

The Suicidal Behavior Among Smoker among Medical Students at Alzaiem Alzahari University 2022

Areeg Alhadi Hassan Osman, Mohammed Hammad Jaber*, Arieg Abdelrazig Hassan Obaid, Israa Elbukhari Taha Abdulgani and Humeda Suekit Humeda

Faculty of Medicine Alzaiem Alzahari University Khartoum Sudan

*Corresponding Author

Mohammed Hammad Jaber, Faculty of Medicine Alzaiem Alzahari University Khartoum Sudan.

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Abstract

Introduction

Cigarette smoking is an important factor that responsible of morbidity and mortality. It can cause cancer, cardiovascular problems and even depression. Also, lots of people die out of suicide every year. There is some literature showed relationship between cigarette smoking and suicide-related behavior.

Objectives

To determine the relationship between smoking status and suicidal behavior.

Method of Investigation

This study was conducted by observational descriptive cross-sectional design using self-administered questionnaire. Smoking status was determined according to Smoking index. About suicidal behaviors, the Suicide Behavior Questionnaire-Revised (SBQ-R) was used. Data was analyzed using SPSS version 25. The relationship was analyzed using Chi-square. P values less than, 05 was considered significant.

Results

A total sample of 284 participants, 56% were female and 44% were male. According to batch, 19.7% of participant's batch 24, 22.9% of participant's batch 25, 21.1% of Participant's batch 26, 18.7% batch 27 and 17.6% batch 28. 89% of participants are non-smoker, 8% are current smoker and 3% are former. According to smoking index, 94% of participants are mild smoker, 3% are moderate smoker and 3% are heavy smoker. 89.1% of participants have low suicidal score and 10.9% have high suicidal score. According to high suicide score, 9.1% are non-smoker while 1.8% are smoker.

Conclusion

In this study, there was numbers of cigarette smokers and also there was students showing suicidal behaviors but there was no relationship between cigarette smoking and suicidal behavior.

1. Background

Every year more than eight million people died of tobacco use. More than seven million of them are because of direct tobacco use while around 1.2 million are because of passive smoking [1]. It causes death and illness regardless of years of antitobacco efforts. About twenty three percent of the whole world smoke cigarette. Thirty two percent of all are males and seven percent of all are females. The highest prevalence worldwide is in Eastern and south Asia. In Sudan the prevalence of smoking and smokeless tobacco users were 15.6% in 2016. Smokeless tobacco is known

as toombak in Sudan, which is a highly addictive substance [2]. Smoking can cause many harmful effects. These health problems include: cardiovascular diseases, damage to the blood vessels which can cause high blood pressure, blood clots and stroke, abdominal aortic aneurysm (AAA) and peripheral arterial disease and heart failure.

Passive smokers or secondhand smoker can also get many health problems the same as smokers [3].

Smoking assessment is based on several questions about cigarette smoking. It includes the categories of never smoked, former smoker and current smoker. "Never smoked" is someone who had smoked <100 cigarettes in their lifetime. Former smoker refers to someone who had smoked > 100 cigarettes in their lifetime but has not smoked in the last month. Current smoker refers to someone who had smoked > 100 cigarettes in their lifetime and currently smoke. Status of smoking intensity is classified as: light smoker (>10 cigarettes daily), moderate smoker (10-19 cigarettes daily) and heavy smoker (> 20 cigarettes daily) [4]. There is evidence that suggest there is association between cigarette smoking and increased risk of suicidal behavior, therefor, smoking is a contributing factor for suicide [5].

Suicide is a tragic and distressing phenomenon. It has many risk factors, for example: prior suicide ideation, current anxiety or agitation, sleep problems, interpersonal problems or job/financial strain and family history of mental disorder [6-12].

Every year more than 700,000 people die due to suicide. Suicide is the second leading cause of death among 15-29 years old. Completed suicides are three times more common to happen in males than in females [13-16]. The assessment of suicidal behaviors is based upon depressive symptoms, suicide ideation, planning and attempts [17-21]. Some studies showed relationship between smoking and suicidal behavior or ideation, and some studies showed positive dose-response relationship between them. Smoking can cause conditions that can predispose individuals to suicide-related behaviors; for instance a mental illness such as depression or a physical illness as cancer. However there is possibility that smoking represent a causative agent. There are several pathways that have been discovered. For example smoking lowers the levels of serotonin and monoamine oxidase A and B which are neurotransmitters. They are associated with depressive episodes when they are reduced. There is evidence that said: chronic cigarette smoking has long-term neurocognitive effects which cause difficulties in making decisions [22-26].

