

Original Article

Smoking among Health Care Workers of the Capital Governorate Health Region, Kuwait: Prevalence and Attitudes

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ABSTRACT

Objectives: To determine the prevalence of smoking among health care workers in the Capital Health Region and associate it to socio-demographic characteristics, and to study attitudes and behavior of smoking and quitting.

Subject and Methods: A cross-sectional study was conducted during August and September 2002. All health care workers at Ministry of Health facilities, Capital Region, including Al-Amiri Hospital and the health centers propagated through the Capital Region were invited to participate using a self-administered questionnaire. The survey collected information on socio-demographic characteristics and on behavior and attitudes toward smoking and quitting.

Results: Out of a total of 1,625 participants in the study, 604 were male and 1021 were female; 76.4% were married, 47.7% were nurses and 41.1% had received a diploma. The overall prevalence of smoking among participants was 16.8%. The prevalence of smoking was

37.3% among males and 4.4% among females. It was observed that the prevalence of smoking was high among clerks (30.5%) and among those who had primary level of education (45.5%).

The majority of males (78.7%) started smoking before the age of 20 years while the highest percentage of females (60.5%) started after. The majority of male smokers (74%) attempted to stop smoking while only 50% of females attempted to quit. 8.8% of participants were classified as ex-smokers; they were obviously used to smoking fewer cigarettes daily.

Conclusion: Health Care Workers have to set a good example to others by playing a vital role at various levels of smoking cessation. Hence, comprehensive tobacco control laws including bans on tobacco advertising and smoke-free public places, large clear health warnings and health education campaigns are needed.

KEYWORDS: Kuwait, prevalence, smoking, social factors

INTRODUCTION

Cigarette smoking is an important cause of cancers of the lung, larynx, pharynx, nasal cavities, nasal sinuses, esophagus, bladder, kidney, pancreas, stomach, liver, cervix and myeloid leukemia^[1]. Results of a study of ex-smokers with lung cancer found that those who started smoking before age 20 yrs had twice as many cell mutations as those who started after age 20^[2]; stopping smoking before middle age avoids more than 90% of the risk attributable to smoking^[3]. Smoking affects not only the tobacco user but also non-smokers near the smoker, such as family, friends, co-workers and unborn children^[4]. Tobacco consumption has fallen over the past 20 years in most high-income countries such as Britain, Canada, the United States, Australia and most northern European countries. In contrast, tobacco consumption increased

in low and middle-income countries by about 3.4% per annum between 1970 and 1990^[5].

Smoking is a major preventable cause of morbidity and mortality all over the world^[6]. The prevention and treatment of tobacco addiction have been targeted by WHO as priorities for intervention in developing countries. It has been estimated that, unless immediate steps are taken to reduce smoking rates, the number of deaths due to tobacco use will rise to 10 million per year over the next 30-40 years, and 70% of these deaths will occur in developing countries^[7-9]. By 1990, almost 91 countries had adopted the national anti-tobacco legislation. Perhaps as significant as the spread of legislation is the increased strength and effectiveness of recently enacted statutes^[10]. As governments have faced the persistence of the tobacco epidemic, they have banned all advertising and promotion of

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tobacco, have substantially raised taxes on the price of tobacco products and have expanded restrictions on smoking in public, workplaces and public transport. In 1995, the national Assembly in Kuwait approved a comprehensive legislation for tobacco control. Before this legislation, the anti-smoking laws consisted of the following: (i) resolution No. 981 of 1980, whereby the mayor of the municipality of Kuwait cancelled licenses for advertisements of tobacco products within the municipality; (ii) the ministerial resolution No. 25 of 1980 consisting of the particulars to be stated on cigarette packages; and (iii) the ministerial decree No. 180 of April 1988 stating the necessity to provide for the analysis of components of imported cigarettes^[11]. There have been reports on the smoking habits of physicians around the world^[12]. Little is known about smoking prevalence, behaviors and attitudes among health workers. It is assumed that hospital workers are more informed than the general population with regard to smoking hazards and are supposed to set an example for the rest of the community regarding smoking habits^[13]. However, smoking prevalence among hospital workers was found to be the same as in the general population in different studies conducted all around the world^[14,15].

