

## The Impact of COVID-19 Pandemic on Smokers' Behaviour in the Palestinian Society

**Bassam Yousef Ibrahim Banat, Bilal Zahaikah, Ahmad Wahsh, Ahmad Hasanin, Ahmad Skafi, Bilal Wahwah, Salih Awawdeh, Majd Araj, Nermeen Suliman, Hadeel Sharawi, & Yazeed Joudi**

### Abstract

The study aims at investigating smokers' behaviour in the Palestinian society due to COVID-19 pandemic. The study approached the literature as a multi-dimensional phenomenon, which addressed both theoretical and applied research. The significance of this recent study is the first, which dealt with this theme, to the author knowledge, which in turn encourages other researchers to work on further research on this important issue. The study adopted the quantitative research approach using the sampling survey method. The questionnaire is appropriate for the exploratory nature of the research. An index of a 15-item scale was used to measure the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society that was developed by the research team, and was administrated to five hundred smokers in the West Bank during 2021 purposively selected. The collected data was statistically analyzed using the statistical package for social sciences (SPSS). The findings demonstrate that COVID-19 pandemic is a double-edged sword, half of the sample reported that COVID-19 is a great opportunity to quit smoking and were thinking seriously about quitting smoking. Although, most of the sample reported maintained smoking behaviour, 23.6% of the sample reported decreased smoking rates, while 10.8% of the sample reported increased smoking rates. Findings showed that gender, work status, marital status, place of residency, qualification, age, and degree of religiosity do not show any significant differences. However, it was found that corona virus infection was significant variable.

**Keywords:** Smokers' behaviour, COVID-19, pandemic, Palestine.

### 1. Introduction

COVID-19 is an infectious respiratory disease which considered as a great global threat, and smoking is the world's leading cause of premature death. Smoking is a reason of millions of death cases, with global smoking-attributable 8 million deaths annually (WHO, 2019). As COVID-19 began which has declared by World Health Organization (WHO) as a pandemic in March 2020, at

the time of writing (January 2022) there have been more than 313 million COVID-19 cases worldwide with more than 5.5 million deaths (Johns Hopkins University, 2022). This confluence may therefore motivate smokers to quit smoking.

WHO (2013) cooperates with countries to adopt strategies and policies to encourage and motivate people to quit smoking, because of the health hazards to the smoker and those around them exposed to secondhand smoke. WHO had an aim of decreasing smoking globally by 30% by 2025, but immediately before COVID-19 just 23 countries were on track (WHO, 2013).

According to four systematic reviews (Meta analyses) that applied in American societies concluded that cigarette, cigar, and other combustible tobacco smokers are in a greater risk for having a more serious complications from COVID-19 and that they might adverse a worse disease progression, especially the respiratory infections (Kowitt et al., 2020).

COVID-19 is a double-edged sword in term of quitting smoking or having intentions to quit it, since COVID-19 has potential negative health complication some smokers felt vulnerable and were having a bigger intention to quit smoking. However, in the other side of the view, some smokers were smoking more than usual, especially hookah smokers, and that is related to the lockdowns, anxious, and stress that associated with the virus.

The number of cases in most studies to date is very low, the reports of studied cases are descriptive and do not allow to draw firm conclusions about the association of severity of COVID-19 with smoking status. Thus, the main goal of our study is to examine the smokers' quit intentions and behaviours during COVID-19.

## **2. Background and Literature Review**

Due to the increasing number of global threats, such as the COVID-19 pandemic, countries and institutions must work together to address these issues. Human coronaviruses pose a threat to human health. The coronavirus has been circulating in the human population for the third time in the last century. The discovery of the beta coronavirus in China has raised concerns about a potential

pandemic. This family of respiratory viruses is a subgroup of the coronavirus family (Mohamed El Zowalaty et al., 2020).

COVID-19 pandemic has placed a spotlight on infectious diseases and their associations with host factors and from our analysis of the available studies to date, it appears that a relationship is emerging regarding patients with a smoking history having a higher likelihood of developing more severe symptoms of COVID-19 disease than non-smokers. Data on whether COVID-19 has a greater incidence in smokers than non-smokers is thus far, contradictory, and inconclusive. There is therefore a need for some caution to be exercised until further research has been conducted in a wider range of geographical settings with enough patients that have been carefully phenotype in respect of smoking status and adequate statistical control for confounding factors (Shastri et al., 2021).

Tobacco use is a leading cause of preventable death worldwide. Respiratory diseases, including chronic obstructive pulmonary disease (COPD) and lung cancer, account for a large proportion of tobacco-related deaths. Smoking cessation benefits almost all smokers, irrespective of the age at which they quit, making smoking cessation a core component of prevention and treatment of respiratory diseases (Rigotti et al., 2013).

