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Vaping, Demographic Characteristics and Dry Mouth Complaints on Consumers Bejo Vape Store Jember

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ABSTRACT

A vape or e-cigarette is a battery-powered inhaler that serves nicotine which the WHO calls the Electronic Nicotine Delivery System (ENDS). Vape is a technology that resembles tobacco cigarettes without burning the tobacco leaves. Metal casing with built-in battery-powered atomizer to generate steam to inhale from cartridges containing propylene glycol and glycerol, flavorings, and nicotine. Various studies have been carried out to determine the impact of vaping. This study aims to determine the correlation between vaping with demographic characteristics and dry mouth complaints. The design of this study was cross-sectional, involving 44 people aged less than 60 years, who were selected using a purposive sampling technique. Data were collected by filling out questionnaires and saliva examination, then analyzed using Fisher's exact test and Spearman's correlation. Based on the results of the study it can be concluded that smoking vaping has an correlation with dry mouth complaints (dry mouth complaints score and salivary secretion rate) and age.

Keywords: vaping; dry mouth complaints; demographic characteristics

INTRODUCTION

Background

A vape or e-cigarette is a battery-powered inhaler that serves nicotine which the WHO calls the Electronic Nicotine Delivery System (ENDS). Vape is a technology that resembles tobacco cigarettes without burning the tobacco leaves. metal casing with built-in battery-powered atomizer to generate steam for inhalation from cartridges containing propylene glycol and glycerol, flavorings, and nicotine. (1)

The number of smokers who use vaping has recently increased. According to estimates, vape users in Indonesia have reached 2.2 million people and the number of vape sellers is 5000 outlets. Most of these vape users are those who have switched from conventional cigarettes (tobacco cigarettes), and some are novice smokers. The increasing number of vaping users is mainly due to the assumption that vaping is safer than tobacco cigarettes, because it does not contain harmful combustion residues, such as Total Aerosol Residue (TAR) and Carbon Monoxide (CO). (2,3) Conventional cigarettes contain nicotine and tobacco. When burning conventional cigarettes, it will produce Total Aerosol Residue (TAR) and Carbon Monoxide (CO). Vape on the other hand does not contain Total Aerosol Residue (TAR) and Carbon Monoxide (CO) because it does not go through a combustion process, but both conventional cigarettes and vaping contain nicotine. (4)

Saliva is an exocrine fluid secreted by the salivary glands into the oral cavity. Saliva has a broad role, including in the process of digestion of food, regulation of fluid and electrolyte balance, maintaining tooth integrity, antibacterial activity, buffering and plays an important role in general oral health. Dry mouth is often associated with salivary gland hypofunction where there is a decrease in salivary flow rate. Long-term smoking significantly reduces salivary flow rate and increases dental and oral problems associated with dry mouth. (5,6)

Various studies have been conducted to determine the impact of vaping. These studies are mainly to find out whether it is true that vaping smokers are safer than tobacco cigarette users. These studies focus more on the impact of vaping cigarettes on the health of internal organs such as the lungs. While research looking at the impact

of vaping on oral health has not been given much attention. Many factors are the cause of dry mouth complaints, such as; consumption of drugs that are xerogenic, drinking alcohol, head and neck radiation, and smoking. Nicotine can increase the occurrence of dry mouth complaints. Nicotine can stimulate sympathetic nerves to produce neurotransmitters, including catecholamines. This causes vasoconstriction of blood vessels and results in a decrease in salivary gland function so that saliva secretion decreases and there is a decrease in saliva composition. [7] In addition, where the rapid development of technology that affects the use of vaping is increasing as well and many vape users think vaping is safer than conventional cigarettes.

Purpose

This study aims to determine the correlation between vaping with demographic characteristics and dry mouth complaints.

METHODS

The type of research used was analytical observation using a cross-sectional approach to determine the correlation between vaping with age, gender, occupation, education and dry mouth complaints in the Jember vaping community at Bejo Vape Store Jember. The study was conducted from February 2022 to March 2022.

The population in this study was a community of vapor users in the city of Jember who met the predetermined characteristics as many as 44 people under the age of 60 years (not the elderly), not currently taking drugs such as anti-depressants, anticholinergics, antispasmodics, antihypertensives, antihistamines, sedatives. diuretics and bronchodilators that can cause the effect of reducing the salivary flow rate, consumers are in good psychological condition, are willing to participate in research voluntarily without coercion, and agree to the informed consent form. There are 44 people who are part of 50 respondents who meet the characteristics of the research subjects taken. The research subject used a purposive sampling technique because there were considerations of the research subject criteria by the researcher.

