipe Smokers			
		Daily	Percent	Irregu-lar	Percent	Heavy	Percent	Light	Percent
How many you smoke	Mean	24.0 per day		6.74		32.7 per month		4.28	
	SD	14.27		7.72		18.39		2.79	
Time to start smoking after wakeup	31 to 60 min	54	21.8%	1	3.3%				
	6 to 30 min	69	27.8%	3	10.0%				
	in 5 min	70	28.2%	2	6.7%				
	more than 60 min	49	19.8%	21	70.0%				
	No answer	6	2.4%	3	10.0%				
Tried to quit	No	77	31.0%	13	38.2%	35	60.3%	71	57.3%
	Yes	171	69.0%	21	61.8%	23	39.7%	53	42.7%
Why could not quit	because of withdrawal symptoms	77	47.8%	3	15.8%	9	39.1%	16	30.2%
	lack of support	24	14.9%	5	26.3%	7	30.4%	15	28.3%
	Other	38	23.6%	7	36.8%	5	21.7%	13	24.5%
	Pressure from colleagues	21	13.0%	4	21.1%	2	8.7%	9	17.0%
Tried to quit in the past 12 months	No	71	43.0%	7	35.0%	26	65.0%	73	65.2%
	No answer	5	3.0%	1	5.0%	0	0.0%	3	2.7%
	Yes	89	53.9%	12	60.0%	14	35.0%	36	32.1%
For how long you stopped smoking	day	33	21.4%	3	15.8%	8	36.4%	6	10.3%
	less than 24 hours	20	13.0%	0	0.0%	3	13.6%	8	13.8%
	month	68	44.2%	9	47.4%	8	36.4%	32	55.2%
	week	33	21.4%	7	36.8%	3	13.6%	12	20.7%
Have you ever stopped smoking	No	97	40.1%	17	53.1%	24	54.5%	75	64.1%
	Yes	145	59.9%	15	46.9%	20	45.5%	42	35.9%
If yes, why start smoking again	Other	36	27.9%	3	21.4%	0	0.0%	1	3.0%
	Pressure from colleagues	25	19.4%	5	35.7%	17	94.4%	19	57.6%
	stress	68	52.7%	6	42.9%	1	5.6%	13	39.4%
Smoking family member	No	57	23.1%	11	33.3%	12	24.5%	39	32.5%
	Yes	190	76.9%	22	66.7%	37	75.5%	81	67.5%
How you spend on smoking	Mean	66.77679325		19.17931034		32.47826087		16.69911504	
	SD	48.0762813		21.84054845		26.80691381		19.67146908	
Cigaretts: where do you prefer to smoke	at home	31	12.7%	10	30.3%				
	No difference	174	71.0%	11	33.3%				
	Smoking Zones	40	16.3%	12	36.4%				
Nargila: Where do you prefer to smoke	at home					14	29.2%	23	19.7%
	Coffee shops					11	22.9%	30	25.6%
	No difference					19	39.6%	46	39.3%
	Recreation and Excursion settings					4	8.3%	18	15.4%

Smoking in closed places and public places:

As seen in Table 3, there was a statistically significant difference in rules applied at home for smoking in the home by smoking status with significant difference between 'never smokers' and the remaining groups ($P<0.0001$ for all group comparisons). There was also statistically significant difference between regular cigarette smokers and 'never smokers' in allowing smoking in every room of their house/apartment ($P=0.004$).

Smoking policies in closed areas at work showed 43.8% reporting it was not allowed in *any* closed area at work, while 18.2% reported it was allowed in some closed areas. More than one- quarter (28.7%) reported that smoking was allowed anywhere at work. Unexpectedly, 72.5% of participants reported that someone smoked in closed areas at work in the last 30 days. Around half of the participants who visited a healthcare facility in last month (53.5%) reported seeing someone smoking in the facility. Overall, 81.7% of male participants and 76.1% of female participants reported witnessing smoking in closed areas within the last 30 days.

