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Attitudes Toward Smoking Behaviour Among Indonesian Smoking Kretek Seeking COVID-19 Vaccination

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Abstract

The aim of this study is to gain a better understanding of the attitudes of Indonesian smoking Kretek during the COVID-19 pandemic, factors such as (1) participants' knowledge, attitudes, and practices concerning smoking kretek during the pandemic; (2) social and economic factors influencing smokers' behaviour during the pandemic; and (3) changes in their smoking behaviour before and after the pandemic (if any).

Data were derived from 6000 vaccination registrants in the special region of Yogyakarta from August to October 2021. They filled out the questionnaire voluntarily after they had received vaccination. Vaccination was carried out at the Health Polytechnic of the Ministry of Health, Yogyakarta, Indonesia.

Result of this study showed that smokers Kretek were more likely to believe that smoking cigarettes increases the risk of getting COVID-19, and that smoking cigarettes increases the risk of getting complications due to the virus. However, even for people who seek COVID-19 vaccination, COVID-19 factors did not significantly affect smoking behaviour. The number of cigarettes consumed daily slightly increasing during the pandemic.

The present study has identified many key points in connection with attitudes and health risks perceptions of smokers and non-smokers seeking COVID-19 vaccine in Indonesia during pandemic.

Keywords: Kretek, smokers, COVID-19, cigarettes

Introduction

COVID-19 and smoking

Based on the "COVID-19 Dashboard" of the World Health Organization (WHO), by October 2021 there had been around 237 million confirmed cases of the virus globally, including around 4.8 million related deaths (World Health Organization, 2021). The majority of people infected with this infectious respiratory virus experience mild to moderate symptoms, but in the presence of complications such as sepsis, pneumonia, respiratory failure, and acute respiratory distress syndrome (ARD) it can cause more serious and long-lasting harm to the lungs in severe cases (Xu et al., 2020). A systematic review

of 16 studies considering the impact of smoking on COVID-19 symptom severity among 11,322 patients revealed that more severe COVID-19 symptoms were associated with smoking cigarettes (OR = 1.51; 95% CI: 1.12–2.05; p<.008) and duration of smoking (OR = 2.17; 95% CI ;1.37-1.46; p<.001) respectively (Patanavanich & Glantz, 2020). Similarly, a scientific brief released by the WHO suggested that smoking is associated with increased severity of disease and death in hospitalized COVID-19 patients, thus WHO recommended that smokers stop smoking as part of COVID-19 guidance (in addition to general health advice) (World Health Organization, 2020)

Cigarettes contain more than 7000 chemicals, some of which are substances that can damage the lungs. Although the effects of smoking and the nature of the COVID-19 disease both attack the respiratory system, some high-profile news stories (and not peer-reviewed medical studies) based on observational data from China during the initial period of the virus in 2020 popularized the idea that smokers were less likely to be hospitalized with COVID-19, and some misleading headlines could be misinterpreted to suggest that smoking could reduce people's risk from COVID-19, or even help to treat it (Usman et al., 2021).

Vaccine intention and smoking attitudes

Some studies have found that smokers are more likely to be hesitant to receive a COVID-19 vaccine compared to non-smokers (27.6% vs 22.7%; R Radj 1.43 95%CI, 1.3-1.56) and ex-smokers (27.6% vs 19.3%; R Radj 1.53 95%CI, 1.41-1.73) (Jackson, Paul, Brown, Steptoe, & Fancourt, 2021). There is a lack of evidence on the attitudes and behaviours of Indonesian smokers in relation to COVID-19 vaccination, who comprise a substantial population of around 54.2 million people. Among adults in Indonesia, around 66% of males and 7% of females are smokers (Center-IAKMI, 2014). It is unknown whether cigarette consumption has increased in Indonesia during the COVID-19 pandemic, but in other countries public health lockdowns have been associated with more young adults beginning to smoke, as well as increased alcohol consumption among all adults (Jackson, Beard, Angus, Field, & Brown, 2021).

The public health prolife of smoking issues in Indonesia is complicated by the fact that the tobacco industry provides a major source of national employment and revenue, which is reflected in minimal smoke-free policies, cessation programs, health warnings, and advertising bans. Furthermore, cigarettes remain relatively affordable (World Health Organization, 2020). The widespread prevalence of smoking in public places and in the home exposes an estimated 97 million Indonesians to involuntary cigarette smoke inhalation every day, increasing the risk of smoking-related diseases, especially for children (Putri et al., 2018).