The aims of our study were to determine the prevalence of smoking among health care workers at the Capital Health Region, to study the relationship between the prevalence of smoking and age, marital status, occupation and level of education, and to study the attitude and behavior of smoking and quitting.

SUBJECTS AND METHODS

A cross-sectional survey was conducted during August and September 2002. All health care workers (2,477) working at Ministry of Health facilities, Capital Region including Al-Amiri hospital and the health centers propagated through the Capital Region, were invited to participate using a self-administered questionnaire. A modified version of the standard WHO questionnaire for surveying smoking prevalence and behavior was used^[16].

The questionnaire consisted of three parts : (1) sociodemographic characteristics (age, sex, marital status, level of education and nature of work), (2) smoking behavior and attitudes (smoking status, age at which smoking started, number of cigarettes smoked daily, kind of smoking, reasons for smoking and for not quitting), (3) quitting behavior and attitudes (age of starting smoking, number of cigarettes smoked daily, age of quitting smoking, reasons for quitting and method used for quitting).

Respondents were classified as current smokers, ex-smokers and never-smokers. Current smoker were defined as those smoking at the time of survey

Table 1: Prevalence of smoking among health employees by age, marital status, occupation and education

Characteristics	Male	Smoking %	Female	Smoking %	All responses	Smoking %
Age (years)						
18-20	6	66.7	5	0.0	11	36.4
21-25	77	48.1	163	2.5	240	17.1
26-30	162	36.4	318	5.3	480	15.8
31-35	140	38.6	295	4.1	435	15.2
36-40	122	32.8	163	6.1	285	17.5
41-45	56	33.9	51	3.9	107	19.6
46-50	26	19.2	20	15	46	17.4
51-60	15	46.7	6	0.0	21	33.3
Significance	NS		NS		NS	
Marital status						
Single	118	43.2	214	5.1	332	18.7
Married	477	35.6	765	3.3	1242	15.7
Separated/divorced/ widowed	9	44.4	42	28.6	51	31.4
Significance	NS		p < 0.0001		p < 0.01	
Occupation						
Physician	112	31.3	116	2.6	228	16.7
Nurse	197	23.9	578	1.6	775	7.2
Clerk	234	51.3	254	11.4	488	30.5
Technician	61	37.3	73	9.6	134	22.4
Significance	p < 0.001		p < 0.0001		p < 0.0001	
Education						
Primary	14	57.1	8	25	22	45.5
Intermediate	153	45.1	165	6.1	318	24.8
Secondary	118	40.7	89	21.3	207	32.4
Diploma	113	40.7	560	0.9	673	7.6
University	128	0.5	134	7.5	262	18.7
Post-graduate	78	19.0	65	3.1	143	11.9
Significance	p < 0.001		p < 0.0001		p < 0.0001	
Total	604	37.3	1021	4.4	1625	16.8

Results of χ^2 test
NS = Not Significant

and had smoked more than 100 cigarettes in their lifetime; ex-smokers, if they had smoked more than 100 cigarettes in their lifetime but no longer smoked; never-smokers, if they had never smoked or had smoked fewer than 100 cigarettes in their lifetime^[17].

An Arabic version of the questionnaire as well as an English one were pilot tested on a random sample of 100, and the wording of some of the questions was modified before it was formally administered. To minimize non-response and under-reporting, respondents were told that the information obtained would be confidential and used only for statistical purposes.

The descriptive statistics including frequencies, mean and standard deviation were used to describe the study findings; also the association between two discrete variables was tested by the Chi-square test and by the Z test for proportion using microstat software program for statistical analysis. A p-value of 0.05 was considered significant. The

Table 2: Distribution of current smokers by age of starting smoking, number of cigarettes smoked per day and kind of smoking

Characteristics	Male (N = 225)		Female (N = 48)		All smoker (N = 273)		Significance
	n	%	n	%	n	%	
Age of starting smoking (years)							
10-14	54	24.0	3	6.3	57	20.9	p < 0.001
15-19	123	54.7	16	33.2	139	50.9	
20-24	34	15.0	23	47.9	57	20.9	
25-29	8	3.6	3	6.3	11	4.0	
30 and above	6	2.7	3	6.3	9	3.3	
Number of cigarette smoked/day							
<10	20	8.9	19	39.5	39	14.3	p < 0.0001
10-20	85	37.8	20	41.7	105	38.5	
21-30	65	28.9	5	10.4	70	25.6	
31-40	43	19.1	2	4.2	45	16.5	
> 40	12	5.3	2	4.2	14	5.1	
Kind of smoking							
Cigarettes	207	92.0	36	75.0	243	89.0	p < 0.001
Water pipe	11	4.9	12	25.0	23	8.4	
Other	7	3.1	0.0	0.0	7	2.5	

Results of ² test

quantification of risk was calculated by Odds Ratio (OR) and 95% Confidence Intervals (CI) using the EPI info program (version 6).

