Anxiety Level Differences on Light Smokers and Heavy Smokers in Tegal Sari Mandala II and III Villages

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Abstract: Smoking is one cause of death in the United States. Almost a quarter of the population smokes, and this habit has been associated with about 430,000 deaths per year. Psychiatric disorders are 2-3 times more common among smokers than non-smokers or ex-smokers. The prevalence of smoking in patients with anxiety is 17% to 55%. By behavior, the stimulant effect of nicotine results in increased attention, time to react, learning and problem-solving skills. The aim of this study is to examine the relationship between light and heavy smoking habit and anxiety level with citizens in Tegal Sari Mandala II and III village, Medan. This study is categorical analytic study with cross sectional method to see the relation between smoker and anxiety level to citizen in Tegal Sari Mandala 2 and 3 village with 180 subjects in this study and will be analyze by Chi-Square. The level of smoking habit will be asked during interviews and the anxiety level will be examined by Hamilton Anxiety Rating Scale (HARS). In this study it was found that the greatest possible level of anxiety/anxiety in both light smokers and heavy smokers was the same, i.e. moderate anxiety but it can be ascertained that in heavy smokers it is less likely to experience mild anxiety ($p < 0.001$).

1   INTRODUCTION

Smoking is one cause of death in the United States. Almost a quarter of the population smokes, and this habit has been associated with about 430,000 deaths per year. Smoking is associated with asthma, chronic bronchitis, lung cancer, coronary heart disease, and emphysema. Although about 35% of smokers try to quit smoking each year, less than 5% are successful. The majority of researchers agree that one of the major obstacles to success in quitting smoking is the nicotine withdrawal syndrome (Morrell HE, 2006).

According to Morissette et al., 2007, the prevalence of smoking in patients with anxiety is 17% to 55%. Hughes et al., 1986 found that 47% of psychiatric patients treated with anxiety disorders had a smoking habit. Himle et al., 1988 went on to study Hughes, also observed smoking comorbidities against more specific anxiety disorders. They

encountered simple phobias, 47%; social phobia, 27%; agoraphobia, 57%; panic disorder, 47%; general anxiety, 29%, and obsessive compulsive disorder, 9% who smoked. Himle also suggests that smoking levels may differ between types of anxiety disorders. Studies conducted by Johnson et al., 2000 show that heavy smokers (more than 20 cigarettes / day) are associated with increased risk of anxiety disorders, panic disorders, and agoraphobia disorders during adulthood. The invention is also consistent with previous findings that smoking increases the risk of anxiety disorders.

Smoking prevalence, particularly nicotine dependence is 2-3 times among patients with anxiety, attention-deficit, mood, substance use, and other psychiatric disorders. Psychiatric disorders are 2-3 times more common among smokers than non-smokers or ex-smokers. By behavior, the stimulant effect of nicotine results in increased attention, time to react, learning and problem-solving skills.

Tobacco users also report that smoking can reduce depressive feelings, elevate mood and reduce tension (Huges JR, 2009 and Sadock BJ, 2007). Nicotine has a complex structure. The effects of nicotine on the central nervous system are also widespread. The central nervous system associated with nicotine will result in changes in the neuronal receptor nicotinic acetylcholine (nAChRs). These receptors can be found throughout the brain area and when there is stimulation, there are releases of neurotransmitters such as dopamine, norepinephrine, vasopressin, glutamate, serotonin, gamma aminobutyric acid (GABA), and other neurotransmitters. Increased concentrations of nAChRs receptors are found in the mesolimbic system of dopamine and locus ceruleus (Kamluddin A, 2011).

Nicotinic receptors in cognitive function, are strongly associated with pleasure and reward systems. Nicotine work on nAChRs will modulate the amount of stress hormones, monoaminergic transmission and neurotransmitters in the brain that will improve memory and affect the level of anxiety and depression in the normal brain. In addition to nicotine, cigarette smoke contains monoamine oxidase inhibitors (MAOI); an antidepressant, so that the destruction of some neurotransmitters such as dopamine, norepinephrine and serotonin will be reduced. The release of serotonin, corticosteroids and endorphins due to nicotine, can reduce fatigue and improve the efficiency of the brain's cognitive processes.

Because of these effects, nicotine has a sedative effect that decreases anxiety (Kamluddin A, 2011). The aim of this study is to examine the relationship between light and heavy smoking habit with anxiety. The hypothesis of this study is there is a relationship between light and heaving smoking habit with anxiety in Tegal Sari Mandala II and III Village Medan.

2 METHOD

This study is categorical analytic study with cross sectional method to see the relationship between smoker and anxiety level to citizen in Tegal Sari Mandala 2 and 3 village. Population Study: residents in Tegal Sari Mandala 2 and 3 villages. Inclusion criteria: citizens registered in Tegal Sari Mandala 2 and 3 , have a smoking history for 1 year, men aged 20-40 years, Cooperative and willing to participate in study. Exclusion criteria: have a history of substance abuse other than nicotine, have a history of general medical disorders, have a history of psychiatric disorders.

The sample size is measured using the formula:

$$n1 = n2 = \left[\frac{Z\alpha\sqrt{2PQ} + Z\beta\sqrt{P1Q1 + P2Q2}}{P1 - P2} \right]^2$$

Using the formula above we get the sample of 90 people for each group. The total sample size is 180 people. This study activity is carried out in several stages of preparation phase, implementation and preparation of study result report. The step that has been passed in this study is preparation and early stage of study implementation. At the preparatory stage, the activity is a literature study of theories that support the study (study journal). Furthermore, the management and permission application to conduct study from the Medical Ethics and Study Committee (KEPK) Faculty of Medicine, University of Muhammadiyah Sumatera Utara.