Recently found that nicotine dependent individuals who have quit for at least one year were significantly less likely to attempt suicide than people still dependent on nicotine, which suggests a direct role of nicotine dependence on suicide-related behavior [27-31].

Smoking has negative effects on the human body; some of these negative effects may lead to life threatening complications. In fact, smoking had proven to be a factor, which can cause depression. Smoking can cause cancer, which may lead to suicide eventually. Smoking rates had increased in Sudan lately. The negative effects of smoking do not affect smokers only, as it harms the individuals around them who breathe smoke indirectly too. Therefore, they may suffer from the same health problems that the smokers are exposed to.

By decreasing, the prevalence of smoking there will be massive decrease in suicide numbers that are caused by smoking. Other countries have already taken the vital steps needed to move

forward by performing a study on this topic, but it has yet to be done in Sudan. This study aimed to determine the relationship between smoking status and suicidal behavior.

2. Methodology

2.1 Study Design

Observational descriptive cross-sectional institutional based study.

2.2 Study Area

Alzaiem Alazhari University, faculty of medicine. It is located in Khartoum Bahri on Ahmed Kassem Street, west of electricity Ahmed Kassem. The administration is located in the same location.

2.3 Study Population

Medical students at Alzaiem Alazhari University. Including all batch 24 to 28. A total of 284 students participated in this study.

2.4 Sample Size

It calculated according to the equation :

$$N = \frac{N_1}{1 + N_1(e)^2}$$

N = sample size

N = number of population

E = confidence level = (0,05)

$$= \frac{985}{1 + 985(0,05)^2} = 284$$

2.5 Sample Technique

N = 284

The sample size is divided to the 5 batches according to the stratified sampling equation: Sample size of the strata = (sample size / population size) × stratum size.

We took 56 out of 195 students of batch 24. 65 out of 225 students of batch 25. 60 out of 207

Students of batch 26. 53 out of 185 students of batch 27. 50 out of 173 students of batch 28. The sample size that had been determined will be selected by systemic random sampling.

2.6 Study Variables

- Batch
- Smoking index

3. Data Collection

1. Data was collected via google form. Questionnaire filled by the medical students at Alzaiem Alazhari University. The questionnaire was designed to meet the objectives of the study chosen based on the relative literature reviews.

2. The questionnaire include: age, sex, batch, marital status, residence, smoking status and suicidal assessment.

3. According to the smoking status the smokers were divided into 3 groups: non smokers, former and current smokers. Further classification according to the heaviness of smoking, smoking index was used. According to that smokers were classified into : light (< 100), moderate (101-300) and heavy smokers (>300) according to number of cigarette smoke per day and how many years they were smoke.

4. The Suicide Behaviour Questionnaire-Revised (SBQ-R) was used to determine the suicidal behavior. It contains 4 questions. Every question has multiple different answers and every answer has a point. The final score will range from 3 to 18. More than 6 consider high risk of suicide and need intervention. According to this, population was classified into: high and low risk for suicidal behavior.

3.1 Data Analysis

The data was collected and analyzed using SPSS version 25 software program. Descriptive data was presented as mean \pm standard deviation and percentages. The comparison between the smoking status and suicidal behaviour was analyzed by chi-square test. P value < 0.05 was considered significant.

3.2 Ethical Consideration

The process was clearly explained to each one of the participant. They were assured about their confidentiality. We explained all of the information through WhatsApp application.

4. Results

Data collected from 284 study participants were analyzed to determine the relationship between smoking status and suicidal behaviour. Among the study participants 44% were male and 66.9% were over 20 years of age. In addition to this, the study population were also segregated on the basis of batch, marital status and residence. Of the 284 study participants 11% were smokers, and in that 4 were females (p-value = 0.00). Based on age, 83.9% of the smokers were above 20 years of age, while 3.2% were less than 18 years of age (p-value = 0.112). The number of non-smokers were high in all 5 batches, cumulatively, 89.1% of the entire study population (p-value = 0.175) of which 98.4% is not married (p-value = 0.406), and 28.8% were not residing with family (p-value = 0.057). The smoking index among the study participants were assessed as mild, moderate and heavy, which were 94%, 3%, and 3% of the study population, respectively. The data collected based on SBQ-R demonstrated that suicidal score was high among 11% of the study population, of which 16.1% were smokers (p-value = 0.448). The analysis of smoking index and suicidal behaviour revealed that individuals with mild smoking index had high suicidal score while, the distribution of low suicidal score among participants with mild, moderate and heavy smoking index were 92.3%, 3.8% and 3.8%, respectively (p-value = 0.567).

