

Undergraduate Nursing Students' Knowledge, Attitudes, and Behaviors toward Smoking

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Abstract: Nurses are expected not only to offer care for their patients, but also to model the advice they offer. Although nurses have an important role in health promotion and are well placed to see the harmful effects of tobacco smoking, Studies suggested that they smoke at much the same rate as other people of similar age and socio-economic status. The purpose of this study was to assess undergraduate nursing students' knowledge, attitudes, and behaviors towards smoking. As well as to determine undergraduate nursing students' level of nicotine dependence. A descriptive cross-sectional study design was used in this study. All undergraduate nursing students at a private University in Jordan were surveyed in academic year 2005/ 2006 by using the Smoking & Health Promotion Questionnaire and Fagerstrom test for nicotine dependence (FTND). The findings of this study showed that more than half of the students (54.7%) were smokers and all of the smoker students were male. The majority of them commenced their smoking habit while in secondary school. Students had greater generic than specialized knowledge about the harmful effects of smoking on health. Non-smokers were more supportive of non-smokers' rights than those who continued to smoke. No statistically significant correlation was found between level of knowledge and attitudes towards smoking. Friends were an important influence on the decision to commence smoking. Most smokers wanted to cease smoking, and many had tried unsuccessfully to stop on one or more occasions. They conceded that the effects of stress, peer pressure and the pleasure they obtained from smoking acted as barriers to stopping. More than one third (39%) of the smokers had a high level of nicotine dependence as indicated by the total FTND score. Results of this study may provide base line data to develop an anti-smoking program for nursing students.

INTRODUCTION

In current climate of disease prevention and health promotion, smoking behaviors of future nurses have become increasingly important. Nurses are expected not only to offer care for their patients, but also to model the advice they offer. Moreover, studies have found that the practices and behaviors of the health care providers can significantly influence health-related behaviors of patients.¹

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Smoking is a major cause of morbidity and mortality. Smoking is currently referred to as a 'silent pandemic'.² According to the World Health Organization, 1.3 billion of the world population smoke cigarettes and approximately 4 million people worldwide die from smoking-related diseases each year.³ Prevalence of smoking in developing countries such as Jordan is noted to be increasing, especially among students.^{4,5} National surveys of the population in Jordan showed that 29 percent of adults were current smokers and the percentage rises to 50 among males.⁶ Most students started tobacco use as early as 15 years of age (82%), and 19 percent of school student's smoke.⁷ A recent study in Jordan reported prevalence of current smoking was 35% among university students in north Jordan.⁸ It is believed that, if appropriate measures are not taken in order to control this pandemic, smoking will be responsible for 10 million deaths per year, at a ratio of one in every

six smokers worldwide, by the year 2020.^{9,10}

Although nurses have an important role in health promotion and are well placed to see the harmful effects of tobacco smoking, studies indicated that they smoke at much the same rate as other people of similar age and socio-economic status.^{11,12} This raises important questions about whether nurses should smoke and, if so, where this should be permitted. There has also been public debate about balancing the rights of smokers to take part in a legal activity and the demands of others for a smoke-free environment.¹⁰

The aims of the study were: (I) to assess undergraduate nursing students' knowledge of, attitudes toward, and behaviors about smoking (II) to determine undergraduate nursing students' level of nicotine dependence.

METHODS:

Setting

This study was conducted at nursing

college of a private University, Jordan, in academic year 2005/2006.

Design

A descriptive cross sectional study design was used to describe smoking habits among nursing students and their level of nicotine dependence.

Subjects

150 undergraduate nursing students were enrolled in the nursing college at the time of the study.

Tools:

Two research tools were used in this study.

The first tool "Self-report questionnaires" is The Smoking and Health Promotion Questionnaire. It was used to assess undergraduate nursing students' knowledge of, attitudes toward, and behaviors about smoking. The questionnaire was developed by (Rowe K, Macleod J.).¹² It contains 78 closed and open items in four parts.