Smoking cessation activities in the media and public places

A large proportion of study participants noticed smoking-related health promotion activities (86.8%) in the media or in other places; this data is shown by gender or smoking status and by promotion site (Table 4). Although 90.4% of regular cigarette smokers noticed health warnings on cigarette boxes during the

last 30 days, only 27.1% of them reported these health warnings encouraged them to think about stopping smoking.

Table 2: Health advice and support to smokers:

Question	Category	Cigarette Smokers				Waterpipe Smokers			
		Daily	Percent	Irregular	Percent	Heavy	Percent	Light	Percent
Medical advice, counciling	No	147	91.9%	17	89.5%	35	92.1%	90	91.8%
	No answer	1	0.6%	0	0.0%	2	5.3%	0	0.0%
	Yes	12	7.5%	2	10.5%	1	2.6%	8	8.2%
Nicotine alternative	No	131	83.4%	16	80.0%	33	89.2%	86	90.5%
	No answer	2	1.3%	0	0.0%	2	5.4%	1	1.1%
	Yes	24	15.3%	4	20.0%	2	5.4%	8	8.4%
Other prescribed drugs	No	149	96.8%	18	100.0%	31	91.2%	87	94.6%
	No answer	2	1.3%	0	0.0%	2	5.9%	3	3.3%
	Yes	3	1.9%	0	0.0%	1	2.9%	2	2.2%
Anything else	No	132	87.4%	16	84.2%	27	90.0%	84	94.4%
	No answer	1	0.7%	0	0.0%	2	6.7%	2	2.2%
	Yes	18	11.9%	3	15.8%	1	3.3%	3	3.4%
Aware of quitting centers	No	130	53.1%	11	33.3%	27	54.0%	71	58.7%
	Yes	115	46.9%	22	66.7%	23	46.0%	50	41.3%
If yes, will you go?	No	136	56.9%	26	78.8%	38	79.2%	81	68.1%
	Yes	103	43.1%	7	21.2%	10	20.8%	38	31.9%
Know medications to quit	No	180	73.9%	29	96.7%				
	Yes	63	26.1%	1	3.3%				
Mension medications	Champex	3	6.1%	0	0.0%				
	Electronic Cigarete	20	45.1%	1	100.0%				
	Gum	23	30.4%	0	0.0%				
	Nicotine patches	5	10.1%	0	0.0%				
	No I do not know the names of these drugs	4	8.2%	0	0.0%				
Did you use it	No	50	75.8%	3	100.0%				
	Yes	16	24.2%	0	0.0%				
Got medical advice	No	144	62.3%	19	57.6%				
	Yes	87	37.7%	14	42.4%				
If yes, for how long	<2 min	19	21.1%	4	26.7%				
	>10 min	22	24.4%	2	13.3%				
	2-5 min	35	38.9%	8	53.3%				
	6-10 min	14	15.6%	1	6.7%				
Smoking quit line	No	154	97.5%	19	95.0%	27	79.4%	89	97.8%
	No answer	1	0.6%	0	0.0%	2	5.9%	1	1.1%
	Yes	3	1.9%	1	5.0%	5	14.7%	1	1.1%

Pro-smoking promotions in the media and public places

Participant awareness of advertisements in the media or public places to encourage smoking is shown by gender and smoking status (Table 5). Overall, 39.9% of females and 45.1% of males reported seeing information in the media or public places encouraging smoking. Interestingly, there was no statistically significant difference between 'never smokers' and the remaining groups of smokers in reporting seeing advertisements encouraging them to smoke.

Around one-third of participants (29.2% of females and 31.4% of males) reported knowing about pro-smoking campaigns; details are shown by gender and by smoking status (Table 6).

DISCUSSION

Although the government of Jordan adopted various strategies and applied several laws to control tobacco smoking [14], cigarettes and hookah smoking rates are increasing [3]. This study provides the first published quantitative evidence from Jordan on the poor compliance with smoking cessation laws in closed workplaces and in public areas. This study also shows that health care professionals have made minimal contribution to smoking cessation initiatives as indicated by the small proportion of smokers who received advice on smoking cessation.