Social restrictions due to COVID-19 pandemic offered a unique opportunity for smokers to quit smoking (Hefler et al., 2020). However, some research showed that “stay home, stay alive” restrictions during COVID-19 pandemic incurred household exposure to secondhand smoking (Malkaiwi et al., 2021). A study in Turkey revealed that the cessation of smoking during the pandemic of 31.1% up from the 1 year follow up of 23.7% (Tetik et al., 2021).

Complex and significant changes in smokers’ behaviours have been observed, especially in most low- and middle-income countries since COVID-19 pandemic is an unexpected population stressor which led to significant psychological trauma like stress, anxiety, depression, lifestyle changes, uncertainty about the future, and loneliness (Siddiqi et al., 2021).

A review of 32 reviewed studies by the WHO, there were some studies reported no statistically significant association, the available evidence suggests that smoking is associated with increased severity of disease and death in hospitalized COVID-19 patients (Siddiqi et al., 2021). For example, a cross-sectional study in United Kingdom reported that the spread of COVID-19 was higher among smokers than non-smokers (Jackson et al., 2020) , In contrary, a study that applied in 38 European countries revealed that there is no direct association between smoking and COVID-19 (Tsigaris et al., 2020).

During the pandemic, it was found that there was an increase in smoking intentions, especially in users who abstained from social interactions and worked or studied from home and users who continued to be socially active. Non-smokers have witnessed a maintained exposure to secondhand smoke, but since they were using masks, they reported a less exposure to secondhand smoke (Hwang et al., 2021).

COVID-19 may have positively or negatively altered tobacco users' perceptions of the risk of smoking, interest in quitting, actions to quit, or amount of tobacco used. For example, if smokers feel vulnerable to COVID-19 due to their tobacco product use, they may be more interested in reducing or quitting., Restrictions on social gatherings might discourage tobacco use by offering fewer cues or opportunities to smoke. Alternatively, sheltering at home might facilitate tobacco use in homes where smoking is allowed, or other smokers are present. Finally, stress due to the pandemic might increase cigarette smoking, Historically, stress-provoking events with national or global impact, such as the 9/11 attacks, have been linked to greater tobacco use (Rigotti et al., 2021).

Significantly more former smokers were hospitalized and died from COVID-19 than current or never smokers. This effect is mediated via age and comorbidities in former smokers (Neira et al., 2021). Compared with never smokers, current smokers appear to be at reduced risk of SARS-CoV-2 infection while former smokers appear to be at increased risk of hospitalization, increased disease severity and mortality from COVID-19 (Simons et al., 2021).

Smokers often cite stress as a reason for smoking more or returning to smoking after a quit attempt.9 As we hypothesized, a higher level of stress was associated with increased smoking and with relapse by former smokers. Further evidence for the role of stress comes from smokers' attributions of why their smoking behaviour increased. The most frequently endorsed responses were worry or stress due to either stay-at-home restriction (76%) or to other aspects of the coronavirus pandemic (66%).

Financial worry was not independently associated with changes in smoking behaviour after adjustment for overall stress (Rigotti et al., 2021).

A systematic review based has done in Saudi-Arabia at University of Jeddah, contained of 29 questions, one of these gathered the smoking status (never smoked, former smoker, and smoker), and then, the impact of COVID-19 towards the smoking related attitudes has been studied by taking quotes from non-smokers (n=293; 78.3%), former smokers (n=26; 7.0%) and current smokers (n=55; 14.7%), which then have been categorized into three categories: positive quotes which indicates that COVID-19 had a positive impact on smokers' behaviour by decreasing smoking activities, neutral quotes which indicates that COVID-19 had no effect on smokers' behaviour, and negative quotes which indicates that COVID-19 had a negative impact on smokers' behaviour by increase smoking activities, the results showed that among non-smokers the comments were (positive n=115 ; neutral n=117; negative n=62), among former smokers (n=16; n=4; n=6), and among smokers which were fairly spread (n=20; n=19; n=17) (Mansour, et al., 2021).

In a longitudinal survey applied in Pakistan, cigarette smokers have been asked about their smoking behaviour before and after COVID-19, it showed that after COVID-19 pandemic (May 2020), 290 (14%) of the smokers which were 2062 smokers' recruiters before COVID-19 pandemic quitted smoking, among those who continued smoking 68% (1210/1772) reduced, 14% (239/1772) maintained, and 18% (323/1772) increased smoking activities. 41% (669/1619) were more motivated while 21% (333/1619) were less motivated to quit smoking (Siddiqi, et al. 2020).

A cross-sectional study included 6870 adult smokers from Australia, Canada, England, and United States. 46.7% of smokers reported intentions of quitting due to COVID-19, which differed by the four countries, England was the highest (50.9%) and Australia was the lowest (37.6%).

The previous studies about the impact of COVID-19 on smokers' behaviour showed varied smokers' behaviours, varied behaviours' indicators, and factors that contributed on increasing or decreasing the smoking rate.

