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KNOWLEDGE, ATTITUDE, AND BEHAVIOR TOWARD SMOKING AMONG MEDICAL STUDENTS IN UNIVERSITAS SUMATERA UTARA

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ABSTRACT

Introduction: Tobacco consumption is one of the important contributing factors of non-infectious mortality in Indonesia. Factors causing young people to smoke include personality, parents, and colleagues. Medical students should have good knowledge about tobacco, an attitude that supports smoking avoidance and supports smoking cessation, and be role models for society by not smoking. The aim of this study is to determine about knowledge, attitude toward smoking habit, and smoking behavior among the medical students of Universitas Sumatera Utara. **Method:** This is a descriptive-analytical study with cross–sectional approach, conducted at Medical Faculty of Universitas Sumatera Utara (USU) from March to December 2020. Participants are 100 medical students chosen randomly using stratified random sampling. Data are collected directly from the questionnaire in the form of Google Form sent to participants. Bivariate analysis was done using Chi-Square and Fisher's exact test. **Result:** shows the prevalence of smoking is 16%. For knowledge, 75% of respondent's knowledge about tobacco is average, 22% respondents have good knowledge, and 3% respondents have poor knowledge. Attitudes toward tobacco avoidance are positive in 63% respondents and negative in 37% respondents. Smoking behavior of 37.5% smokers is high, 31.25% average, and 31.25% low. Bivariate analysis finds significant correlation between smoking status and gender, smoking peer, and attitude. **Conclusion:** majority of USU medical students have average knowledge about tobacco, positive attitude toward smoking avoidance, and high smoking behavior. Significant correlation found indicates the need to raise awareness of smoking hazard and effort in ceasing smoking behavior among medical students.

Keywords: knowledge, attitude, behavior, medical students, smoking

INTRODUCTION

Overall, there are 1,4 billion tobacco users aged 15 years old and above throughout the world, in which 1.07 billion smokers and 367 million smokeless tobacco (World Health Organization, 2019). In Indonesia, the prevalence of smoking is 29%. The province with the highest smoking prevalence is West Java, which has 32.7% and the lowest smoking prevalence is Papua, which has 21.9%. Data from 2013 show that the number of male and female smokers seems to be increasing. In 2013, prevalence of adult male smokers increased from 65.8 in 2010 to 66% and female smokers from 4.1% to 6.7% (Indonesian Ministry of Health, 2018). According to a survey carried out by Global Youth Tobacco Survey (GYTS) in 2014 at 72 schools, 32.1% of students have smoked and 20.3% are still smoking. Smoking behavior mostly starts at the age of 12 to 13 years old (WHO, 2014).

Smoking is responsible for over 8 million death a year around the world, with 7 million resulting directly to tobacco usage and 1.2 million from being exposed to second-hand smoke, 90% of lung cancer mortality, 80% of chronic obstructive pulmonary disease (COPD), and increase in health risks such as coronary heart disease, stroke, asthma exacerbation, fertility, bone health, oral problems, cataract, and other types of cancer (CDC, 2020; World Health Organization, 2020). In Indonesia, it was reported that non-infectious disease accounted for over 75.5% of mortality, in which one of its risk factors is smoking. Smoking was a comorbidity in over 88

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deaths for every 100,000 people. Using Disability Adjusted Life Years (DALYs), smoking contributed to a number of diseases, mostly toward ischemic heart disease, responsible for about 645 DALYs for every 100,000 people (TCSC-IAKMI, 2020). Smoking was also reported to increase the risk of severe COVID-19 infection by almost two fold (Zhao et al., 2020).

Previous studies at numerous universities in Indonesia suggested that not all college students have good knowledge about tobacco and tobacco hazard. College students in Universitas Indonesia and UIN Syarif Hidayatullah Jakarta have been shown to have good knowledge. However, some studies show that the majority of medical students in Universitas Sumatera Utara and Universitas Andalas have average knowledge about tobacco. This might be because medical students are less active to search for information or there is no special training or curriculum about tobacco (Loren, 2010; Yosantaraputra, Yanwirasti and Abdiana, 2014). A study done in Universitas Syiah Kuala shows that most of its medical students have positive attitudes toward tobacco hazard avoidance and smoking cessation (Mahabbah, 2015). Among smokers, smoking behavior in some college students was found to be high (Azkiyati, 2012; Syarfa, 2015). A high smoking behavior means that a person smokes at least one cigarette per day, smokes frequently, and uses a cigarette containing high amount of nicotine and tar (Azkiyati, 2012).