RESULTS

Out of 2,477 questionnaires, 1625 were completed giving a response rate of 65.6%, while 852 (34.4%) refused to participate. The reason for non-compliance was that they felt furnishing this type of information would help in incriminating them, since they worked in the Ministry of Health.

Overall, 16.8 % of the participates were classified as current smokers, 8.8% as ex-smokers, and 74.2% as never-smokers. Of all participants, 604 (37.2%) were males and 1021 (62.8%) were females. Large groups of participants (480; 29.5%) were in the age group of 26-30 years, (242; 15.7%) were married, (775; 47.7%) worked as nurses and (673; 41.4%) had received a diploma (Table 1).

The overall prevalence of smoking among workers was 16.8%. Significantly the prevalence of smoking was higher among males (225/604 or 37.3%) than females (48/1021 or 4.4%). Smoking among males was 12 times more than among females (OR = 12.03, 95% CI, 8.52-17.04). The highest prevalence of smoking among males (66.7%) was in the youngest age group (18-20), while the highest rate of smoking among females (15%) was observed in the age group 46-50 with no significant differences between sexes. For both males and females, smoking was significantly higher among clerks (51.3%, p < 0.001; 11.4%, p < 0.001 respectively).

Significantly, both males (57.1%) and females (25%) who had received a primary level of

Table 3: Characteristics and attitudes towards smoking of current smokers

Characteristics and attitudes	Males n = 225	%	Females n = 48	%	Total n = 273	%	Significance
Reasons for smoking							
Relax	123	54.7	12	25	125	45.8	p < 0.001
Relieve boredom	117	39.1	36	75	153	56	p < 0.01
Relive anger, frustration	101	44.9	12	25	113	41.4	p < 0.05
Concentrate at work	88	52	1	2.1	89	32.6	p < 0.0001
Relieve pressure of working hard	68	30.2	3	6.3	71	26	p < 0.001
Mix in social situations	61	27.1	4	8.3	65	23.8	p < 0.01
Enjoy pleasant events	56	24.9	—	—	56	20.5	p < 0.001
Get going in the morning	29	12.9	—	—	29	10.6	p < 0.01
Boost self confidence	9	4	—	—	9	3.3	NS
Do you want to stop smoking?							
Yes	150	66.7	27	56.3	177	64.8	NS
No	53	23.6	15	31.3	68	24.9	
Uncertain	22	9.8	6	12.5	28	10.3	
Attempts to stop smoking							
Yes	167	74.2	24	50	191	70	p < 0.001
No	58	25.8	24	50	82	30	
Do you smoke in presence of your children*							
Yes	95	63.3	8	21.1	103	54.8	p < 0.001
No	55	36.7	30	78.9	85	45.2	
Reasons for not quitting smoking							
Lack of willpower	146	64.9	22	45.8	168	61.5	p < 0.01
People around me smoke	83	36.9	3	6.3	86	31.5	p < 0.0001
Not sure how to quit	56	24.9	17	35.4	73	26.7	NS
Don't want to stop	50	22.2	3	6.3	53	19.4	p < 0.05
I like it very much	23	10.2	4	8.3	27	9.9	NS
Stress at work	24	10.7	1	2.1	25	9.2	p < 0.05
Stress at home	14	6.2	12	25.0	26	9.5	p < 0.0001
Fear of gaining weight	7	3.1	5	10.4	12	4.4	p < 0.05

Results of ² test

* This question was only for 188 respondents who have children

education, smoked more than people with other levels of education (p < 0.01 and P < 0.0001 respectively).

Females who were separated, divorced or widowed were eleven times more likely to smoke than those who were currently married or single (OR = 11.84; 95% CI, 5.06-27.51 and OR = 11.07; 95% CI, 3.95-31.42 respectively).