Some smokers who were under stress, anxiety, and uncertainty about the future took smoking as their coping mechanism, it is because the pleasure, satisfaction, and stress relief they pretended that they get from smoking. Also, smokers' denial of the high risk of COVID-19 could be interpreted as a justification for their actions (Hwang et al.,2021). Some smokers reported positive attitude and

were having quitting intentions because of stress, especially smokers who had financial stress (Rodrigues et al., 2021) and stress due to low immunity (Gravely et al., 2021).

Intentions of quitting smoking were most frequent among females, smokers with financial stress, non-daily smokers, and ethnic minorities (Gravely et al., 2020).

### **3. Statement of the Problem**

The number of cases in most studies to date is very low, the reports of studied cases are descriptive and do not allow to draw firm conclusions about the association of severity of COVID-19 with smoking status.

The study aims at investigating smokers' behaviour in the Palestinian society due to COVID-19 pandemic, exploring the factors that contributed to increasing or decreasing the smoking rate during COVID-19 pandemic, and to explore the demographic breakdown over smokers' behaviour in the Palestinian society due to COVID-19 pandemic with the aim of identifying any differences.

### **4. Significance**

The study approached the literature as a multi-dimensional phenomenon, which addressed both theoretical and applied research. The significance of this recent study is the first, which dealt with this theme, to the author knowledge, which in turn encourages other researchers to work on further research on this important issue.

The study will fill this gap through a questionnaire and a survey which aims to examine the smokers' quit intentions and behaviours during COVID-19, and to compare the complications of COVID-19 between smokers and non-smokers.

### **5. Objectives**

This study seeks to achieve the following objectives:

1. Drawing a full firm of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society.
2. Studying the indicators of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society.

3. Exploring the factors that contributed to increasing or decreasing the smoking rate during COVID-19 pandemic.
4. Exploring the demographic breakdown over the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society.

## 6. Questions

The present study seeks to answer the following questions:

1. What is the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society?
2. What are the indicators of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society?
3. What are the factors that contributed to decreasing the smoking rate during COVID-19 pandemic?
4. What are the factors that contributed to increasing the smoking rate during COVID-19 pandemic?
5. Are there any differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society according to the demographic breakdown?

## 7. Hypotheses

Taking into consideration, the set objectives, questions and variables of the study, the study addresses the main hypotheses:

1. There are no statistically significant differences at  $\alpha \leq 0.05$  in smokers' behaviour during COVID-19 pandemic in the Palestinian society according to gender.
2. There are no statistically significant differences at  $\alpha \leq 0.05$  in smokers' behaviour during COVID-19 pandemic in the Palestinian society according to marital status.
3. There are no statistically significant differences at  $\alpha \leq 0.05$  in smokers' behaviour during COVID-19 pandemic in the Palestinian society according to place of residency.
4. There are no statistically significant differences at  $\alpha \leq 0.05$  in smokers' behaviour during COVID-19 pandemic in the Palestinian society according to qualification.



5. There are no statistically significant differences at  $\alpha \leq 0.05$  in smokers' behaviour during COVID-19 pandemic in the Palestinian society according to work status.
6. There are no statistically significant differences at  $\alpha \leq 0.05$  in smokers' behaviour during COVID-19 pandemic in the Palestinian society according to corona virus infection.
7. There are no statistically significant correlation at  $\alpha \leq 0.05$  between age and smokers' behaviour during COVID-19 pandemic in the Palestinian society.
8. There are no statistically significant correlation at  $\alpha \leq 0.05$  between degree of religiosity and smokers' behaviour during COVID-19 pandemic in the Palestinian society.

## 8. Definition of Terms

**Current smoker:** An adult who has smoked 100 cigarettes in his or her lifetime and who currently smokes cigarettes (CDC, 2017).

**Smoking behaviour:** is the action of a person who sucks tobacco smoke into their own mouth and lungs. Smoking behaviour can be observed or measured by looking at the volume or frequency of smoking of that person (Shiffman, 1993).

**Intention to quit:** defined as whether the patient was willing to quit within the next month or not, it is done by evaluating the motivation degree by the survey (Aryanpur et al., 2016).

## 9. Limitations

The population of the present study was limited to smokers, in the West Bank, Palestine during COVID-19 pandemic 2021.

## 10. Methods and Design

### 10.1 Approach

The study uses a quantitative approach, using a questionnaire, which is appropriate to the exploratory nature of the research.



## ***10.2 Population and Sampling***

The target population consists of Palestinian smokers eighteen years of age and over in the West Bank during 2021.

Five hundred Palestinian smokers eighteen years of age and over were purposively selected. The sample population consists of Palestinian smokers in the West Bank at the time of the survey.

## ***10.3 Instrumentation***

The index of a 15-item scale was used to measure the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society, that was developed by the research team. A 5-point Likert scale (strongly agree, agree, neutral, disagree and strongly disagree) was used to measure responses. The survey was conducted through face-to-face interviews in the West Bank. The sampling survey instrument sought background information about participants' which included gender, age, marital status, place of residency, qualification, work status, degree of religiosity, and corona virus infection.