Smoking behavior can be reduced or even ceased with the help of trained healthcare professionals. Yet, most future healthcare professionals never get any training in smoking cessation counselling (Singh et al., 2003). Approximately 80% of smokers visit primary care physicians annually and, as such, primary care physicians have every opportunity to provide effective smoking cessation treatment as patients generally will be motivated to cease smoking habit (Pipe, Sorensen and Reid, 2009). As the future healthcare providers or physicians who have to set a good model to the public, medical students should not smoke. Medical students should also have good knowledge about tobacco and an attitude that supports smoking cessation in order to educate the public about smoking hazard.

Consequently, we conducted a study about smoking behavior in medical students at Universitas Sumatera Utara. The aim of this study is to determine about knowledge, attitude toward smoking habit, and smoking behavior among the medical students of USU.

METHODS

This is a descriptive-analytical study with cross-sectional approach, in which data are collected once per subject in a set period of time. This study was conducted from March 2020 to December 2020. Population of this study is current medical students in Universitas Sumatera Utara, Medan city, Indonesia. Subjects in this study are 1st, 2nd, and 3rd year medical students in Universitas Sumatera Utara. As many as 100 currently active medical students were chosen randomly using stratified random sampling. This number was divided evenly into each year of study except 3rd year, which has one subject more than 1st and 2nd year. Inclusion criteria for the subject of this study include currently active 1st, 2nd, and 3rd year medical students in Universitas Sumatera Utara who were willing to fill in the questionnaire. Questionnaires filled incompletely are excluded in this study.

As the COVID-19 pandemic is occurring, Indonesia has enforced “physical distancing” law to prevent the spreading of the infection and, thus, this study was conducted online. Data were collected directly from the questionnaire in the form of Google Form sent through various social media to participants. Questionnaire used in this study was adopted from previous study (Loren, 2010; Mahabbah, 2015; Syarfa,

2015). Participants had to fill informed consent regarding the study before completing the self-administered questionnaires. Demographic data include year of study, smoking status, parental and peer smoking status. Main variables studied are knowledge about tobacco, attitude toward smoking, and smoking behavior among participants. Anonymity is guaranteed for all participants who have filled in the questionnaire

The assessment of knowledge about smoking includes 10 questions about the dangers of smoking, the content of cigarettes, the toxic substances produced by cigarettes and the effect of smoking on health. If the respondent answers 1 question correctly, it equates to a score of 1. Knowledge of smoking is said to be good if the total score is 8-10, moderate if the total score is 4-7 and less if the total score is 3. Attitude is defined as the respondents' response about smoking acceptance, the effects of smoking and respondents' perception toward smokers. It consists of nine questions which are divided into three questions for positive statements and six questions for negative statements. The answers to attitude questions are always, often, rarely and never. In the context of this study, a positive attitude reflects a person's willingness to avoid tobacco hazard and habit. Respondent has a positive attitude toward cigarettes if the total score is ≥ 30.4 and a negative attitude if the total score is ≤ 30.4. Smoking behavior is defined as the respondent's behavior that describes smoking activities, and consists of 15 questions by choosing one answer always, often, sometimes and never. Respondents are said to have high smoking behavior if the total score is ≥ 40, moderate if the score is $20 \leq x \leq 40$ and low if the score is ≤ 20.

Data were processed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive analyses were done by calculating the number and percentage for each categorical variable to summarize the study. Pearson's Chi-Square and Fisher's exact test were used to test the significance between independent variables (knowledge, attitude, and demographic data) and dependent variable (smoking status); knowledge variable has less than 5 expected count. P value <0.05 is considered significant.

The proposal of this study has been revised, approved, and has received ethical clearance by the Ethical Research Committee of Universitas Sumatera Utara with approval number 307 / KEP / USU / 2020.

RESULT

Table 1. Distribution of demographic characteristic

Characteristics	f	%
Gender		
Male	50	50.0
Female	50	50.0
Smoking Status		
Yes	16	16.0
No	84	84.0

A total of 100 medical students in Universitas Sumatera Utara ranging from 1st year to 3rd year are included in this study. Proportions of male and female medical students in this study were divided equally (50% male and female). Some medical students were found to be smokers (16%) and others (84%) are not (Table 1). Further elaboration on smokers and non-smokers will be shown in Table 3.

Table 2. Distribution of knowledge and attitude

Variables	f	%
Knowledge		
Good	22	22.0
Average	75	75.0
Poor	3	3.0
Attitude		
Positive	63	63.0
Negative	37	37.0

Of the 100 medical students in this study, the majority have an average knowledge regarding tobacco (75%), some

have a good knowledge (22%), and a small number of students have poor knowledge (3%). Most students have attitude that tends to avoid tobacco smoking and preventing tobacco hazard (63%) while others (37%) seem to be either fine about smoking behavior and its hazards or apathetic toward it (table 2).

Among the 16 smokers, most seem to have a high smoking behavior (37.5%) and the rest have an average (31.25%) or low (31.25%) smoking behavior (Table 3).