Also, single males were fourteen times more likely to smoke than single females (OR = 14.05; 95%CI, 6.62-30.45). Married males were 16 times more likely to smoke than married females (OR =

16.39; 95%CI, 10.36-26.12). However, there was no significant difference between the male's marital status and prevalence of smoking.

Table 2 shows the distribution of current smokers by the age at which they began smoking, the number of cigarettes consumed per day and the kind of smoking. The majority of smokers (71.8%) started smoking regularly when younger than 20 years of age. Significantly more males (78.7%) than females (39.5%) began to smoke regularly before they reached the age of 20 ($p < 0.001$). Females were more likely to begin smoking in the age group of 20-24 years (47.9%).

The average age at which the respondent began smoking was about 17 years in males and 20 years in females ($p < 0.001$), whereas the average duration of smoking was 15 years for males and 12 years for females ($p < 0.05$).

The average daily consumption of cigarettes was about 21, but males consumed considerably more cigarettes than females (22 and 14 cigarettes daily respectively; $p < 0.05$). On the other hand, more than three quarters of females (81.2%) smoked less than 20 cigarettes daily while more than half of females (53.3%) smoked more than 20 cigarettes daily ($p < 0.001$).

Many current smokers were using other methods to smoke tobacco. 25% of females, which is significantly higher than males (4.9%) ($p < 0.01$) reported that they were using a narghile (also known as Hubble-bubble, or sheesha) which is a traditional form of social smoking. On the other hand, 8% of males smoked other than cigarettes.

Table 3 shows that the most common reasons for smoking for all participants were to relieve boredom followed by the need to feel relaxed, to relieve anger and frustration, to concentrate at work, to relieve pressure of working hard and to mix in social situations.

When data were examined separately for both sexes, using smoking to relax (54.7%; $p < 0.001$) was the most common reason given by males, whereas using smoking to relieve boredom (75%; $p < 0.01$) was the most common reason given by females.

Out of 188 smokers who had children 54.8% reported that they smoked in the presence of their children, but it was clear that more males than females did this ($p < 0.01$).

Two thirds (64.8%) of all smokers stated that they wanted to stop smoking and about 70% had attempted to quit. The attempts of men (74.2%) were significantly higher than women (50%; $p < 0.01$).

For all participants the most common reasons for not quitting for current smokers were a perceived lack of will power (61.5%), the influence of other smokers around (31.5%) and uncertainty about how to quit (26.7%). Reasons for not quitting in males differed significantly from females, for

Table 4: Patterns of smoking and factors associated with quitting smoking among ex-smokers

Patterns	Male (N = 87)		Female (N = 38)		Total	
	n	%	n	%	n	%
Age started smoking (years)						
10-14	4	4.8	5	13.2	9	7.2
15-19	28	32.2	9	23.7	37	29.6
20-24	36	41.4	10	26.3	46	36.8
25-29	15	17.2	12	31.6	27	21.6
30 and above	4	4.8	2	5.3	6	4.8
No. of cigarettes smoked/day						
<10	40	46.0	16	42.1	56	44.8
10-20	32	36.8	20	52.6	52	41.6
21-30	10	11.5	2	5.3	12	9.6
31-40	1	1.1	0.0	0.0	1	0.8
> 40	4	4.6	0.0	0.0	4	3.2
Age quit smoking (years)						
10-19	1	1.1	3	7.9	4	3.2
20-29	56	64.4	25	65.8	81	64.8
30-39	23	26.4	8	21.1	31	24.8
40-49	7	8.0	2	5.3	9	7.2
Reasons for quitting						
Harmful effects on health	58	66.7	21	55.3	69	55.2
Scientific evidence of smoking hazards	41	47.1	14	36.8	55	44.0
Messiness of the habit	32	36.8	10	26.3	42	30.6
Influence of spouse						
family members *	29	33.3	2	5.3	31	24.8
Prohibited by religion	34	39.1	10	26.3	44	35.2
Being a bad example to children	29	33.3	9	23.7	38	30.4
Did not really enjoy smoking	24	27.6	7	18.4	31	24.8
To improve sense of taste or smell	19	21.8	9	23.7	28	22.4
Advised by physician *	13	14.9	0.0	0.0	13	10.4
Cost of cigarette	5	5.7	0.0	0.0	5	4.0
Method used to quit						
Just quit/stopped suddenly	60	69.0	23	60.5	83	66.4
Gradually decrease no. of cigarette	9	10.3	5	13.2	14	11.2
First switched to						
low tar cigarettes	2	2.3	2	5.3	4	3.2
Set a quit date	1	1.1	2	5.3	3	2.4
Quit with a friend/relative	5	5.7	3	7.9	8	6.4
Nicotine patch/gum	14	16.1	7	18.4	22	17.6
Attend stop smoking clinic	9	10.3	3	7.9	12	9.6