### ***10.3.1 Instrument Validity***

Validation of the instrument proceeded in two distinct phases. The initial phase involved a group of referees and expert arbitrators, who provided some comments on the tool. The second phase involved the implementation of a pilot study (N=20) to validate the survey using exploratory factor analysis. Factor loading for all items exceeded 0.60 (0.61 to 0.84), which means that those items are suitable in measuring every item of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scale, as indicated in table no. 3.9.

### ***10.3.2 Instrument Reliability***

The reliability was tested using Cronbach's Alpha and Guttman split-half coefficients to ascertain reliability and consistency of the survey. Cronbach's Alpha and Guttman split-half for the survey instrument was 0.84 and 0.79, respectively, indicating very good reliability and consistency, as indicated in table no. 3.10.

## ***10.4 Sample Socio-demographic Characteristics***

The demographic breakdown of the participants was based on gender, age, marital status, place of residency, qualification, work status, degree of religiosity, and corona virus infection. In total, five hundred Palestinian smokers were conducted. Respondents were between 18 and 60 years of age (M 31.59, SD 11.68). Males represented 92.0% of the participants, while the remaining 8.0% were females; 49.4% were singles compared to 48.6% from married participants. Half (50.4%) of the participants lived in rural areas, 38.2% lived in urban areas, while the remaining 11.4% were from refugee camps; and the majority (62.2%) were working. Almost 70.6% of the participants were well-educated (Diploma or above), who were moderate religiously committed (84.0%). Only (14.0%) have had the corona virus, while the remaining 86.0% didn't have the corona virus, as indicated in tables' no. 3.1-3.8.

## ***10.5 Data Analysis***

The questionnaire items were rated on a 1–5 Likert scale (1=strongly disagree to 5=strongly agree), the highest score indicates a high impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society. Descriptive statistics gauged level of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society among the sampled population.

Additionally, the following statistical techniques were measured: Chi-Square, Cronbach's Alpha, Guttman Split-Half Coefficient and Factor Analysis using SPSS.

## **11. Findings**

### **11.1 The impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society**

The mean score of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scale as reported by the sample of five hundred participants was moderate (M 3.21, SD 1.01). More than half of the participants (64.2%) scored a moderate positive impact of COVID-19 pandemic on their smokers' behaviour, as indicated in table no. 4.1.

## **11.2 The indicators of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society**

Findings revealed the indicators of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society ranked in a descending order as follows, “I am thinking seriously of quitting smoking due to the COVID-19 pandemic” (M 3.22, SD 1.32); and “I think that COVID-19 pandemic is a good opportunity to quit smoking” (M 3.20, SD 1.35); although (65.6%) of the participants reported that their smoking rate didn't change during COVID-19 pandemic, as indicated in tables' no. 4.2-4.3.

## **11.3 Factors that contributed to decreasing the smoking rate during COVID-19 pandemic in the Palestinian society**

Furthermore, findings revealed the factors that contributed to decreasing the smoking rate during COVID-19 pandemic ranked in a descending order as follows, “Closure of cafes and public places” (M 3.34, SD 1.33); “My low immunity” (M 3.27, SD 1.37); “The difficult financial situation” (M 3.23, SD 1.32); “Stress, anxiety, and tension” (M 3.21, SD 1.35); “Fear of infection with the virus” (M 3.19, SD 1.32); “Safety measure taken to limit the spread of the virus” (M 3.17, SD 1.36); and “Haven't been vaccinated against COVID-19” (M 3.07, SD 1.40), as indicated in table no. 4.4.

## **11.4 Factors that contributed to increasing the smoking rate during COVID-19 pandemic in the Palestinian society**

Additionally, findings revealed the factors that contributed to increasing the smoking rate during COVID-19 pandemic ranked in a descending order as follows, “My online job/study” (M 3.34, SD 1.35); “The weakness of social relationships” (M 3.07, SD 1.33); “The free time caused by the lockdowns” (M 2.97, SD 1.35); “Unemployment” (M 2.93, SD 1.34); and “The lack of interaction with people due to the lockdowns” (M 2.89, SD 1.34), as indicated in table no. 4.5.

## **11.5 Differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society according to the demographic breakdown**

Furthermore, the study explored the demographic breakdown over the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society with the aim of identifying any

differences. Findings showed that gender, work status, marital status, place of residency, qualification, age, and degree of religiosity do not show any significant differences, as indicated in tables' no. 4.6-4.7, 4.9-4.15. However, it was found that corona virus infection was significant variable, as indicated in tables' no. 4.8. The differences were in favor of the infected participants (M 3.45, SD 0.99) compared to (M 3.16, SD 1.00) for uninfected participants, T.test value was (2.213, P=0.027).