Part 1

Socio-demographic (5 items) to measure the selected personal variables that included student's age, gender, family history of smoking, smoking status of the students, and age of initiating smoking.

Part 2

Attitudes to smoking (18 items) include two factors. Factor 1 focused on health promotion on smoking within a health care context; Factor 2 concentrated on smokers' vs. non-smokers' rights. Using five response scale, the students were requested to choose the response of "strongly agree," "agree", "no strong view", "disagree" or "strongly disagree" for all questions. For assessing the attitude of students, a scoring system was applied: the negative attitude statements were scored from 1-5 as follows: 1 was given to those who strongly agreed, 2 to those who agreed, 3 to those who no strong view, 4 to those who disagreed, and 5 to those who

strongly disagreed, and the reverse of this scoring system was used for positive attitude statement. Accordingly, maximum total score for attitude questions was equal to 90 (18 x 5 points=90) and minimum total score was equal to 18(18 statements x 1 point=18).

Part 3

Knowledge of smoking classified into two sections including general knowledge about the effects of smoking on health (6items) and specialized knowledge about illnesses that might be associated with smoking (23 items).Using the three response scale, students were requested to give " true," "false " or "do not know" "response to all questions. One point was given for a correct answer and zero for an incorrect one. The total score ranged from 0-29 points.

Part 4

Smoking behavior (26 items). The questionnaire comprised a mix of open-ended and multiple choice questions,

aimed at collecting data about the smoking behavior of the students. The questionnaire included information on current and previous smoking status, quantity of cigarettes smoked, age of initiation, reasons for starting smoking and the main reason to stop smoking, attempts to quit smoking, the biggest obstacle to stop smoking, approaches/ methods to give up smoking and benefits of quitting. In addition, question related to student nurses' perceptions of their role as promoters of health. Each student's smoking status was classified as: still smoking, stopped smoking; never smoked.

The second tool is Fagerstrom test for nicotine dependence (FTND)

It is a widely used and validated 6-items questionnaire to assess level of nicotine dependence. The questionnaire was developed by (Fagerstrom KO.)¹³ which includes smoking on walking up, difficulty in giving up morning cigarette, difficulty in stopping smoking in restricted places,

number of cigarettes smoked, smoking during earlier part of the day and smoking while illness. The scores range from 0 to 10. A score < 4 indicates a low level of nicotine dependence, 4-6 indicates a medium level of nicotine dependence and a score > 6 indicates a high level of nicotine dependence.

The content validity of the instruments was assessed by three experts from adult nursing in the university. They were asked to review and evaluate the instruments for its clarity, validity, and comprehensiveness. Some revisions to questions were indicated. A pilot study was conducted with 15 participants, who were then excluded from the study, to determine the clarity of the instrument and the time required from each participant to complete the questionnaire. According to the feedback of the participants, modifications were done. In the current study, the Cronbach alpha coefficient was 0.81, indicating that the questionnaire was

reliable.

Ethical considerations of participants' rights

Before data collection commenced, ethical approval from the University was obtained. All participants were informed about the purposes and methods of the study. They were informed that participation in the study was voluntary and that they could refuse to participate or withdraw from the study without being penalized. Moreover, the participants were reassured that their responses would be kept confidential and their identities would not be revealed in research reports or in the publication of findings. Lastly, from the participants who agreed to participate in the study, informed consent was obtained.

Methods

The Head of University gave permission to collect data. I recruited students in lectures, and informed them about the aims of the study. The lecturers distributed questionnaires for students. Every student

accepted to fill up the questionnaire and handed back the questionnaire after completing it. To avoid duplicate responses, specific instructions were provided at the beginning of the survey to complete the questionnaire only once. No incentives were provided for completing the questionnaires.