Results of ² test

* $p > 0.05$

instance, lack of will power, neighbour pressure, stress at home and fear of weight gain.

Table 4 shows the patterns of smoking and factors associated with quitting smoking among ex-smokers. Out of all participants, 125 (87 males, 38 females) were classified as ex-smokers. The average age at which ex-smokers started smoking was 21 years for both males and females with no significant difference between sex ($p > 0.05$).

44.8% of ex-smokers had consumed fewer cigarettes daily (less than 10), with no significant differences between males and females.

Approximately two thirds of ex-smokers (64.8%) stopped smoking between the ages of 20 and 29 years. The average age of quitting for men was 29 and for women was 27, with no significant difference between males and females.

The most common reasons for quitting for both men and women were the harmful effects of smoking on health (55.2%) followed by scientific evidence of the hazards of smoking (44.0%) and being prohibited by religion (35.2%). However, males' reasons for quitting differed significantly from females, in terms of influence of spouse and family members and advice given by physicians. A majority of ex-smokers (66.4%) reported that they just quit without any formal plan, followed by use of nicotine chewing gum or a patch (17.6%), by gradually decreasing the number of cigarette smoked (11.2%) and by attending a stop smoking clinic (9.6%).

DISCUSSION

There are no published studies on the epidemiology of smoking in Kuwait among health care workers (i.e., those who are supposed to introduce health care and are in direct contact with people receiving health care and in the first line in facing dangers of tobacco consumption). Published studies on the prevalence of smoking in Kuwait have been restricted to specific groups such as physicians, university students, married couples and Kuwaiti adults^[18]. These studies reported that the prevalence of smoking among physicians was 18.4% as current smokers and 15.8% as former smokers^[19]. 30% of male university students were currently smokers, whereas 11.2% were former smokers^[20]. 37% of married Kuwaiti men were currently smokers, whereas 0.5% of married women were reported to be smokers^[21]. Moody *et al*^[22] reported that the prevalence of smoking among Kuwaiti adults working in different ministries was 34.4%. Our study showed that the prevalence of smoking among health workers at the Capital Health Region was relatively high. However, it was consistent with the prevalence of smoking in other countries. Siddiqui *et al*^[13] showed that the prevalence of smoking among health staff in Saudi Arabia was 19%, ex-smokers 14% and non-smokers 67%.

The prevalence of smoking among physicians in our study was 31.3% which is less than a previous study done by Benner *et al*^[12], where the prevalence was 63%. Although our prevalence was lower, it was still too high, particularly because physicians should set a model for their patients; we know that British doctors are unique in their rejection of smoking with only 10 percent now smoking^[26].

In general, patterns of smoking in men and women differ between developing and

industrialized countries. Significantly more men (40-60%) but fewer women (2-10%) smoke in developing countries compared with approximately 25-30% of both men and women who smoke in industrialized countries^[23]. Women in developing countries tend to have lower rates of smoking, start smoking later than men, and consume fewer cigarettes daily. Smoking is not common among Arab women due to Arab culture and more likely because Islamic teaching forbids smoking, considering it both distasteful and unlawful^[24]. This is consistent with our study which showed that smoking among males was 12 times more than among females. On the other hand, 25% of females were regular users of the water pipe, which indicates a new trend in female behavior and their direction towards this kind of smoking.

Our data showed that the highest prevalence of smoking was in those working as clerks and the lowest in the nurses' group. A similar study in Saudi Arabia reported similar results and attributed that to the kind of work in different departments as nicotine also had a relaxing effect and a pleasure enhancing effect and the workers in the department started smoking under the influence of other fellow smokers^[13].

The separated, divorced and widowed group showed a high prevalence of smoking among males (47%) and females (6.5%). For females, this group was 11 times more likely to be smoking than married or single women. The explanation of this may be found in social structures.