## 12. Discussion

The purpose of this study is to perform a cross-sectional study among smokers in Palestinian society to measure their behaviour during COVID-19 pandemic. Our findings highlight the need of investigation the behaviour and attitudes toward COVID-19 among smokers in the West Bank. Some of our results agreed and disagreed with previous studies, those can be described as follow:

The findings of this study showed varied smokers' behaviour during COVID-19 pandemic, most of the smokers kept maintained smoking behaviour, some of them increased their smoking rate (23.6%), and the rest reported decreasing in their smoking rate (10.8%).

The main reasons of decreasing smoking rate among smokers from our sample were closure of cafes and public places, low immunity, and the difficult financial situation.

Cafes and public places' closure created social restrictions and excluded smoking zones especially for Shiha's smokers in Palestinian society, which was a unique opportunity for smokers to quit smoking. Moreover, a longitudinal cohort survey of nationally representative samples of adult smokers in Australia, Canada, United Kingdom, and United States drew data from Wave 1 (2002) and Wave 2 (2003) and revealed that smokers with fewer smoking company at Wave 1 were more likely to intend to quit at Wave 1 and were more likely to succeed in their attempts to quit at Wave 2. Compared to smokers who experienced no change in their number of smoking friends, smokers who lost smoking friends were more likely to intend to quit at Wave 2, attempt to quit between Wave 1 and Wave 2, and succeed in their quit attempts at Wave 2. Smokers who inhabit social contexts with a greater number of smokers may be less likely to successfully quit (Hitchman et al., 2014).

COVID-19 compromises immune system, smoking plays a major role in reducing lung capacity and increasing the risk and severity of many respiratory infections, and as a result of that many authorities including World Health Organization (WHO), and United States Centers for Disease Control (CDC) identified smokers as being at increased risk for severe illness from COVID-19 (Gravely et al., 2021). Therefore, low immunity made smokers more vulnerable and under stress of getting COVID-19 infection, which was also a great opportunity to have quit intentions.

Findings revealed that smoking households with a higher percentage of expenditure on tobacco face an increased chance of experiencing financial stress. Even among high income households smoking was a significant predictor of financial stress (Siahpush et al., 2013). COVID-19 pandemic was an extra financial stress among smokers and households (Rodrigues et al., 2021). It was also demonstrated that financial stress has a negative impact on the family since financial deprivation is associated with effects on the household's health and well-being (Santiago et al., 2011). This financial stress was also a good opportunity for smokers to quit smoking.

The main reasons of increasing smoking rate during COVID-19 pandemic were, the conversion of work or study to online work, which made smokers relieved from the site restrictions and instruction, so they tended to increase their smoking rate at home which resulted a household secondhand smoking.

The weakness of social relationships and interactions and the free time due to lockdowns was the second main reason of increasing smoking, which made smokers under stress, anxiety, and uncertainty about the future, so they took smoking as their coping mechanism, it is because the pleasure, satisfaction, and stress relief they pretended that they get from smoking. Also, smokers' denial of the high risk of COVID-19 could be interpreted as a justification for their actions (Hwang et al., 2021).

Most of the smokers who got infected with COVID-19 from our sample suffered from serious COVID-19 complications, and by evidence from their doctors, they have been told that these complications were from smoking, which motivated them more to quit smoking. And from our results, Corona virus infection has significant difference on smokers' behaviour in Palestinian society.

The study outcomes revealed that degree of religiosity, place of residency, qualification, marital status, and working status don't have any significant differences on smokers' behaviour in Palestinian society. That indicates that smokers' behaviours are not very much influenced by these variables and are more likely to be affected by other factors.

### 13. Conclusion and Recommendations

Significant proportion of the sample reported a maintained smoking pattern, but the portion of smokers who had anti-smoking attitudes toward smoking was higher than those who had increased smoking rates. Around half of the sample reported a serious thought about quitting smoking during COVID-19 pandemic.

The main reasons of decreasing smoking rate among smokers in Palestinian society were closure of cafes and public places, low immunity, and the difficult financial situation. And the main reasons that resulted an increased smoking rate were the online jobs and studies, the weakness of social relationships and interactions, and the free time due to lockdowns

Due to some COVID-19 pandemic restrictions, some serious side effects must be taken seriously into consideration, issues like household secondhand smoking.

Religion commitment, place of residency, qualification, marital status, and working status don't have any significant differences on smokers' behaviour in Palestinian society. Based on the findings and conclusions of this study, the following recommendations must be done:

1. Cooperation between authorities like World Health Organization to encourage people to stop smoking and avoid the household exposure of secondhand smoking especially in unique opportunities like COVID-19
2. The data were collected cross-sectionally, and only during pandemic, the true and clear smokers' behaviour change due to COVID-19 pandemic is not easy to gauge, so longitudinal studies are needed.
3. Further studies should be conducted for a better understanding of smokers' behaviour in Palestinian society.

## 14. References

Aryanpur, M., Masjedi, M. R., Mortaz, E., Hosseini, M., Jamaati, H., Tabarsi, P. et al. (2016). Intention to quit smoking and associated factors in smokers newly diagnosed with pulmonary tuberculosis. *Tanaffos*, 15(1), 17–24.