5. Discussion

The results of our study showed a low prevalence of cigarette smokers among medical students at Alzaim Alazhari University. According to a study among medical students in a tertiary care teaching hospital in Nepal which found also a notable prevalence of smoking among those students [30]. In a study among medical students from the Western Balkans, there was a high prevalence of cigarette smoking among medical students of the University of Rijeka [31].

Most of the participants were non-smokers while the least one

were former smokers. The current and former smokers has low prevalence as in study made in West of Iran [4]. Another study that confirmed in its results that non smokers were higher than the others but current smokers were more than former smokers (15.9%) [12].

Fortunately, according to smoking index most of those smokers in this study were mild smokers. Unlike in a study, where the heavy smokers were dominant [4]. Furthermore, a study was done among pregnant women in general population which showed the same results as ours that most of those pregnant were mild smokers [32].

In this study, the prevalence of smoking was higher in males than in females. As in a study among third-year medical students in a tertiary care teaching hospital in Nepal, where males had a higher prevalence of smoking than females [30]. Also in a study among medical students of university of Rijeka from the Western Balkans, where there was a high prevalence of cigarette smoking among male students than females [31].

According to age, most of the smokers were above the age of 20 years old. The same as our results, where a study showed that the prevalence of smoking is high in late adolescents [8]. Unlike other study were most of the smokers were between the age of 45 to 54 years old [4]. In every single batch of our sample there were smokers but most of those smokers were in batch 25. Also the results of our study showed that, most of the participants were not married and so does the smoking status in this group. All of the married ones were not smokers. Also there is a study support our results in which non married ones have higher smoking prevalence than married ones [33]. Unlike in a study which showed higher prevalence of smoking among married ones than those who were not married [34].

The majority of the participants were living with their families. Smoking was higher among those who were living with their families. A study showed that smoking was higher among students who were living in dormitories compared to those who were living with their families [33]. Unlike a study which demonstrates that, students who were living with their families have high smoking prevalence than those who were not living with their families [35].

Most of the participants showed a low suicidal score. A study was made among medical students aiming to assess the prevalence and factors associated to depression and suicidal behaviors. It concluded that, the prevalence of suicidal-related behaviors and depression were much higher in medical students than in general population [36]. Also another study among pre-medical and clinical years students, it's suggested that suicidal ideation were more common in medical students compared to other undergraduate students [37].

Suicidal behaviors were more in female students than males. Unlike a study which confirmed in its participants that males were showing more suicidal behaviors than females [19]. Also in a

study which confirmed in the results that suicidal risks are higher in females than males [27].

In this study, the suicidal behaviors were divided into high and low suicidal score. Most of the participants have low suicidal score. Most of those who have high suicidal score were above 20 years old. The same as in our results, a study showed that the suicidal behaviors were more in those who were above 20 years old than less 20 years old [19]. In a study also that measured the suicidal behaviors and found that it's more in people between 18 to 30 years old than above 30 [12].

In this thesis, all of those who have high suicidal score were not married. As in our study, another study showed that married men and women have lower suicide risk than unmarried men and women [38]. Unlike in a study which confirmed the liability of death caused by suicide was 3.5 times higher in married people compared to the unmarried people [39].

This study showed that most of those who have high suicidal score were living with their families. As in our results, a study showed that there was high suicidal scores in those who were living with their families compared to those who were not living with families [24]. Another study disagreed with the previous one in which, people who were living alone have higher risk of suicide compared to those who were not living alone [40].

In this study there was no significant relationship between smoking status and suicidal behaviors. As in a study that had the same result as in our study which concluded despite observed associations, there is no clear evidence for a causal effect of smoking on suicide [9]. But there are many studies confirm that there's a relationship between smoking and suicide [5, 11,12].

6. Limitations

1. We used google form instead of paper questionnaire due to the difficulty of reaching all the participants.
2. We faced some internet issues. Not all the participants have good internet connection so some of them accessed into the good form from other devices than their phones.

7. Conclusions

There was no significant relationship between smoking status and suicidal behaviors.

Recommendations

Large scale cohort studies are needed to confirm the relationship between cigarette smoking and suicidal behaviors and to explain the mechanism behind that.

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