More than two-thirds of smokers in this study reported failing attempts to stop smoking. This indicates that smokers in Jordan could be motivated to give up smoking but lack the tools to help them do so. The most commonly reported reasons for failing to quit were: withdrawal symptoms, lack of support and pressure from friends. Our results are consistent with those of studies that showed that relief of nicotine withdrawal symptoms was one of the main reasons for continued smoking [16]. Withdrawal symptoms have their highest intensity in the first week after quitting, particularly during the first two days. These symptoms can be controlled by nicotine replacement products [17].

Table 3: Smoking at closed places and public places:

Question	Category	Total	Female	Male	Cigarettes smokers	Hookah smokers	Ex-smokers	Never smokers
Which of the following best describes rules for smoking in your house?	Absolutely not allowed	180	20.3%	23.8%	17.5%	17.5%	19.7%	27.5%
	Allowed	297	37.4%	36.7%	48.2%	50.3%	47.6%	24.4%
	No rules	74	10.6%	8.4%	10.7%	5.6%	9.2%	9.5%
	Not allowed with exceptions	252	31.6%	31.1%	23.6%	26.6%	23.5%	38.6%
	P-value		0.557		0.000	0.000	0.000	
Is it allowed to smoke in every room inside your house?	No	280	57.1%	62.0%	54.4%	51.4%	54.9%	69.4%
	Yes	187	42.9%	38.0%	45.6%	48.6%	45.1%	30.6%
	P-value		0.334		0.041	0.055	0.085	
How Many times some one smokes in your house? on basis of: daily, weekly, monthly, other than monthly, or absolutely never smoke?	Daily	343	63.1%	62.2%	77.4%	68.9%	72.2%	44.6%
	Monthly	22	4.1%	3.7%	2.6%	1.6%	4.4%	5.4%
	Never	71	13.8%	12.5%	4.7%	4.9%	6.6%	22.1%
	Other than Monthly	57	9.2%	11.3%	7.7%	12.3%	8.4%	15.2%
	Weekly	56	9.7%	10.4%	7.7%	12.3%	8.4%	12.7%
	P-value		0.929		0.000	0.016	0.000	
Do you work currently outside your home?	No I do not work	279	50.8%	25.6%	29.9%	32.7%	28.5%	37.1%
	Yes	510	49.2%	74.4%	70.1%	67.3%	71.5%	62.9%
	P-value		0.000		0.011	0.473	0.002	
Often do you work in open or closed areas?	Both	95	12.7%	21.4%	20.2%	23.5%	19.8%	14.1%
	Closed area	291	72.0%	50.7%	48.6%	53.0%	55.0%	70.2%
	Open area	122	15.3%	27.9%	31.2%	23.5%	25.2%	15.7%
	P-value		0.000		0.001	0.317	0.665	
Is there closed areas in your work setting?	No	57	42.1%	50.0%	51.5%	32.0%	50.0%	36.7%
	Yes	60	57.9%	50.0%	48.5%	68.0%	50.0%	63.3%
	P-value		0.704		0.539	0.097	0.936	