El Zowalaty, M. E., & Järhult, J. D. (2020). From SARS to COVID-19: A previously unknown SARS-related coronavirus (SARS-CoV-2) of pandemic potential infecting humans - Call for a One Health approach. *One health (Amsterdam, Netherlands)*, 9(1), 100-124.

Gravelly, S., Craig, LV., Cummings, KM., Ouimet, J., Loewen, R. et al. (2021). Smokers' cognitive and behavioural reactions during the early phase of the COVID-19 pandemic: Findings from the 2020 ITC Four Country Smoking and Vaping Survey. *PLOS ONE* 16(6), 252-427.

Hitchman, S. C., Fong, G. T., Zanna, M. P., Thrasher, J. F., & Laux, F. L. (2014). The relation between number of smoking friends, and quit intentions, attempts, and success: findings from the International Tobacco Control (ITC) Four Country Survey. *Psychology of addictive behaviours. Journal of the Society of Psychologists in Addictive Behaviours*, 28(4), 1144–1152.

Hwang, J., Chun, Hr. & Cheon, E. (2021). A qualitative study on the impact of COVID-19 on the behaviour and attitudes of smokers and non-smokers in South Korea. *BMC Public Health* 21(1), 1972-1990.

Jackson, S. E., Brown, J., Shahab, L., Steptoe, A., & Fancourt, D. (2021). COVID-19, smoking and inequalities: a study of 53 002 adults in the UK. *Tobacco control*, 30(2), 111–121.

Johns Hopkins University and Medicine Coronavirus Resource Center (2022). *COVID-19 World Map*. [(accessed on 12 January 2022)].

Kayhan Tetik, B., Gedik Tekinemre, I., & Tas, S. (2021). The effect of the COVID-19 Pandemic on smoking cessation success. *Journal of community health*, 46(3), 471–475.

Kowitt, S. D., Cornacchione Ross, J., Jarman, K. L., Kistler, C. E., Lazard, A. J., Ranney, L. M. et al. (2020). Tobacco quit intentions and behaviours among cigar smokers in the United States in





response to COVID-19. *International Journal of Environmental Research and Public Health*, 17(15), 5368

Malkawi, M., Al-Yousfi, B., & Mandil, A. (2021). Air quality and health impacts in the Eastern Mediterranean Region: an eye on COVID-19. *Eastern Mediterranean Health Journal*, 27(1), 3-4.

Puebla Neira, D., Watts, A., Seashore, J., Polychronopoulou, E., Kuo, Y. F., & Sharma, G. (2021). smoking and risk of COVID-19 hospitalization. *Respiratory Medicine*, 182(1), 1-7.

Rigotti, N. A. (2013). Smoking cessation in patients with respiratory disease: existing treatments and future directions. *The Lancet. Respiratory Medicine*, 1(3), 241–250.

Rigotti, N. A., Chang, Y., Regan, S., Lee, S., Kelley, J., Davis, E., Levy, D. E., Singer, D. E., & Tindle, H. A. (2021). Cigarette smoking and risk perceptions during the COVID-19 pandemic. Reported by Recently Hospitalized Participants in Smoking Cessation Trial. *Journal of general internal medicine*, 36(12), 3786–3793.

Rodrigues, M., Silva, R., & Franco, M. (2021). COVID-19: Financial stress and well-being in families. *Journal of Family Issues*, 12(3), 15-35.

Santiago, C. D. C., Wadsworth, M. E., & Stump, J. (2011). Socioeconomic status, neighborhood disadvantage, and poverty-related stress: Prospective effects on psychological syndromes among diverse low-income families. *Journal of Economic Psychology*, 32(2), 218-230.

Shastri, M. D., Shukla, S. D., Chong, W. C., Kc, R., Dua, K., Patel, R. P., Peterson, G. M., & O'Toole, R. F. (2021). Smoking and COVID-19: What we know so far. *Respiratory Medicine*, 176(1), 106-237.

Shiffman, S. (1993). Assessing smoking patterns and motives. *Journal of Consulting and Clinical Psychology*, 61(5), 732-742.

Siahpush, M., Spittal, M., & Singh, G. K. (2007). Smoking cessation and financial stress. *Journal of public health (Oxford, England)*, 29(4), 338-342.

Siddiqi, K., Siddiqui, F., Khan, A., Ansaari, S., Kanaan, M., Khokhar, M., Islam, Z., Mishu, M. P., & Bauld, L. (2021). The impact of COVID-19 on smoking patterns in Pakistan: Findings from a longitudinal survey of smokers. *Official Journal of the Society for Research on Nicotine and Tobacco*, 23(4), 765-769.

Simons, D., Shahab, L., Brown, J., & Perski, O. (2021). The association of smoking status with SARS-CoV-2 infection, hospitalization and mortality from COVID-19: a living rapid evidence review with Bayesian meta-analyses. *Addiction (Abingdon, England)*, 116(6), 1319-1368.

