

Impact of COVID-19 on Smoking Behaviour Majmaah University, Saudi Arabia

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ABSTRACT

The main aim of this study was to evaluate the impact of Covid-19 pandemic on the smoking behavior among the people of Majmaah University. This Cross sectional study was conducted in Majmaah city from September 2020 to June 2020. It was an observational study and a total of 180 people were included in this. The inclusive criteria of this study was smoker male and female population. Online questionnaire was used to collect data. Out of total 180, 91 % population comprised of men and females were 8.9 %. The results of this study stated that 88.9 % people were active smokers. Cigarette was the most common form of tobacco consumption, 71.1 %. During the Covid-19 pandemic, almost 40 % of the participants decreased smoking and 35.6 % increased smoking. While after the pandemic ended 35.6 % of the participants increased smoking and 26.1 % decreased. There was a significant association between the current use of tobacco/nicotine and gender, with p value being less than 0.05. There was also significant association between knowledge of severely affect the lung and respiratory system and gender, with p value being less than 0.05. This study concluded that the Covid-19 pandemic lockdown affected the smoking behavior of many people in Saudi Arabia. Majority of people decreased smoking during the pandemic. On the other hand, majority of the people increased smoking after the pandemic ended. The results of this study indicated the need of awareness among the people regarding smoking and its side effects so that healthy living could be promoted among the masses. This would eventually lead to a healthy society and boost in immunity of the people in such a way that health related crisis could be easily fought in the future. Covid-19 provided a good opportunity for people to quit smoking.

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INTRODUCTION

Covid-19 is a highly contagious viral disease caused by SARS-CoV-2. This disease caused a pandemic worldwide that lead to lockdowns. It caused almost two million deaths internationally (Dong Du, & Gardner, 2020). Covid-19 virus attacks the alveolar epithelium cells of the pulmonary system. The severity of this disease ranges from mild symptoms to acute respiratory distress syndrome and even multiple organ failure (Li Bai, Hashikawa, 2020.)

Smoking damages the airways and lungs which leads to higher risk of respiratory diseases as well as the disease being more severe. Smoking also decrease the respiratory immune function.

The lockdown caused by the pandemic instigated major behavioral and lifestyle changes and psychological effect on people in Saudi Arabia and globally. As due to the lockdown people were restricted to their homes, it caused emotional and psychological impact on them. This impact lead to changes in smoking behavior. It was suspected and then proven by a study that smoking and severity of the Covid-19 had some association. (Zhao et al. 2020)

Researchers have also began to study the risk factors related to morbidity and mortality of Covid-19, including smoking. It was stated that increased spread and severity of the disease could be due to smoking (Ahmed et al., 2020. Gupta et al., 2020, Haddad et al., 2021). Researchers have also been investigating the change in smoking behavior due to this disease. Various studies concluded different results regarding this topic; including increase in some, decrease in others and some with no changes. (Elling et al., 2020. Stanton et al., 2020, Vanderbruggen et al., 2020, Bommele et al., 2020). On the other hand some studies reported increase in smoking (Sidor and Rzymiski, 2020).

Many researches also investigated the attempts to quit smoking due to Covid-19 (Gold et al., 2021 Klemperer et al., 2020, Chertok, 2020). An online analysis' results stated that fear of Covid-19 motivated

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people to decrease and quit smoking (Gold et al., 2021). Smokers were also believed to be at the higher risk of spreading Covid-19, as well as at risk of more severe and complicated disease, this was another reason of quitting and decreasing smoking (Elling et al., 2020). Thus, the fear of Covid-19 have motivated some smokers to quit. On the other hand, it has also aggravated smoking behavior in others.

METHOD

This study was conducted in Majmaah city, a part of Riyadh region, from September 2020 to Jun 2020. Majmaah has an area of 30000 km², and population of almost 133285 individuals. It was an observational study. The inclusive criteria of this study was smoker male and female population. Individuals who stopped smoking during Covid-19 were also included in this study.

The sample size of this study was determined according to the following sample size equation:

$$N = Z^2 \times PQ / D^2$$

Where Z= 1.96, D=0.05, Q 1-P, P=.5

So, the targeted sample size for the study was 180 individuals.