Statistical analysis

Data were entered and analyzed by using SPSS version 9 statistical software. The data were summarized using frequencies and percentages. Mean scores and standard deviations were calculated for knowledge and attitudinal questions. A *t*-test was used to examine the differences in mean scores because of gender, age, and smoking status groups. $P < 0.05$ denoted statistical significance. Finally, Pearson's correlation was used to assess if there was any relationship between students' knowledge about, and attitudes towards smoking.

RESULTS

Participants' characteristics

The age of the student nurses ranged from 17 to 35 years with the bulk (67.3%) being in the 21-24 age range. Most were male (88.7%). More than half of the students (54.7%) were smokers and all of the smoker students were male. The majority (60%) of smoker students commenced their smoking habit while in secondary school. Of the participants who were still smoking, their mean age of smoking commencement was 17.11 years, (SD=3.30). Seventy percent of the students came from families where one or more members currently smoked.

Table (1) displays the mean scores and standard deviation and *t*-test for smoking status and attitudes towards smoking. The results indicated that participants who had never smoked had a higher mean attitudes related to non-smokers' rights than those who still

smoked (mean=3.387 vs. 3.046) respectively. In addition, the differences because of smoking status were significant ($p= 0.002$). However, there were no significant differences by gender or, age in relation to attitudes toward smoking.

Table (2) shows the mean scores and standard deviation for nursing students' knowledge about the harmful effects of smoking. The mean score for general knowledge was (79%) and for specialized knowledge was (64%), with an overall mean knowledge score of (67%). Clearly, students were less certain about the specialized than the general knowledge questions, and this was reflected in their overall mean knowledge scores. For example, while (92%) mentioned that smoking contributed to heart disease, only (44%) recognized that smoking was associated with bladder cancer, and (64.6%) indicated that smoking is not a contributing factor in osteoporosis.

Table (3) shows the mean scores and standard deviation among both sexes. for knowledge about smoking. The results revealed that female students obtained higher mean general knowledge scores than male students and the differences were significant (mean= .9215 vs. .7752). Moreover, t-test for smoking status and general knowledge about smoking showed a highly significant differences between smokers and non smokers ($p=0.00$) as shown in (Table 4). The results also showed that, participants who had never smoked had a higher mean overall knowledge scores than those who still smoked but the differences were not statistically significant (mean=.708 vs.652) respectively.

Knowledge about and attitudes towards smoking:

Pearson's correlations were calculated to assess if there was a relationship between knowledge of, and attitudes towards,

smoking. The results indicated statistically not significant correlation between the two variables (Pearson's correlation=7%).

Table (5) presents nursing students' behavior toward smoking. Participants who were smokers (n=82) were asked what had influenced them to start smoking. The biggest influence was friends who smoked (46.3%), followed by feeling under pressure to smoke (32.9%). Lesser influences included feeling smoking was an adult activity (9.8%). Currently, 48% of smokers had a parent who smoked, while 56% had a brother who smoked. Majority (70.7%) of smokers indicated that they would like to give up smoking.

Of those who wanted to quit, 31.7% were very keen and (47.5%) were keen to stop smoking, but they had doubts as to whether they could give up smoking as shown in (Figure 1). Among these, 24.4% were sure they could quit, 25.6% were unsure, and 29.3% did not know. This lack of confidence was based on experience,

as 52.4% of those who wished to quit had previously attempted to do so, with 67.5% of them attempting to do this on one or two occasions. The methods they had used in these unsuccessful attempts included stopping suddenly (37.2%), cutting down slowly (34.9%) and nicotine patches (20.9%) and nicotine chewing gum (4.7%). The main obstacles to smoking cessation were stress (43.9%), peer pressure (30.5%) and enjoyment of the habit (25.6%).

Smoking behaviour: (quitters)

Results showed that 12.7% of participants had ceased smoking, and (42%) of these had done so for more than one year. The quitter participants reported different things that influenced their decision to give up smoking, over half of them (63.2%) thought smoking was unhealthy habit, (27%) thought they were a poor role model for a health professional and (10%) reported that smoking was affecting their health. Of those who had given up, more

than half of them (52.6%) had smoked from 11-20 cigarettes per day.