Tsigaris, P., & Teixeira da Silva, J. A. (2020). Smoking prevalence and COVID-19 in Europe. *Official Journal of the Society for Research on Nicotine and Tobacco*, 22(9), 1646–1649.

WHO (2019). *WHO Report on the Global Tobacco Epidemic*. World Health Organization; Geneva, Switzerland: 2019. [(accessed on 17 February 2021)].

WHO (2020). *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013– 2020*. World Health Organization; Geneva, Switzerland.

Zajacova, A., Jehn, A., Stackhouse, M., Denice, P., & Ramos, H. (2020). Changes in health behaviours during early COVID-19 and socio-demographic disparities: a cross-sectional analysis. *Canadian Journal of Public Health (Revue Canadienne De Sante Publique)*, 111(6), 953-962.

## 15. Appendixes

**Table no. (3.1). Sample distribution by gender**

Gender	N	Percent %
Male	460	92.0
Female	40	8.0
Total	500	100

**Table no. (3.2). Sample distribution by marital status**

Marital status	N	Percent %
----------------	---	-----------

Single	247	49.4
Married	243	48.6
Other	10	2.0
<b>Total</b>	<b>500</b>	<b>100</b>

**Table no. (3.3). Sample distribution by place of residency**

Place of residency	N	Percent %
City	191	38.2
Village	252	50.4
Camp	57	11.4
<b>Total</b>	<b>500</b>	<b>100</b>

**Table no. (3.4). Sample distribution by qualification**

Qualification	N	Percent %
Basic or below	33	6.6
Secondary	114	22.8
Diploma	35	7.0
Bachelor or above	318	63.6
<b>Total</b>	<b>500</b>	<b>100</b>

**Table no. (3.5). Sample distribution by work status**

Work status	N	Percent %
Working	311	62.2
Not Working	189	37.8
<b>Total</b>	<b>500</b>	<b>100</b>

**Table no. (3.6). Sample distribution by religion commitment**

Religion commitment	N	Percent %
High	23	4.6
Moderate	420	84.0
Low	57	11.4
Total	500	100

**Table no. (3.7). Sample distribution by corona virus infection**

Corona virus infection	N	Percent %
Yes	70	14.0
No	430	86.0
Total	500	100

**Table no. (3.8). Sample distribution by age**

Variable	N	Min.	Max.	Mean	Std. Deviation
Age	500	18	60	31.59	11.68

**Table no. (3.9). Factor analysis of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scale**

No.	Items	Extraction
1.	Closure of cafes and public places	0.67
2.	Safety measure taken to limit the spread of the virus	0.68
3.	Fear of infection with the virus	0.62
4.	The difficult financial situation	0.63
5.	My low immunity	0.83
6.	Stress, anxiety, and tension	0.61

7.	Haven't been vaccinated against COVID-19	0.79
8.	The free time caused by the lockdowns	0.84
9.	The lack of interaction with people due to the lockdowns	0.67
10.	My online job/study	0.79
11.	Unemployment	0.82
12.	The weakness of social relationships	0.76
13.	I think that COVID-19 pandemic is a good opportunity to quit smoking	0.62
14.	I am thinking seriously of quitting smoking due to the COVID-19 pandemic	0.68

**Table no. (3.10). Reliability of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scale**

Model	No. of items	Alpha
Cronbach's Alpha	14	0.84
Guttman Split-Half	14	0.79

**Table no. (4.1). Number, mean, standard deviation, and percentage of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society**

Variable	N	Mean*	Std. Deviation	Percent %
The impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society	500	3.21	1.01	64.2

\*Mean out of 5 points.

**Table no. (4.2). Mean, standard deviation, and percentage for the indicators of the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society ranked in a descending order**

Indicators	Mean*	Std. Deviation	Percent %
I am thinking seriously of quitting smoking due to the COVID-19 pandemic	3.22	1.32	64.4
I think that COVID-19 pandemic is a good opportunity to quit smoking	3.20	1.35	64.0
Total	3.21	1.01	64.2

\*Mean out of 5 points.

**Table no. (4.3). Number, and percentage of smoking rate among Palestinian smokers during COVID-19 pandemic**

Smoking rate during COVID-19 pandemic	N	Percent %
Decreased	118	23.6
Increased	54	10.8
Didn't change	328	65.6
Total	500	100

**Table no. (4.4). Mean, standard deviation, and percentage for the factors that contributed to decreasing the smoking rate during COVID-19 pandemic ranked in a descending order**

Factors	Mean*	Std. Deviation	Percent %
Closure of cafes and public places	3.34	1.33	66.8
My low immunity	3.27	1.37	65.4
The difficult financial situation	3.23	1.32	64.6
Stress, anxiety, and tension	3.21	1.35	64.2

Fear of infection with the virus	3.19	1.32	63.8
Safety measure taken to limit the spread of the virus	3.17	1.36	63.4
Haven't been vaccinated against COVID-19	3.07	1.40	61.4