Table 3. Smoking behavior of medical students

Smoking behavior	f	%
High	6	37.5
Average	5	31.25
Low	5	31.25

Table 4. Bivariate analysis of dependent and independent variables with Chi–Square test

Variables	Smoking Status				P value
	Smoker		Non - smoker		
	f	%	f	%	
Gender					
Male	12	12.0	38	38.0	0.029
Female	4	4.0	46	46.0	
Smoking Parent					
Yes	4	4.0	28	28.0	0.513
No	12	12.0	56	56.0	
Smoking Peer					
Yes	13	13.0	19	19.0	0.000
No	3	3.0	65	65.0	
Knowledge					
Good	3	3.0	19	19.0	1.000
Average - Poor	13	13.0	65	65.0	
Attitude					
Positive	4	4.0	28	28.0	0.001
Negative	12	12.0	56	56.0	

Of 100 students, 12 males (12%) and four females (4%) are smokers. Most smokers have an average knowledge about tobacco (13%) but the rest have a good knowledge (3%). Some smokers have positive attitude toward tobacco avoidance even though they smoke (4%) and others have no qualms about smoking behavior (12%).

Most smokers claim that their parents don't smoke (12%) while some report that they have at least one parent who smokes (4%) and regarding smoking close friends or colleagues, most smokers report that they have a close friend who smokes (13%) and some claim to not have a smoking close friend (3%).

Bivariate analysis using Pearson's Chi-Square test shows statistically significant association between attitude toward smoking, gender, and smoking peer with students' smoking status (p=0.001; p=0.029; p=0.000). However, there is no statistically significant association between parental smoking and students' smoking status (p=0.513). Bivariate analysis of knowledge about tobacco and students' smoking status using Fisher's exact test shows no statistically significant association (p=1,000). Group in knowledge

variable is simplified to Good and Average - Poor in order to meet the requirement for the test.

DISCUSSION

Demographic characteristics

Results in this study shows that the prevalence of smoking among medical students in Universitas Sumatera Utara is 16%. This is more than the reported number by previous study in 2009 suggesting that the prevalence was 9.2% (Loren, 2010). Results also show that male smokers are found to be more dominant than female smokers and there is a correlation between gender and smoking status. This is consistent with a finding in UIN Syarif Hidayatullah Jakarta, in which the study suggested that male adolescents tend to smoke thirty times more than female. Female smokers were less prominent because mostly females avoid smoking behavior as it contradicts their culture and value (Syarfa, 2015). However, the number of female smokers might increase because of changes in lifestyle in which females wish to appear more modern and, as such, have adopted smoking behavior and if such action were to receive support and was done with another smoking peer, smoking intensity might increase (Barraclough, 1999; Sartika, Indrawati and Sawitri, 2009). Females also smoked to cope with negative feelings, when having troubles with surrounding people, getting bad grades, or under stress (Akbar, Istiqomah and Afriandi, 2019).

A study suggested that four factors were found to influence a person's smoking behavior such as peer pressure, parents, advertisements, and personality. Family is the closest environment to students and behaviors could be influenced toward each other. Smokers tend to have peers who also smoke and, with conformity theory, it is suggested that one would follow a person's opinion, habit, and behavior to feel comfort in a group (Fuadah, 2011; Wibowo, 2018). In this study, smoking peer and parent are reported by both smokers and non – smokers and results find that smoking peer has significant association with smoking status, but not smoking parent, which corresponds and also contradicts some studies' result (Abu-elenin, Omar Atalla and El-Salamy, 2017). Awareness toward smoking hazard is easily masked by these social factors (Singh et al., 2003). Imitating others, gaining pleasure from the habit, or filling leisure time could also be reasons students smoke (Abdalla et al., 2011).

Knowledge regarding tobacco

Medical students should be responsible by having good knowledge regarding tobacco in order to fix tobacco health-related problems (Mahabbah, 2015). Majority of knowledge about tobacco among medical students is average. This study's finding corresponds with previous studies, which also suggested most medical students' knowledge category is average regarding tobacco. This might be because the lack of training or lectures regarding tobacco, nicotine, and its hazard in conjunction with inactivity of medical students in information seeking (Loren, 2010; Yosantaraputra, Yanwirasti and Abdiana, 2014). Individuals with good knowledge about tobacco tend to avoid smoking behavior (Maseda, Suba and Wongkar, 2013).

In this study, most smokers have an average knowledge, but some have a good knowledge regarding tobacco, although, this study does not find significant association between knowledge and students' smoking status. Smokers have a tendency to underestimate smoking-related morbidity and mortality as a study found that smokers gave less appropriate answers about smoking-related health issues that non-smokers (Kusma et al., 2010). Studies also found that medical education alone will not increase awareness about tobacco hazard and cease smoking behavior, and even if medical students possess a good knowledge about tobacco hazard, most still continue smoking because of stress and peer pressure (Al-Haqwi, Tamim and Asery,

2010; Chkhaidze et al., 2013). Insufficient knowledge about tobacco associated health risk will lead patients to miss chances to cease smoking habit due to unknowledgeable physician (Jradi and Al-Shehri, 2014).