Peer pressure had been most difficult for (63.2%) of quitters while breaking the link between smoking and socializing had been most difficult for (26.3%) of quitters. Stopping suddenly had been the most successful method of giving up, with (42.1%) of quitters using this method. A further 31.6% cut down slowly and (15.8%) used nicotine patches and (10.5%) used nicotine gum. In response to open-ended questions, participants identified several benefits of quitting. The most common response was that their health had improved. Other benefits reported by quitters included the financial benefits of not smoking and being a better role model for nursing profession. Quitters mentioned different coping strategies helped them to deal with the hardship of quitting. The support of family was important.

Figure (2) shows levels of nicotine

dependence of smoker students. It is noticed that more than one third (38.9%) of participants who were still smoking had a high level of nicotine dependence and almost half (47.6%) had a low level of nicotine dependence.

Table (6) shows distribution of smoker students according to Fagerstrom Test for Nicotine Dependence (FTND). The results revealed that over two third of participants (67,1%) had difficulty in stopping smoking in restricted places In relation to number of cigarettes smoked, (9.8%) of the smoker students smoked more than 31 cigarettes per day and (42.7%) smoked from 11 to 20 cigarettes daily. The results of the study also indicated that 39% of smoker students smoke their first cigarette within 30 minutes after they wake up. Sixty one percent of students reported that they smoked more frequently during earlier part of the day than the rest of the day, while 29.3% of the students smoked despite being ill.

Table (1) Mean and standard deviation and t-test for smoking status and attitudes towards smoking according to smoking status.

Attitudes factors	Smoking status	N	Mean	Standard deviation	T value	P
Smokers' vs. non-smokers' rights	Non smoker	68	3.38725	0.625840	3.09	0.002**
	Smoker	82	3.04675	0.706192		
Health promotion within a health care.	Non smoker	68	3.41446	0.483493	1.35	0.178
	Smoker	82	3.53226	0.566552		
Over all attitude	Non smoker	68	3.40086	0.439336	1.36	0.172
	Smoker	82	3.28950	0.541419		

*Significant P<0.05

Table (2) Mean and standard deviation for nursing students' knowledge about harmful effects of smoking.

Knowledge type	N	Mean	SD
General knowledge	150	.79195	.214793
Specialized knowledge	150	.64696	.213999
Overall knowledge	150	.67820	.190668

Table (3) Mean and standard deviation for knowledge about smoking according to gender

Knowledge	Gender	N	Mean	Standard deviation	T value	P
General knowledge	Male	132	.77525	.219863	4.620	0.00**
	Female	18	.92157	.104044		
Specialized knowledge	Male	132	.63937	.214925	1.208	0.23
	Female	18	.70588	.203077		
Over all knowledge	Male	132	.66889	.191531	1.671	0.10
	Female	18	.75051	.172211		

*Significant P<0.05

Table (4) Mean and standard deviation and for knowledge about smoking according to smoking status

Knowledge	Smoking status	N	Mean	Standard deviation	T value	P
General knowledge	Non smoker	68	.87255	.180100	4.533	0.00 **
	Smoker	82	.72428	.219153		
Specialized knowledge	Non smoker	68	.66310	.228368	.843	0.40
	Smoker	82	.63341	.201587		
Over all knowledge	Non smoker	68	.70835	.193225	1.781	0.08
	Smoker	82	.65290	.185919		