**\*Mean out of 5 points.**

**Table no. (4.5). Mean, standard deviation, and percentage for the factors that contributed to increasing the smoking rate during COVID-19 pandemic ranked in a descending order**

Factors	Mean*	Std. Deviation	Percent %
My online job/study	3.34	1.35	66.8
The weakness of social relationships	3.07	1.33	61.4
The free time caused by the lockdowns	2.97	1.35	59.4
Unemployment	2.93	1.34	58.6
The lack of interaction with people due to the lockdowns	2.89	1.34	57.8

**\*Mean out of 5 points.**

**Table no. (4.6). T-test for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to gender**

Gender	N	Mean*	Std. Deviation	DF	T-value	Sig.
Male	460	3.21	1.01	498	0.309	0.757
Female	40	3.16	0.94			
Total	500	3.21	1.01			

**\*Mean out of 5 points.**



**Table no. (4.7). T-test for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to work status**

Work status	N	Mean*	Std. Deviation	DF	T-value	Sig.
Working	311	3.25	0.98	498	1.203	0.229
Not working	189	3.14	1.05			
Total	500	3.21	1.01			

\*Mean out of 5 points.

**Table no. (4.8). T-test for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to corona virus infection**

Corona virus infection	N	Mean*	Std. Deviation	DF	T-value	Sig.
Yes	70	3.45	0.99	498	2.213	0.027
No	430	3.16	1.00			
Total	500	3.21	1.01			

\*Mean out of 5 points.

**Table no. (4.9). One-way analysis of variance for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to marital status**

Source	DF	Sum of squares	Mean square	F-value	Sig.
Between groups	2	2.715	1.357	1.329	0.266
Within groups	497	507.735	1.022		
Total	499	510.450	-----		

**Table no. (4.10). Mean scores and standard deviation for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to marital status**

Marital status	N	Mean*	Std. Deviation
Single	247	3.26	0.98
Married	243	3.17	1.04
Other	10	2.80	0.75
Total	500	3.21	1.01

\*Mean out of 5 points.

**Table no. (4.11). One-way analysis of variance for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to place of residency**

Source	DF	Sum of squares	Mean square	F-value	Sig.
Between groups	2	2.586	1.291	1.264	0.283
Within groups	497	507.867	1.022		
Total	499	510.450	-----		

**Table no. (4.12). Mean scores and standard deviation for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to place of residency**

Place of residency	N	Mean*	Std. Deviation
City	191	3.28	0.97
Village	252	3.18	1.05
Camp	57	3.06	0.91
Total	500	3.21	1.01

\*Mean out of 5 points.

**Table no. (4.13). One-way analysis of variance for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to qualification**

Source	DF	Sum of squares	Mean square	F-value	Sig.
Between groups	3	4.959	1.653	1.622	0.183
Within groups	496	505.491	1.019		
Total	499	510.450	-----		

**Table no. (4.14). Mean scores and standard deviation for the differences in the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society scores according to qualification**

Qualification	N	Mean*	Std. Deviation
Basic or below	33	3.50	1.16
Secondary	114	3.14	0.94
Diploma	35	3.41	0.93
Bachelor or above	318	3.17	1.02
Total	500	3.21	1.01

\*Mean out of 5 points.

**Table no. (4.15). Regression coefficients between age, religion commitment and the impact of COVID-19 pandemic on smokers' behaviour in the Palestinian society**

Variables	N	Beta	Sig.
Age	500	0.027	0.550
Religion commitment	500	0.048	0.286

**R Square=0.003**



## CONFLICTS OF INTEREST

The authors declare no conflicts of interest regarding the publication of this paper.

## HOW TO CITE THIS PAPER?

Banat, B., Zahaikah, B., Wahsh, A., Hasanin, A., Skafi, A., Wahwah, B., Awawdeh, S., Araj, M., Suliman, N., Sharawi, H., & Joudi, Y. (2022). The Impact of COVID-19 Pandemic on Smokers' Behaviour in the Palestinian Society. *International Humanities Studies*, 8(3), 37-62.

## ABOUT THE AUTHORS

Bassam Yousef Ibrahim Banat, PhD. Sociology (Statistical Methods and Research Techniques), Associate Professor, Department of Applied Sociology, Faculty of Arts, Al-Quds University, Main Campus, Jerusalem- Abu Dies, Palestine. Email: [bbanat@staff.alquds.edu](mailto:bbanat@staff.alquds.edu), [bassambanat@yahoo.com](mailto:bassambanat@yahoo.com)

Bilal Zahaikah, Ahmad Wahsh, Ahmad Hasanin, Ahmad Skafi, Bilal Wahwah, Salih Awawdeh, Majd Araj, Nermeen Suliman, Hadeel Sharawi, & Yazeed Joudi, Bachelor of Science in Nursing, Department of Nursing, Faculty of Health Professions, Al-Quds University, Main Campus, Jerusalem- Abu Dies, Palestine.