6 researchers choose 5 random areas for data collection. Cluster sampling was done. A questionnaire was formulated by the researchers for data collection. The questionnaire was articulated in English as well as in Arabic language. The questionnaire was distributed via online system. It was comprised of 3 sections. First was prevalence of smoking and its types, second was smoking behavior and third was effects of Covid-19 on smoking behavior. Only smokers were included in the study.

The data was analyzed in both ways, qualitatively and quantitatively. SPSS was used to analyze the data. The

significance of the relationship between smoking behavior before and after Covid-19 was analyzed and also its correlation. Descriptive analysis of collected data was also done. Ethical authorization was acquired from the Research Ethical Committee at Mjammah University.

RESULTS

This study had a sample size of 180. 91 % population comprised of men and females were 8.9 %. 26.7 % of the population was aged less than 20 years and 67.8 % was aged 20 to 40 years. Mean age of the participants was 23 years.

Almost 88.9 % people included in this study were active users of tobacco and 11.1 % were not. 100 % of the population were smokers at some point in their life. Cigarettes were the most common form of tobacco consumption, 71.1 %. Tobacco pipes were used by 10 participants and E- Cigarettes by 16.7 % participants. The least common form of tobacco consumption was chewing tobacco, used by only 2.2 % participants. Most people, 60.6 %, started smoking between the age of 15 to 20 years. 19.4 % people started smoking at the age of 10 to 15 years. 18.3 % started smoking at the age 20 to 25 years and 1.7 % started after the age of 30 years. Most people, 49.4 %, smoked less than 10 cigarettes a day. 37.2 % smoke 10 to 20 cigarettes a day, 11.1 smoked 20 to 40 cigarettes a day and 2.2 % smoked more than 40. This is shown in Table 1.

Table 2 describes the demographics of smoking during and after Covid-19 pandemic. 40 % people decreased smoking during the pandemic and 35.6 % increased. 41.1 % people smoked less than 10 Cigarettes a day and 6.7 % people smoked more than 40 Cigarettes a day during the pandemic. After the pandemic ended, 35.6 % people increased smoking and 26.1 % decreased. 23.3 % people smoked less than 10 Cigarettes a day and 3.9 % smoked more than 40, after the pandemic ended.

Table 1: smoking demographics

Questions	Answers	Percentage
Current use of tobacco or nicotine?	YES	88.9 %
	NO	11.1 %
If No, have you ever smoked?	YES	100.0 %
	NO	0 %
If yes, when was the last time you smoked?	Less than one year	11.1 %
	Not applicable	88.9 %
Types of tobacco or nicotine used?	Cigarettes	71.1 %
	Tobacco pipe	10.0 %
	Chewing tobacco	2.2 %
	E-cigarette	16.7 %
Age at which you started smoking?	10-15 years old	19.4 %
	15-20 years old	60.6 %
	20-25 years old	18.3 %
	older than 30 years old	1.7 %
Average of daily smoking?	less than 10 cigarettes	49.4 %
	10-20 (one packet)	37.2 %
	21-40 (2 packets)	11.1 %
	more than 40 cigarettes	2.2 %

Table 2: smoking demographics during and after covid-19

Questions	Answers	Percentage
Smoking during covid 19 quarantine?	increased smoking	35.6 %
	decrease smoking	40.0 %
	unchanged smoking	24.4 %
	less than 10 Cigarettes	41.1 %
Average of daily smoking during covid19 quarantine?	10-20(one packet)	13.9 %
	21-40(2 packets)	13.9 %
	more than 40 cigarettes	6.7 %
	Unchanged Smoking	24.4 %
Smoking status after covid19 quarantine?	increased smoking	35.6 %
	decrease smoking	26.1 %
	unchanged smoking	38.3 %
	less than 10 Cigarettes	23.3 %
Average of daily smoking after covid19 quarantine?	10-20(one packet)	25.0 %
	21-40(2 packets)	9.4 %
	more than 40 cigarettes	3.9 %
	Unchanged Smoking	38.3 %

Table 3: Chi square test to compare between current use of tobacco/nicotine and gender.