Attitude toward smoking habit

Positive attitude in this study reflects a person's willingness to avoid tobacco hazard and habit. In this study, results show most medical students have positive attitude and find that there is a significant association between attitude and students' smoking status, which corresponds with a study suggesting students are aware of tobacco hazard toward health and economy (Mahabbah, 2015). Studies found that most medical students support smoking cessation with counselling, should be a role model for public by not smoking, and smoking cessation counselling is a healthcare professional's responsibility. Smokers, on the contrary, tend to not show an attitude that supports smoking cessation and have a positive attitude toward supporting smoking habit to their patients (Ferrante et al., 2013; Salgado et al., 2017). However, a study found that most former smokers agree that smoking is hazardous to health and decided to quit smoking in concern of harming others, setting an example for patients and society, or money saving. Most students were also found to support sharing responsibility in persuading their patients to cease smoking and also agree that physicians should receive special courses regarding smoking cessation counselling (Shalaby and Soliman, 2019).

Smokers were less likely to stop smoking either because they believe they are more successful in advising patients to cease smoking habit considering they have first-hand experience, or they are less likely to provide smoking cessation counselling to their patients. Not only did smoking affect attitude toward smoking cessation, smokers were also less likely to believe that tobacco use could influence a physician's care, which contradicts a lot of studies. This, with the absence of training. could lead to a lack of investigating smoking history (Armstrong et al., 2017).

Smoking behavior

Smoking habit, if developed during adolescence, will continue to drive during their young adult ages, with the amount of smoking and related consequences also increasing (Jalilian et al., 2015). As a future physician and healthcare worker, medical students should avoid participating in any smoking activities. Smoking behavior among students who smoke in this study is mostly found to be high. A high smoking behavior can be influenced by feeling of addiction from smoking (Azkiyati, 2012). The result of this study corresponds with a study which suggested that health students should not have a high smoking behavior as they are a future physician and healthcare worker (Syarfa, 2015). Yet, some health students seem to be having difficulty in ceasing smoking habit because of life and academic pressure, experiencing headache, and unable to concentrate while studying (Elamin et al., 2013). Identical results were also suggested by a study that found the majority of smoking medical students claim to start smoking as a means to relieve stress and mere entertainment (Abu-elenin, Omar Atalla and El-Salamy, 2017). In order to cease smoking behavior among medical students, not only does awareness regarding tobacco hazard need to be raised, but also the supportive attitude from surrounding people (Elamin et al., 2013).

Smoking behavior among healthcare providers could be the effect of occupational stress and old cultural norms, which used to accept smoking habit and associated it with a certain status symbol, thus hindering the ability to counsel patients about smoking cessation (Juranić et al., 2017). A study involving nurses, physician, and healthcare staff found that most of the subjects were smokers and did not think a health-related occupation should be a role model and some healthcare workers even

claimed to smoke in front of their patients (Masia et al., 2006; Zinonos et al., 2016). The same results were also yielded in a study involving primary care physicians as it was suggested that non-smoker physicians are more likely to provide advice regarding smoking cessation to patients than smoking physicians (Al-Hagabani et al., 2021). Most healthcare workers wish to cease their smoking habit because it could affect their smoking cessation counselling and most patients will try to cease smoking behavior with the help of healthcare workers, even those who have low motivation in quitting (Zinonos et al., 2016).

Based on the results of this study, which found that smoking behavior was still high in Universitas Sumatera Utara medical students, and most of the knowledge was still at an average level and there was still a negative attitude toward smoking, then several things must be done to overcome and improve this. Medical students who smoke need to undergo smoking cessation counselling in order to reduce or cease their smoking habit as it could affect their practice. A special curriculum regarding tobacco and nicotine hazard with training on how to educate and help patients to cease smoking behavior and a regulation in preventing smoking activities should be implemented in the Faculty of Medicine.

CONCLUSIONS

The prevalence of smoking behavior among medical students in Universitas Sumatera Utara, although not too high (16%), is a matter of concern considering the students are future physicians who have a role in educating patients to cease smoking behavior and have insufficient knowledge regarding tobacco with only 22% of the medical students having good knowledge; this might impact the outcome of a patient in ceasing their smoking habit. Fortunately, most students showed positive attitude toward smoking habit avoidance and supporting smoking cessation. With this study's finding of a significant association between students' smoking status with gender, smoking peer, and attitude toward smoking, regulations need to be enforced and awareness needs to be raised in order to prevent students from adopting a smoking habit.

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