Data were collected using a questionnaire and by using the saliva collection method, namely the passive drool method. The passive drool method is collecting saliva by removing saliva into a small container, where this method is the most effective and often used and uses research blanks (questionnaires). The status of dry mouth complaints was determined through seven questions with a 'Yes' or 'No' response format. For the answer 'Yes' was given a score of 1 and the answer 'No' was given a score of 0. The results of the questionnaire were categorized into 3 groups as follows a score of 0 indicates no complaints of dry mouth, a score of 1-2 indicates mild dry mouth complaints, and 3-7 indicates the presence of dry mouth. The tools used in this research included informed consent, questionnaire, stationery, saliva storage pot, and stopwatch and the research material used is mineral water.

The data in this study were analyzed by non parametric analysis by using the Fisher's Exact test to determine the correlation between variables such as the data analysis between the employment relationship with the amount of liquid use, the relationship between education and the amount of liquid use, the relationship between the amount of liquid use and oral complaints. dryness, and the relationship between the amount of liquid used and salivary secretion. Then continued the Spearman correlation test to find out whether there is a relationship between the two variables where one variable is ordinal scale and the other variable is ratio scale as in the data analysis between age and liquid use and the relationship between age and dry mouth complaints.

RESULTS

Distribution of Age and Gender

Table 1. Distribution of age

Age (year)	Frequency	Percentage
18	2	4.5
20	2	4.5
21	8	18.2
22	8	18.2
23	7	15.9
24	9	20.5
25	3	6.8
26	3	6.8
27	2	4.5

Table 2. Distribution of respondents by gender

Gender	Frequency	Percentage
Man	43	97.7%
Woman	1	2.3%

Group of Vape Users by Age

Table 3. Group of vape users by age

Group	Respondent's age in years			
	n	Max	Min	Mean
Vapor users	44	27	18	22.8

Employment Relationship with Total Liquid Usage per day

Table 4. Work relationship with the use of liquid per day

Work	Liquid usage per day			Total	p
	Mild (1-3 ml/day)	Moderate (3-5 ml/day)	Severe (5-7 ml/day)		
Student	17 (65.4%)	8 (30.8%)	1 (3.8%)	26	0.228
Employee	3 (37.5%)	4 (50%)	1 (12.5%)	8	
Self-employed	2 (33.3%)	2 (33.3%)	2 (33.3%)	6	
Other	2 (50%)	1 (25%)	1 (25%)	4	

Relationship of Education with Total Liquid Usage per day

Table 5. Work relationship with the use of liquid per day

Education	Liquid usage per day			Total	p
	Mild (1-3 ml/ day)	Moderate (3-5 ml/ day)	Severe (5-7 ml/ day)		
JHS	1 (50%)	1 (50%)	0	2	0.644
SHS	18 (62.1%)	8 (27.6%)	3 (10.3%)	29	
Undergraduate diploma	5 (38.5%)	6 (46.2%)	2 (15.4%)	13	

The Relationship Between Daily Liquid Use and Dry Mouth Complaints

Table 6. The relationship between daily liquid use and dry mouth complaints

Liquid usage per day	Dry mouth complaints		Total	p
	Mild	There are complaints of dry mouth		
Mild (1-3 ml/day)	21 (87.5%)	3 (12.5%)	24	0.000*
Moderate (3-5 ml/day)	7 (46.7%)	8 (53.3%)	15	
Severe (5-7 ml/day)	0	5 (100%)	5	

Relationship between Daily Liquid Use and Saliva Secretion

Table 7. Relationship between daily liquid use and saliva secretion

Liquid usage per day	Saliva secretion		Total	p
	Mild (0,9-1,1 ml/ day)	Very mild (0,5-0,9 ml/ day)		
Mild (1-3 ml/day)	3 (100%)	0	3	0.012*
Moderate (3-5 ml/day)	2 (25%)	6 (75%)	8	
Severe (5-7 ml/day)	0	5 (100%)	5	