Which best describes smoking rules in the work setting?	Allowed in any place	123	26.7%	34.5%	36.8%	39.6%	40.1%	27.8%
	Allowed in some closed areas	78	15.0%	23.0%	22.6%	18.7%	21.0%	16.5%
	Not allowed in any closed area	183	58.3%	42.5%	40.6%	41.8%	38.9%	55.7%
	P-value		0.015		0.070	0.208	0.006	
During the last 30 days; does anybody smoked in the closed areas?	No	92	29.4%	19.3%	19.1%	21.6%	16.6%	23.5%
	Yes	321	70.6%	80.7%	80.9%	78.4%	83.4%	76.5%
	P-value		0.033		0.219	0.952	0.018	
Did you visit and public offices during the last 30 days?	No	266	42.3%	28.5%	29.0%	29.6%	28.8%	36.5%
	Yes	524	57.7%	71.5%	71.0%	70.4%	71.2%	63.5%
	P-value		0.000		0.034	0.240	0.023	
Did you notice any person smoking in the public offices during the last 30 days?	No	66	15.9%	12.4%	12.4%	10.0%	11.0%	16.4%
	Yes	424	84.1%	87.6%	87.6%	90.0%	89.0%	83.6%
	P-value		0.366		0.622	0.293	0.237	
Did you visit any health setting during the last 30 days?	No	378	48.5%	48.6%	49.7%	50.9%	47.9%	47.4%
	Yes	400	51.5%	51.4%	50.3%	49.1%	52.1%	52.6%
	P-value		1.000		0.682	0.559	0.762	
Any persons smoked in the health setting during the last 30 days?	No	148	43.5%	39.5%	37.6%	40.3%	39.6%	40.3%
	Yes	215	56.5%	60.5%	62.4%	59.7%	60.4%	59.7%
	P-value		0.520		0.363	1.000	0.844	
during the last 30 days have you visited restaurants for a meal?	No	212	30.6%	24.3%	26.0%	15.3%	29.3%	29.2%
	Yes	583	69.4%	75.7%	74.0%	84.7%	70.7%	70.8%
	P-value		0.061		0.800	0.000	0.208	
Any one have smoked while you were in the restaurant within the last 30 days?	No	75	15.2%	12.4%	12.3%	10.6%	11.5%	16.9%
	Yes	485	84.8%	87.6%	87.7%	89.4%	88.5%	83.1%
	P-value		0.427		0.632	0.333	0.375	
have you used a public transportation within the last 30 days?	No	281	31.0%	37.7%	41.7%	36.4%	38.6%	31.9%
	Yes	521	69.0%	62.3%	58.3%	63.6%	61.4%	68.1%
	P-value		0.061		0.002	0.743	0.108	
Any one have smoked while you were in a public transportation within the last 30 days?	No	51	13.4%	7.2%	9.7%	5.4%	11.4%	13.2%
	Yes	460	86.6%	92.8%	90.3%	94.6%	88.6%	86.8%
	P-value		0.028		0.984	0.101	0.526	
according to your information and blieves; does inhaling others smoke cause serious diseases for non smokers?	No	33	4.1%	4.6%	5.3%	8.8%	4.8%	2.0%
	Yes	704	95.9%	95.4%	94.7%	91.2%	95.2%	98.0%
	P-value		0.902		0.526	0.005	0.889	
Smoking in public places	No	179	23.9%	18.3%	16.5%	15.7%	16.4%	18.6%
	Yes	695	76.1%	81.7%	83.5%	84.3%	83.6%	81.4%
	P-value		0.053		0.033	0.080	0.031	