Our results showed an inverse relation between education and smoking prevalence. This is consistent with similar study done in Kuwait which showed that respondents with less education (only primary) were 3.5 times more likely to smoke than those with more education (university level)^[18].

Concerning cigarette-smoking initiation for current smokers, we found the majority of smokers of both sex combined (71.8%) started smoking when younger than 20 years old. This finding is consistent with many studies which suggests that individuals who initiate cigarette smoking habits during childhood are at higher risk of becoming long-term smokers than those who initiate smoking in adolescence^[28,29].

It has been reported that the highest probability of smoking initiation was found for the age group 15-20 years^[22], which is consistent with our study. A study by Sugathan *et al*^[20], showed that one tenth of the students initiated smoking between ages 16 and 17 with the rate increasing and reaching 30% by age 20 and almost 50% by the age of 24.

Our study showed that to relieve boredom was a major reason for females to smoke, but less so in males. This can be explained by the fact that females play a dominant role in taking care of their

family which make them face a lot of stress. On the other hand, stress at work was a remarkably trivial reason for males to smoke since they are used to looking after their future in the active period of their life.

In Memon's study^[18] the percentage of current smokers who have smoked in front of their children was 77%; in our study it was lower but still too high. This is an important issue concerning the health consequences of passive smoking on children and awareness of hazards of passive smoking should be increased especially in our participants because they are health care providers. Furthermore, parents who smoke should be aware that their children might become ill as a result of breathing in airborne tobacco smoke. Also, the children of smokers are more likely to take up the habit themselves because they copy the behaviour of adults and will perceive smoking as the norm if they grow up in a household where adults smoke^[30].

About two thirds of our current smokers (64.8%) had wanted to stop smoking and 70% of them had tried. This finding raises the need for strengthening and targeting the programs directed against smoking particularly clinics working to help smokers stop smoking especially because we found 9.6% of ex-smokers had stopped by attending a stop-smoking clinic. This result is consistent with the findings of other authors who showed that an estimated 70% of smokers (33.2 million) want to quit, but only 2.5% (1.2 million) per year succeed in quitting smoking permanently^[31,32].

For ex-smokers, the age of starting smoking was obviously different from current smokers. The highest percentage of ex-smokers had started smoking later than the age of starting for current smokers. We can conclude that starting smoking later helps in quitting. Ex-smokers also used to smoke fewer cigarettes than current smokers.

About reasons for quitting smoking: in ex-smokers, knowledge of the harmful effects of smoking on health was the highest percentage with no significant difference between the two sexes. Siddiqui *et al*^[13] reported that awareness regarding the harmful effect of smoking was 96%. This awareness regarding harmful effects may be due to strong social and cultural consensus against smoking. Conversely, the lowest percentages of reasons were the cost of cigarettes and advice from a physician (4.0%, 10.4% respectively) which raise a big question about the role of physicians in helping their patients to stop smoking. Many studies have shown that the role of physicians in helping their patients stop smoking is crucial and can have a significant impact on helping patients to stop smoking by giving them strong recommendations to quit^[25,26]. One recent study reported that only 15%

of smokers who saw a physician in the past year were offered assistance with quitting, and only 3% were given a follow-up appointment to address the problem^[33].

CONCLUSION

The emphasis of public health policies tends to be strongly on curative care. Less emphasis is placed on preventive programs, which are often viewed as less urgent and less important because they are less specific and are focused on groups within the population who may still be healthy. Although these can make a major impact on health education and various economic strategies, these strategies are more effective when used in combination^[34].

Cigarette smoking is an important public health problem in Kuwait generally and in health care workers specifically. Given that health care providers should set a model for others, they should receive a continuous education about smoking hazards as well as smoking cessation techniques to help their clients stop smoking. Systematic interventions have been shown to increase patient smoking cessation rates, even with very modest expectations; 100,000 physicians using effective intervention can produce over 3 million new ex-smokers in the United States each year^[35].

Cross-sectional studies should be conducted regularly to monitor changes in prevalence, attitudes, behavioral and socio-demographic determinants of starting, continuing and quitting smoking. Also, effective strategies for treating tobacco addiction should include brief advice by medical providers, counselling, and pharmacotherapy.

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