DISCUSSION

The results of the study from 44 respondents aged 18-27 years who met the criteria showed that the most vapor users were 24 years old (9 respondents or 20.5% of the total respondents) followed by 21 and 22 years old (18.5% of the total respondents). There is no significant relationship between the knowledge of respondents and the behavior of using vapor among students of SMK Bina Sejahera 2 Bogor City. The Indonesian Personal Vaporizer Association (APVI) also supports the results of the study by stating that vapor buyers come from young adults with an age range of 20-30 years. [9] The average age of respondents who use vapor is 22.8 years with a student/student occupation of 26 people. This is in line with the research of Wiseman, et al (2019) regarding the prevalence of e-cigarettes (vapor) in adults in Malaysia which states that students (18-25 years) have a high chance of trying vaping because they think that vapor is less addictive. [10] Another reason for the use of vapor in young adults and college students is curiosity (54%), interest in trying (34%), and peer influence (12%). [10]

Male respondents dominated the use of vapor with a total of 43 or 97.7% of the total respondents. Based on research by Ladesvita and Agustina (2017), men contribute more to the use of e-cigarettes (vapor). [11] This is supported by research from Putra, et al (2017) which states that smoking is a symbol of virility so that it is mostly done by men. [12] The number of female respondents who use vapor is very minimal because there is only 1 respondent or 2.3% of the total respondents. The research of Hafiz, et al (2019) shows that women tend not to smoke for several reasons such as a bad perception of the environment, uncertainty about the safety of e-cigarettes and the tendency of women to pay more attention to their health compared to men. [13]

Every vapor smoker has its own level related to the amount of liquid used per day. The amount of use of liquid vapor per day in this study was divided into 3 categories, namely light, medium and heavy. Based on the research results, the amount of liquid use per day is not influenced by work and education. In general, the most occupations of vapor user respondents are students with the light to moderate category of liquid use per day. This is in line with the research by Jankowski, et al (2019) which states that students who use vapor are categorized as low to moderate because of the use of low nicotine concentrations. [14] The most education of respondents who use vapor is high school with a total of 29 respondents, 18 (62.1%) of them are in the light category, 8 respondents (27.6%) are in the medium category and 3 respondents (10.3%) are in the heavy category. The level of education for undergraduate/diploma is the second highest with 13 respondents, followed by secondary education with 2 respondents. Education is one of the efforts to develop one's personality and abilities inside and outside school. Someone with a fairly high level of education is able to understand things well so that they can sort out which ones have a good or bad impact on themselves and their environment. [15] Based on research by Agina, et al (2019) there is no significant relationship between respondent knowledge and vaping behavior among students of SMK Bina Sejahera 2 Bogor City. [16] The good understanding that vapor users have is not strong enough to influence behavior, so that higher levels of education are not always followed by lower amounts of vapor use. This is probably because vapor users tend to follow trends, assuming that vapor is safer to use and makes them save more on expenses compared to conventional cigarettes. [17]

A person's age affects smoking behavior with vape. The age of the respondents in this study is related to the amount of use of liquid vapor per day. The more mature a person's age, the more use of liquid vapor (light to heavy). Vapor use increases with age followed by an increase in nicotine in the body. High nicotine can increase the occurrence of dry mouth complaints. [7] The results showed that there was no relationship between age and dry mouth complaints. In general, complaints of dry mouth occur through the aging process with changes and declines in salivary gland function. Parenchyma glands are lost and replaced by connective tissue and fat, resulting in atrophy which will reduce saliva production and change its composition. [18]

The use of liquid vapor per day in this study was associated with scores of dry mouth complaints and the rate of secretion of salivary flow. The amount of light use of liquid per day causes respondents to have a low salivary secretion rate, while heavy use of liquid per day triggers a very low salivary secretion rate. The more the amount of liquid vapor used per day, the lower the salivary flow rate. This is in accordance with the statement of Rad (2010) that long-term smoking can significantly reduce salivary flow rate and increase oral dental problems associated with dry mouth. [19] Based on research from Dyasanoor and Saddu (2014) also stated that 37% of smokers complained of dry mouth complaints and 43% of smokers experienced hyposalivation. [20] The more cigarettes consumed each day over a longer period of time can result in a greater risk of decreased salivary flow rate. The correlation between smoking intensity and salivary flow rate is 23.6%. [21] The mechanism of smoking with vapor on the salivary flow rate occurs because nicotine can stimulate the sympathetic nerves to produce neurotransmitters so that blood vessel vasoconstriction occurs and results in a decrease in salivary gland function. Decreased salivary gland function can reduce the rate of salivary secretion. [7] Based on Fitriasani et al (2017) also said that smoking can reduce receptor sensitivity and suppress salivary reflex so that it has an impact on changes in salivary flow rate. [22]

CONCLUSION

Based on the results of the study it can be concluded that smoking vaping correlates with dry mouth complaints (dry mouth complaints score and salivary secretion rate) and characteristics, namely age.

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