Social factors also have an important role in smoking cessation and in relapse [18]. Evidence shows that quitting is difficult in the presence of a social environment filled with smokers [19]. Therefore it is essential to train smokers to cope with peer pressure [20].

Of those participants who had successfully quit smoking,, stress was the most commonly reported reason for relapse, followed by pressure from friends; these reasons were similar to previous studies [21, 22, 24]. Results from Saudi Arabia showed that influence of friends (86.4%) and stressful life events (78.4%) were the main reasons for relapse. Behavioural therapy including stress management sessions have been shown to be effective in supporting smokers [23]. Therefore, this could be applied in control of smoking in Jordan [24].

Table 4: smoking cessation activities in the media and public places

Question	Category	Total	Female	Male	Cigarettes smokers	Hookah smokers	Ex-smokers	Never smokers
during the last 30 days have you noticed information about smoking risks or encouraging to stop smoking? [Newspapers and magazines]?	No	490	65.8%	64.3%	64.7%	63.6%	66.3%	67.1%
	Yes	264	34.2%	35.7%	35.3%	36.4%	33.7%	32.9%
	P-value		0.744		0.995	0.741	0.578	
during the last 30 days have you noticed information about smoking risks or encouraging to stop smoking? [on TV?]	No	432	53.1%	57.0%	52.8%	53.2%	54.8%	57.4%
	Yes	347	46.9%	43.0%	47.2%	46.8%	45.2%	42.6%
	P-value		0.325		0.275	0.562	0.856	
during the last 30 days have you noticed information about smoking risks or encouraging to stop smoking? [on Radio?]	No	568	73.2%	76.4%	76.7%	75.8%	76.3%	74.8%
	Yes	189	26.8%	23.6%	23.3%	24.2%	23.7%	25.2%
	P-value		0.374		0.428	0.888	0.633	
during the last 30 days have you noticed information about smoking risks or encouraging to stop smoking? [on advertisment signs?]	No	470	61.1%	62.4%	60.8%	60.6%	65.3%	62.4%
	Yes	288	38.9%	37.6%	39.2%	39.4%	34.7%	37.6%
	P-value		0.796		0.641	0.732	0.160	
during the last 30 days have you noticed information about smoking risks or encouraging to stop smoking? [other place?]	No	488	74.1%	79.7%	82.2%	83.0%	81.0%	75.4%
	Yes	140	25.9%	20.3%	17.8%	17.0%	19.0%	24.6%
	P-value		0.124		0.038	0.111	0.144	
Please mention the other place?	Health organisations	16	10.9%	15.6%	5.3%	11.1%	13.2%	15.8%
	internet	28	23.6%	23.4%	21.1%	22.2%	26.3%	26.3%
	Internet and social media sites	1	1.8%	0.0%	2.6%	0.0%	2.6%	0.0%
	On cigarettes box	2	1.8%	1.6%	2.6%	11.1%	2.6%	0.0%
	Public areas	52	41.8%	45.3%	63.2%	33.3%	50.0%	38.6%
	Social media/ FACEBOOK/whatsApp	18	18.2%	12.5%	5.3%	16.7%	5.3%	17.5%
	TV	1	1.8%	0.0%	0.0%	5.6%	0.0%	0.0%
	Video	1	0.0%	1.6%	0.0%	0.0%	0.0%	1.8%
	P-value		0.732		0.040	0.013	0.364	
Have you noticed any health warnings on cigarette boxes during the last 30 days?	Have not noticed any cigarette boxes	54	10.3%	4.5%	1.0%	4.4%	1.6%	12.9%
	No	86	10.0%	11.2%	8.6%	11.6%	8.5%	11.6%
	Yes	666	79.7%	84.3%	90.4%	84.0%	89.9%	75.5%
	P-value		0.006		0.000	0.358	0.000	
Does health warnings on cigarette boxes encoauraged you to think to stop smoking during the last 30 days?	No	390	68.0%	72.5%	72.9%	77.4%	74.3%	68.5%
	Yes	160	32.0%	27.5%	27.1%	22.6%	25.7%	31.5%
	P-value		0.020		0.000	0.040	0.000	
Health promotion	No	115	14.6%	12.4%	6.8%	11.5%	6.8%	10.1%
	Yes	759	85.4%	87.6%	93.2%	88.5%	93.2%	89.9%
	P-value		0.400		0.000	0.524	0.000	

Health care professionals have played a major role in control of smoking in many countries in the world [25]. However, this has not been the case in Jordan where only 7.5% of regular smokers reported receiving advice from a health care professional on smoking cessation. Moreover, duration of this advice was less than five minutes for around 60% of them. The UK Government adopted an incentive programme for general practitioners to support patients' smoking cessation; this has proven successful [26]. It is recommended that the local authorities should strive to have health care professionals on boards of smoking cessation initiatives in Jordan.

Only one-quarter of participants were aware of pharmaceutical interventions available to help them quit smoking. Although nicotine replacement therapies (e.g. Bupropion, Varenicline), are effective in smoking cessation [27], our participants had limited knowledge of these products. The alarming result was people were more aware of electronic cigarettes than these interventions.

There has been no solid evidence to support use of electronic cigarettes in smoking cessation. Scientists have called for bans on electronic cigarettes due to risk of increased addiction [28]. Future health promotion programmes in Jordan should educate patients about available smoking cessation therapies to help them, particularly in control of withdrawal symptoms. People should also be aware of the lack of evidence to support claims that electronic cigarettes help smoking cessation and the overall potential risk associated with their use.