			Gender		P value
			Male	Female	
Current use of tobacco or nicotine?	YES	Count	150	10	0.003
		% within current use of tobacco or nicotine	93.8 %	6.2 %	
		% of Total	83.3 %	5.6 %	
	NO	Count	14	6	
		% within current use of tobacco or nicotine	70.0 %	30.0 %	
		% of Total	7.8 %	3.3 %	
Total Current use of tobacco or nicotine % of Total	Count	164	16		
	91.1 %	8.9 %			
	91.1 %	8.9 %			

Table 4 Chi square test to compare between knowledge of severely affect the lung and respiratory system and age group

			Knowledge of severely affect the lung and respiratory system		P value
Age group in years			YES	NO	
Knowledge of severely affect the lung and respiratory system	Less than 20	Count	44	4	0.0001
		% within age group	91.7 %	8.3 %	
		% of Total	24.4 %	2.2 %	
	20 - 30	Count	118	4	
		% within age group	96.7 %	3.3 %	
		% of Total	65.6 %	2.2 %	
	30 - 40	Count	6	1	
		% within age group	85.7 %	14.3 %	
		% of Total	3.3 %	.6 %	
	40 - 50	Count	2	0	
		% within age group	100.0 %	.0 %	
		% of Total	1.1 %	.0 %	
	More than 50	Count	0	1	
		% within age group	.0 %	100.0 %	
		% within age group	.0 %	.6 %	
Total % within age group % of Total	Count	170	10		
	94.4 %	5.6 %			
	94.4 %	5.6 %			

The most common reason for change in smoking behavior during the quarantine was boredom, 13.4 %. The least common reason was anxiety, 1.1 %. Other reason included change in psychological stats, family gathering and friends, free time, mood, quarantine, stress and being at home all the time.

73.3 % participants were aware of association between covid-19 and smoking and 26.7 % were not. 33.3 % participants changed their smoking habit due to Covid-19 and 66.7 % did not. 15 % participants decreased smoking during the quarantine. 10 % increased smoking and 75 % did not change their smoking habit during the quarantine.

There was significant association between current use of tobacco/ nicotine and gender, with p value being less than 0.05.

There was significant association between knowledge of severely affect the lung and respiratory system and gender, with p value being less than 0.05.

DISCUSSION

The pandemic caused many behavioral changes among the people, including the change in smoking behavior. So, the main aim of this study was to evaluate the impact of Covid-19 pandemic on the smoking behavior among the people of Majmaah University. The results of our study stated that during the Covid-19 pandemic, almost 40 % of the participants' decreased smoking and 35.6 % increased smoking. While after the pandemic ended 35.6 % of the participants increased smoking and 26.1 % decreased. While comparing the data regarding average cigarettes per day, there was evident decrease in the number of cigarettes per day after the pandemic. 41.1 % of the participants smoked less than 10 cigarettes in a day during the pandemic and 23.3 % smoked less after the pandemic. Boredom was the most common reason for change in smoking behavior. These results were similar to the study of Mucci et al., which stated slight decrease in smoking during pandemic lockdown. This could be due to change in routine during the lockdown and less chance of smoking as there was less chance of socialization (Mucci, et al., 2020). Staying at home, with family and kids could be another reason of decreased smoking during the lockdown (Thomeeret al., 2019).

Caponnetto et al. conducted a study that stated one third of the smokers wanted to start smoking again while some non-smokers also wanted to start smoking. The time period of Covid-19 could be a transition period for the society to change its habits and become smoke free (Caponnetto et al. 2020). There was a slight increase in daily usage of E-cigarettes and vapes during the pandemic (Adriaens, et al. 2018).

Many studies revealed that covid-19 was more prevalent among the smokers. And people with respiratory diseases caused by smoking and tobacco usage were at higher risk of severe covid-19 infection. (Haddad, et al., 2021).

In our study, there was significant association between knowledge of severely affect the lung and respiratory system and gender, with p value being less than 0.05. Similar study conducted by Yue and coworkers stated that the proportion of cigarette smoking in males was significantly higher than in females (Yue et al., 2015).

CONCLUSION

This study concluded that the Covid-19 pandemic lockdown affected the smoking behavior of many people in Saudi Arabia. Majority of people decreased smoking during the pandemic. On the other hand, majority of the people increased smoking after the pandemic ended. The results of this study indicated the need of awareness among the people regarding smoking and its side effects so that healthy living could be promoted among the masses. This would eventually lead to a healthy society and boost in immunity of the people in such a way that health related crisis could be easily fought in the future. Covid-19 provided a good opportunity for people to quit smoking.

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