*Significant P<0.05

Table (5) Nursing students' behavior toward smoking

Variable		No	%
At what age did you smoke your first cigarette?	Mean = 17.11 , sd = 3.30		
Main reason for commencing smoking?	friends smoked	38	46.3
	parents smoked	7	8.5
	felt under pressure to smoke	19	32.9
	felt it was a grown up thing to do	8	9.8
	others	10	12.2
Would you like to give up smoking	Yes	58	70.7
	No	24	29.3
Main reason to stop smoking	Smoking is affecting my health	14	17.1
	Smoking will affect my health	18	22
	My smoking may affect the health of my family and friends	7	8.5
	Smoking is unsociable	8	9.8
	Smoking affects my role as a health educator	21	25.6
	Smoking is a n expensive habit	14	17
How many times have you tried to give up smoking?	One attempt	10	23.3
	Two attempt	19	44.2
	Three attempt	6	14
	More than three attempt	8	18.6
What approaches to give up smoking have you tried in the past?	Stop suddenly	16	37.2
	Cut down slowly	15	34.9
	Nicotine patches	9	20.9
	Nicotine chewing gum	2	4.7
	Others	1	2.3
What has been the biggest obstacle to you stopping smoking?	Peer pressure	25	30.5
	I enjoy smoking	21	25.6
	Stress	36	43.9

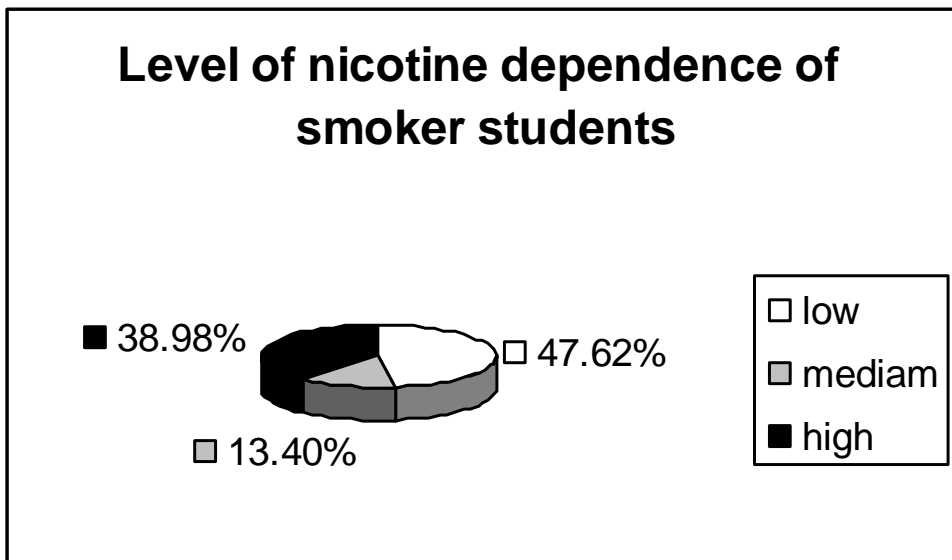
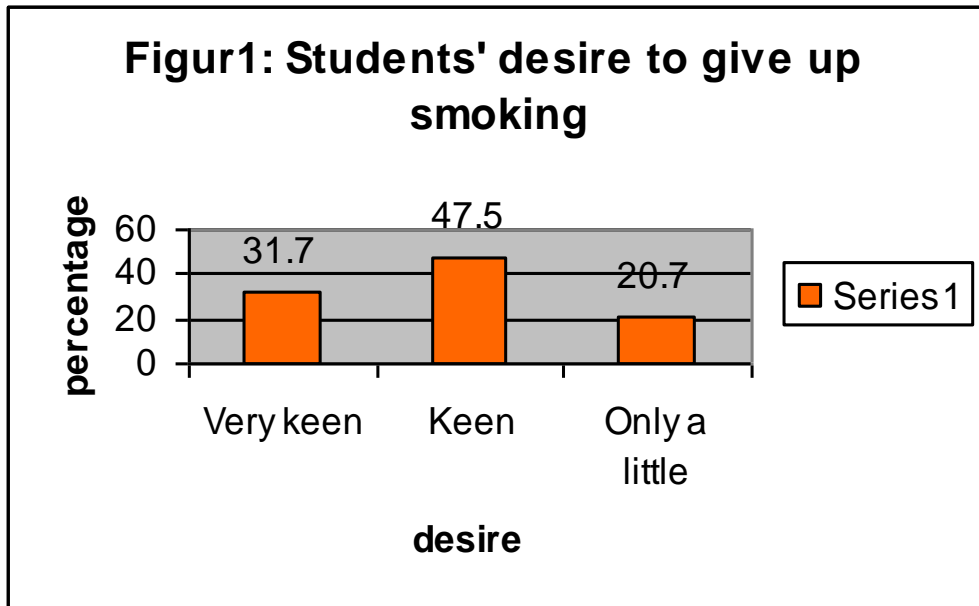