Table 5: Noticed information encouraging people to smoke in the media or public places

Question	Category	Total	Female	Male	Cigarettes smokers	Hookah smokers	Ex-smokers	Never smokers
during the last 30 days have you noticed information encouraging you to smoke in any of the following places? [shops where cigarettes	No	538	75.1%	64.8%	71.1%	74.3%	70.1%	67.3%
	Yes	244	24.9%	35.2%	28.9%	25.7%	29.9%	32.7%
	P-value		0.003		0.28	0.09	0.56	
during the last 30 days have you noticed information encouraging you to smoke? [on TV?]	No	664	86.5%	87.3%	86.9%	87.6%	87.8%	87.3%
	Yes	100	13.5%	12.7%	13.1%	12.4%	12.2%	12.7%
	P-value		0.844		1.000	0.846	0.638	
during the last 30 days have you noticed information encouraging you to smoke? [on Radio?]	No	711	93.5%	96.0%	96.2%	93.9%	96.8%	95.1%
	Yes	37	6.5%	4.0%	3.8%	6.1%	3.2%	4.9%
	P-value		0.183		0.330	0.572	0.133	
during the last 30 days have you noticed information encouraging you to smoke? [on advertisment signs?]	No	645	84.8%	87.2%	89.7%	83.6%	89.9%	85.8%
	Yes	103	15.2%	12.8%	10.3%	16.4%	10.1%	14.2%
	P-value		0.420		0.039	0.333	0.030	
during the last 30 days have you noticed information encouraging you to smoke? [on stickers and posters?]	No	643	84.4%	85.9%	88.7%	83.0%	87.4%	84.4%
	Yes	112	15.6%	14.1%	11.3%	17.0%	12.6%	15.6%
	P-value		0.637		0.035	0.454	0.197	
during the last 30 days have you noticed information encouraging you to smoke? [Newspapers and magazines]?	No	651	86.1%	89.3%	90.5%	86.9%	90.9%	87.3%
	Yes	88	13.9%	10.7%	9.5%	13.1%	9.1%	12.7%
	P-value		0.243		0.128	0.690	0.069	
during the last 30 days have you noticed information encouraging you to smoke in any of the following places? [on Cinema?]	No	655	92.6%	92.0%	93.9%	91.2%	95.6%	92.4%
	Yes	57	7.4%	8.0%	6.1%	8.8%	4.4%	7.6%
	P-value			0.849	0.162	0.798	0.009	
during the last 30 days have you noticed information encouraging you to smoke in any of the following places? [on Internet?]	No	615	80.3%	85.4%	87.2%	80.4%	87.9%	81.1%
	Yes	123	19.7%	14.6%	12.8%	19.6%	12.1%	18.9%
	P-value			0.086	0.032	0.302	0.010	
during the last 30 days have you noticed information encouraging you to smoke in any of the following places? [on public transports and stations?]	No	666	90.0%	88.5%	89.8%	90.4%	90.3%	91.0%
	Yes	81	10.0%	11.5%	10.2%	9.6%	9.7%	9.0%
	P-value			0.628	0.732	0.650	0.549	
during the last 30 days have you noticed information encouraging you to smoke in any of the following places? [on public buildings?]	No	674	91.9%	91.1%	92.4%	90.8%	94.1%	94.3%
	Yes	64	8.1%	8.9%	7.6%	9.2%	5.9%	5.7%
	P-value			0.795	0.459	0.909	0.058	
during the last 30 days have you noticed information encouragingyou to smoke? [other place?]	No	612	95.3%	94.8%	94.2%	93.8%	94.8%	95.7%
	Yes	32	4.7%	5.2%	5.8%	6.2%	5.2%	4.3%
	P-value			0.955	0.552	0.590	0.994	
Please mention the other place?	cigarette box	1	0.0%	7.1%	0.0%	0.0%	11.1%	10.0%
	Coffee shops	3	0.0%	42.9%	18.2%	13.3%	8.3%	9.1%
	door seller	1	0.0%	7.1%	0.0%	0.0%	0.0%	10.0%
	hospitals	1	7.1%	0.0%	0.0%	0.0%	0.0%	9.1%
	in some shops for 18yrs and older	1	0.0%	7.1%	10.0%	0.0%	0.0%	0.0%
	markets	1	7.1%	0.0%	0.0%	0.0%	0.0%	9.1%
	markets (superstores)	2	0.0%	14.3%	20.0%	33.3%	11.1%	0.0%
	other persons	1	7.1%	0.0%	0.0%	0.0%	8.3%	0.0%
	Public organizations and centres	1	14.3%	0.0%	10.0%	16.7%	11.1%	0.0%
	resturent in the airport	1	7.1%	0.0%	9.1%	0.0%	8.3%	0.0%
	restaurants, coffee shops and storeshops	1	0.0%	7.1%	10.0%	0.0%	0.0%	0.0%
	social media websites	1	7.1%	0.0%	0.0%	0.0%	0.0%	9.1%
	street layout to sell cigarettes	2	0.0%	14.3%	0.0%	0.0%	11.1%	20.0%
	street layout to sell cigarettes	1	0.0%	14.3%	0.0%	0.0%	0.0%	9.1%
	traffic lights	1	14.3%	0.0%	0.0%	0.0%	0.0%	10.0%
	university	1	0.0%	14.3%	9.1%	0.0%	8.3%	0.0%
	within bus station inofficial cigarettes sale	1	0.0%	7.1%	10.0%	16.7%	11.1%	0.0%
	P-value			0.179	0.305	0.340	0.584	
Promotion for smoking	No	498	60.1%	54.9%	57.1%	59.7%	57.4%	54.0%
	Yes	376	39.9%	45.1%	42.9%	40.3%	42.6%	46.0%
	P-value			0.156	1.000	0.440	0.912	