Approval is obtained after 2 weeks submission. The outcome of the preparatory phase is the draft study work plan. After getting approval, the study is continued to the stage of study implementation. Activities undertaken by conducting study according to draft work that has been prepared together by the study team from the previous stage. Implementation of the study begins with requesting permission in advance with the Village Heads in Tegal Sari Mandala II and III to collect the residents and ask questions to fill out the questionnaire after first getting information about the study and the purpose of the study.

The residents of Tegal Sari Mandala II and III Urban Villages meeting the inclusion criteria are given explanation of the study and for the willing citizens who will be the subjects of the study, are required to complete the consent form. After completing the consent form, the subject is requested to sign the consent form. Then given the form data, and given an explanation of its usefulness

and how to fill it. After that the subject in the interview for charging of Hamilton Anxiety Rating Scale (HARS). After filling HARS done total sum of HARS score, and performed data processing. Implementation phase of the study until now completed at the stage of data collection, while the results of the study will be analyze by Chi-Square.

3 RESULT

Table 1: Distribution of sample demographic data

Demographic data	n	%
Gender		
Men	180	100.0
Smoking level		
Mild	90	50.0
Severe	90	50.0
Age		
20-29 years	40	22.2
30-39 years	63	35.0
≤40 years	77	42.8
Education		
Elementary	18	10.0
Junior high	47	26.1
High school	60	33.3
University	55	30.6
Occupation		
Employed	133	73.9
Unemployed	47	26.1

The table above shows that there were 180 male samples, with light smokers as many as 90 people (50.0%) and heavy smokers as many as 90 people (50.0%), age range 20-29 years as many as 40 people (22.2 %), sample with age range 30-39 year counted 63 people (35,0), and 40 ≤ year counted 77 person (42,8%). Based on the level of education, the sample with the level of primary education found as many as 18 people (10.0%), junior high school education level of 47 people (26.1%), high school education level of 60 people (33.3%), and college level as many as 55 people (30.6%). Based on work, the sample worked more with the number of 133

people (73.9%) and the non-working 47 people (26.1%).

Table 2: Relationship of Smoking Behavior with Anxiety Level with villagers on Tegal Sari Mandala II and III.

Smoking habit level	Anxiety level						P value
	Mild anxiety		Moderate anxiety		Severe anxiety		
	n	%	n	%	n	%	
Light	60	66.7	20	22.2	10	11.7	0.001
Heavy	0	0	55	61.1	35	38.9	
Total	60	33.3	75	41.7	45	25.0	

The table above shows that there are 60 people (66,7%) of light smoker with mild anxiety. There are 20 people (22,2%), heavy anxiety is 10 people (11,1%). In the subject of heavy smokers experiencing anxiety was found as many as 55 people (61.1%) and as many as 35 people who experienced severe anxiety (38.9%). The p value shows 0.001 (p<0.05) which means there is a significant correlation between smoking behavior and anxiety level with villagers on Tegal Sari Mandala II and III.

4 DISCUSSION

The study of "anxiety level differences in light smokers and heavy smokers" is an unpaired categorical analytical study with cross sectional methods. The purpose of this study was to determine the difference of anxiety level in light smokers and heavy smokers in Tegal Sari Mandala 2 and 3 villages. In this study it was found that the greatest possible level of anxiety/anxiety in both light smokers and heavy smokers was the same, i.e. moderate anxiety but it can be ascertained that in heavy smokers it is less likely to experience mild anxiety (p <0.001).

This study is in accordance with a study conducted Byeon in 2015 in South Korea that smoking has a significant relationship with anxiety. Smokers have an anxiety tendency of 1.5 times (OR = 1.49, 95% CI [1,14-1,96]) greater than non-smokers (p <0.05) and adolescents who smoke more than 5 cigarettes

day 1.5 times (OR = 1.49, 95% CI [1.07-2.08]) are more likely to have anxiety (p <0.05).

This study, however, does not match the study by Khademalhosseini in 2015 in Iran against 1020 high school adolescents where there is no significant relationship between smokers and anxiety. In addition, the findings of Lee et al in 2017 in the United States with interesting findings suggest that mild smokers (less than 1-5 cigarettes a day) but very depressed/depressed have a 5.8 times greater risk of having anxiety disorders Thorough compared to individuals who do not smoke and have mild symptoms of depression. Also, multiple stroke but highly depressed smokers have a 3.8 times greater risk for having an overall anxiety disorder, compared to people who smoked less than half a pack a day and had low symptoms of depression. Symptoms of depression seem to have a stronger relationship with a complete anxiety disorder than smoking.

Recent conclusions in terms of cigarette linkage with anxiety can be seen from a literature study by Fluharty et al in 2017 in the UK where from 148 studies categorized as: onset of smoking, smoking status, heavy smoking, tobacco dependence and smoking trajectory. The results for each category vary substantially, with positive associative evidence in both directions (smoking with later mental health effects and mental health leads to later smoking behavior). Overall, nearly half of the studies reported that baseline anxiety was associated with several types of smoking behavior, while more than one-third found evidence that smoking exposure was associated with anxiety that would subsequently emerge. However, there are several studies that directly support the two-way model of smoking and anxiety can occur mutually. While this incidence could be explained by the fact that the impact given to smokers has the effect of being given psychostimulants. Acute nicotine exposure, whether obtained by smoking or intravenous infusion of nicotine, has an effect on elevating the amount of cortisol in the human body and animals. Long-term smoking can cause persistent dysregulation of hormonal regulation. Hypertensive patients also experience increased sympathetic tone, where can increase the intensity of anxiety symptoms in patients.

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