Figure (2) Level of nicotine dependence of smoker students

Table (6) Distribution of smoker students according to Fagerstrom Test for Nicotine Dependence. (FTND)

Smoking variables	Smoking students(n=82)	
	N	%
Smoking on waking up:		
≤ 5 min	7	8.5
6 to 30 min	25	30.5
31 to 60 min	33	40.2
≥ 60 min	17	20.8
Difficulty in stopping smoking in restricted places	55	67.1
Difficulty in giving up morning cigarette.	51	62.2
Number of cigarettes smoked per day		
≤ 10	21	25.6
11 to 20	35	42.7
21 to 30	18	21.9
≥ 31	8	9.8
Smoking during earlier part of the day	50	61
Smoking while ill	24	29.3

DISCUSSION

The World Health Organization established 'World No Tobacco Day' in 1987, as has been promoting antismoking measures worldwide since then, with annual themes. It has emphasized that health care professionals, including nurses, as role models for healthy living, should not smoke, and that as promoters of health education they should not seem to justify or condone their patients' smoking. To

promote antismoking measures among nurses, it will be necessary to scrutinize the smoking attitudes and behavior of nursing students and associated factors.¹⁴

The findings in the present study revealed that the mean age of initiating smoking in this study was 17 years among students. This is consistent with studies done in Riyadh reported that, the most common age of starting smoking was

between 15 and 19 years among all ever-smokers .^{15,16} Other study indicated that, the age of onset as 20 years for the great majority of smokers and described adolescence as the most vulnerable period for acquiring the smoking habit.¹⁷

The prevalence of smoking was 54% among the students and the majority of them commenced their smoking habit prior to coming into the nursing education. This prevalence is higher than that reported from Yarmouk University in Jordan (35%). Compared to other countries, the prevalence is higher than that reported nearby countries such as the Syria Arab Republic, Saudi Arabia and Lebanon. However, this variation may be partly due to the use of different criteria for defining smoking, different age groups studied and different methodologies adopted.⁸

All females' students in the study have never smoked. This is in agreement with

many studies done in Arab countries such as Saudi Arabia, and the United Arab Emirates, that reported a significantly higher prevalence of smoking among males, which may be due to the social acceptability of smoking habit among men.¹⁸

The findings also indicated that student nurses who had never smoked had a higher attitudes related to non-smokers' rights and health promotion than smoker students. This is consistent with other studies showed that students who still smoked had less favourable attitudes than those who had never smoked or stopped smoking.^{1,19} A smoker would tend to deny or ignore the harms in the remote future and focus on the pleasure and relaxation gained from it.⁴

The results showed no significant differences by gender or age in relation to attitudes toward smoking. This is in disagreement with a study done in Jordan University of Science and Technology

where the researchers noted that female students reported higher scores of positive attitudes against smoking than male students. Females were more aware of the health hazards of smoking and took notice of the consequences than males.⁴ This may be due to women having greater concern for their own health due to periodic changes in their bodies related to menstruation, child birth and lactation.