Table 6: Got attention to pro-smoking campaigns during last 30 days

Question	Category	Total	Female	Male	Cigarettes smokers	Hookah smokers	Ex-smokers	Never smokers
during the last 30 days have you attentioned any sport event linked to cigarettes types trademarks or manufacturers?	No	618	88.4%	91.5%	91.1%	88.4%	90.5%	91.2%
	Yes	68	11.6%	8.5%	8.9%	11.6%	9.5%	8.8%
	P-value		0.230		0.527	0.514	0.901	
during the last 30 days have you got attention to any cigarettes marketing campaigns? [free sample of cigarettes]	No	682	93.8%	87.8%	87.3%	88.9%	89.0%	92.9%
	Yes	75	6.2%	12.2%	12.7%	11.1%	11.0%	7.1%
	P-value		0.010		0.036	0.650	0.515	
during the last 30 days have you got attention to any cigarettes marketing campaigns? [low price cigarettes]	No	609	82.9%	80.4%	79.2%	84.2%	82.6%	82.9%
	Yes	140	17.1%	19.6%	20.8%	15.8%	17.4%	17.1%
	P-value		0.455		0.223	0.319	0.467	
during the last 30 days have you got attention to any cigarettes marketing campaigns? [coupons for cigarettes]	No	711	97.9%	96.4%	98.7%	98.2%	98.3%	95.7%
	Yes	22	2.1%	3.6%	1.3%	1.8%	1.7%	4.3%
	P-value		0.385		0.042	0.460	0.121	
during the last 30 days have you got attention to any cigarettes marketing campaigns? [free gifts or price reduction for other products when you buy	No	670	90.5%	90.5%	89.9%	90.2%	92.0%	90.2%
	Yes	71	9.5%	9.5%	10.1%	9.8%	8.0%	9.8%
	P-value		1.000		0.773	1.000	0.263	
during the last 30 days have you got attention to any cigarettes marketing campaigns? [clothes or any products with a sign name or logo of brand names	No	661	90.0%	86.8%	90.8%	86.8%	92.0%	84.7%
	Yes	90	10.0%	13.2%	9.2%	13.2%	8.0%	15.3%
	P-value		0.231		0.060	0.688	0.009	
during the last 30 days have you got attention to any cigarettes marketing campaigns? [mailed marketing campaigns of cigarettes]	No	715	98.9%	98.2%	99.0%	98.8%	99.3%	99.3%
	Yes	11	1.1%	1.8%	1.0%	1.2%	0.7%	0.7%
	P-value		0.659		0.493	1.000	0.224	
Any campaign for smoking	No	606	70.8%	68.6%	65.5%	68.1%	68.8%	68.6%
	Yes	268	29.2%	31.4%	34.5%	31.9%	31.2%	31.4%
	P-value		0.537		0.070	0.732	0.871	