In relation to general knowledge related to hazards of smoking, the students had good general knowledge about smoking, and this is consistent with the findings of a study done in King Saud University.¹⁹ The question that arises is why smoking is still a sizeable problem among these students in spite of their knowledge of smoking. There must be some barriers against the acquisition of healthy behavior, as is shown by failed attempts to quit smoking by many of the smokers. One such barrier may be the addictive effect of the moderate- and high- nicotine yield

cigarettes smoked by many of the students. Other barriers might be the effects of peer pressure as well as the possible negative attitudes of parents. Moreover, incorrect beliefs about the possible advantages of smoking might add to such barriers. For instance, many smokers in the present study reported the fact that smoking calmed them down. This finding corroborates the hypothesis that knowledge of the health risks associated with smoking may not be enough to dissuade undergraduate students from continuing to smoke.²⁰⁻²²

In relation to students' level of nicotine dependence, the results of the study revealed that more than one third of smoked students smoke their first cigarette within 30 minutes after they wake up and 21.9 % of them smoke more than 20 cigarettes per day which indicates high level of nicotine dependence. This corresponds with previous research done by Eric²³ who indicated that to evaluate the

degree of nicotine dependence concern the time elapsed first cigarette. In addition, other study showed that the prevalence of nicotine dependence is higher at higher levels of cigarette use. ²⁴

Friends were considered the major reason for starting smoking. This finding was similar to those reported by Hugh ^{25,26} who mentioned that the peer environment was a crucial factor in the smoking behaviour among adolescent. To remain an acceptable member of the peer group, it was essential to conform to the smoking practice of that group. This highlighted the power of peer/ social influences on smoking behaviour. On other hand, almost one third of smoker students reported that they smoke to cope with stress. Other researches had similar results. It seems that youth use the undesirable behaviour of smoking as a strategy to cope with stress and social anxieties rather than beneficial pastimes such as reading books or playing sport .⁸

Several studies revealed that various factors such as curiosity about smoking and enjoyment were the reasons given by most of the current smokers for trying their first cigarette. ^{19,1} Findings of the study also indicated that almost half of smokers had a smoker parent. This is similar to the findings of Eileen¹ who reported that parental use of tobacco increased the chances of their children adopting similar habits. This is thought to occur through social learning processes, such as modeling, and the acceptance of smoking as the norm.

It is laudable that there was a strong desire among students who smoke to quit and many had tried unsuccessfully to stop on one or more occasions. This indicates that a high proportion of smokers may respond well to smoking cessation programmes if these were made available in the university. Other studies revealed that students found it easier to continue to smoke than to face the hostility shown to

them by their smoking friends when trying to quit.²⁷

In relation to student nurses' perceptions of their role as promoters of health, It was found that 27% of the quitters' students reported that they were a poor role model for health professionals. This study findings are similar to results of Hugh.²⁵ In addition, another study revealed that student nurses who continued to smoke felt guilty about the effects of their smoking behaviour on their health promotion role. Moreover, large percentage of smoker students felt they were hypocrites and not credible role models.²⁸

Conclusion

Smoking still constitutes a major problem among the students, in spite of their knowledge of its hazards. This may be due to a high level of nicotine dependence, peer pressure, negative parental attitudes and other reasons. The majority of smokers started smoking before they started their nursing courses. The

influence of friends was the most important factor in starting smoking while stress was the biggest obstacle to give up smoking. This study highlights the need to implement an anti-smoking program for college nursing students. In preparing student nurses for action, the intervention programme must be focused on the identification of coping strategies and support mechanisms, the aim of which was to empower individuals to resist the temptation to smoke.

Recommendations

It is hoped that the factors identified in this study should be taken into consideration in smoking cessation programmes to make them more effective and better able to influence the attitudes and behavior of smokers. Successful smoking cessation programmes will require a multifaceted solution incorporating policy makers, educators, health professionals, health promotion specialists and local government. In particular, nursing training

colleges should take an active role in health education and smoking prevention among student nurses. If successful this will have a positive effect on the health of nurses.

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