Around one-quarter of our sample starts smoking within the first five minutes after wakening, indicating addiction to smoking. Muscat, et'al, [29] Studies have shown that the time to first cigarette is a strong predictor of nicotine uptake and could also predict likelihood of success in attempts to quit. These factors should be considered in management of individual cases of smoking cessation.

Second-hand smoke (SHS) is an established risk factor for coronary heart disease, stroke and lung cancer. It is associated with increased overall mortality rates [30]. Smoking bans in closed areas at work or in public places have been applied strictly in many countries [31]. Unfortunately this was not the case in our study. Our results showed that roughly half of participants had either no rule for smoking at home or reported smoking is not allowed in their homes; there was statistically significant difference between smokers and non-smokers. Similar findings were observed in a recent study from State of Palestine. Future health promotion programmes need to target the hazards of smoking at home.

Results from the UK are promising. Assessment of smoke-free homes shows that there has been a growing trend towards smoke-free homes, even when parents themselves are smokers 32. On the other hand, a review on SHS in low- and middle-income countries (LMICs) concluded that adults living in LMICs are exposed to high rate of SHS in their workplace and at public places [33]. Our results are consistent with this review. Nearly one-quarter of females and one-third of males reported smoking is allowed in any place at their work. Only around half of the participants reported that smoking is prohibited in closed areas at their workplace. It is important that local authorities inspect workplaces in Jordan and assess compliance with anti-smoking laws.

Compliance with smoke-free laws varies between countries [34]. Low compliance figures in public places such as governmental building, transportation and health care settings have been reported mainly in LMICs [33]. At the other extreme, high-income countries (e.g. Australia) have imposed extensive restrictions on smoking with good compliance rates 34. Results from China showed the prevalence of viewing smoking was highest in restaurants (89.4%), followed by government buildings (59.6%), health care facilities (38.8%), schools (37.7%) and public transportation (34.4%) [35]. The highest viewing rates in our study were also in restaurants, but the rate in health care settings and public transportation were nearly double those reported in China [35].

Although a ban on smoking advertisements has been in place since 2009 14, 39.9% of females and 45.1% of males reported seeing information promoting smoking. The main problem was observed in shops where cigarettes are sold. Studies showed the advertisements for smoking are successful in targeting non-smokers, particularly at young age groups [36]. Thus, application of the 2009 law and its outcomes are still below expectations.

Other areas for promoting smoking were cigarette marketing campaigns (e.g. sporting events, coupon distributions and low-priced cigarettes). This was reported by around one-third of participants indicating that such events are popular in Jordan and in public places. While previous studies were based on observations 6, 14, our results provide evidence of the poor compliance with anti-smoking laws in Jordan,.

On the other hand, the majority of study participants did report seeing anti-smoking information and health warnings. However, the effectiveness of these warnings and information should be revised considering the increasing rates of cigarette and hookah smoking in Jordan [37].

In conclusion, we believe SHS is highly prevalent in Jordan. Smokers receive little support in Jordan and also have limited knowledge of pharmaceutical interventions. Coping with stress, withdrawal symptoms and peer pressure are the main barriers to quitting smoking. Smoking is common in public places in Jordan and pro-smoking advertising campaigns are still very active in the country. We strongly recommend revising anti-smoking laws in Jordan. There is an urgent need for application of the law in collaboration with local communities. At the same time, current smokers need more support to enable them to quit. We also recommend active involvement by the health care professionals in future anti-smoking programmes in Jordan.

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