COVID-19 lockdown policies and self-isolation forced people to stay at home (Andrew et al., 2020). Smokers who usually spend more hours outdoors, such as smoking in the park, workplace, or school, may consequently spend more time smoking indoors (Osinibi, Gupta, Harman, & Bossley, 2021). In addition, studies show that the COVID-19 lockdowns had wide-ranging economic impacts (Stubbs et al., 2017). Many people lost their jobs or had salary reductions, which added to the negative health impacts of lockdowns themselves, reflected in increased sedentary behaviours, loneliness and isolation, anxiety, depression, and stress (Brooks et al., 2020; Santomauro et al., 2021). Smoking is commonly perceived, particularly among smokers, as a way to regulate emotion and relieve negative emotions, particularly stress (Yingst et al., 2021).

In Indonesia, 80 percent of cigarette products are domestically consumed, and the poorest Indonesians make the biggest contribution to those sales (Center-IAKMI, 2014). Approximately 90% of all smokers in Indonesia, or around 54.2 million adults, smoke kretek cigarettes (BPPK BPP, 2018). Those poorest Indonesians spend more money on cigarettes than on health and education combined. The most popular cigarette product is the kretek cigarette, containing tobacco flavoured with clove and other flavoured sauces. These are distinct from ordinary Western cigarettes that form the main global cigarette form. On average, a current kretek cigarette smoker spends IDR 198,761 (USD 13.9) per month on kretek cigarettes (Center-IAKMI, 2014). While the price of Kretek cigarettes is relatively cheap in Indonesia, this still represents a substantial burden on the household economy of poorer smokers. There is a lack of data available on the influence of economic factors in relation to COVID-19 on smokers' attitudes. For instance, during national lockdowns, there was no national furlough payment scheme for workers prevented from working; furthermore, unknown millions of Indonesians are engaged in informal economic activities (I ketut, 2021). Consequently, it is unknown whether smokers kretek in Indonesia stopped smoking or chose alternative cheaper types of cigarettes during the COVID-19 lockdown period.

Methods

This study used a cross-sectional survey with 610 respondents randomly selected from 6000 vaccination registrants in the Special Region of Yogyakarta from August to October 2021. They filled out the questionnaire voluntarily after they had received vaccination. Vaccination was carried out at the Health Polytechnic of the Ministry of Health, Yogyakarta, Indonesia. The instrument used was a questionnaire consisting of 34 questions which were partially adapted from previous studies (Yingst et al., 2021). The questionnaire contains general demographic items covering age, gender, home location, education, and occupation, and it asks questions about health status their experiences about negative emotions during COVID-19, smoking status, amount of tobacco consumption, type of tobacco use, changes in smoking behaviour during the COVID-19 pandemic, and any economic and social factors affecting smoking in relation to the pandemic. Stata 15 as used to examine data using binomial logistic regression, with 0.05 significance level.

Results

Participants' sociodemographic characteristics and smoking status

Table 1 summarizes participant characteristics. Out of the 610 respondents, 350 (57.3%) were males, and the remaining 260 (45.6%) were females, of whom 42.2% and 1.9% were current smokers (respectively). Participants' age distribution ranged between 16 to 75 years, with a mean of 35.6±13.4.

Table 1. Sociodemographic characteristics and smoking status

Study Characteristic	Smoker				Non-Smoker	Total
	Preferable product to choose			Number of smokers		
	Kretek	Non-kretek	E-cigarette			
Gender						
Male	122	21	5	148	202	350 (57.37)
Female	2	3	2	7	253	260 (42.62)
Total	124	24	7	155	455	610 (100)
Mean age	34.46±13.6	35.98±12.8	34.38±13.5	35.7±12.5	39.2±7.8	34.8±13.4
Age (years)						
18-25	32	7	2	41	184	225(36.8)
26-40	51	12	3	66	122	188(30.8)
41 and up	41	5	2	48	149	197(32.2)
Total	124	24	7	155	455	610 (100)
Education						
<High school	24	49	2	75	39	114(18.6)
High school	63	11	2	76	184	260(42.9)
>High school	37	9	1	47	230	277(45.7)
Total	124	69	5	155	455	610 (100)

From a total of 155 smoking participants in this study, 124 (80%) smoked kretek cigarettes, 24 (15%) smoked other tobacco products (e.g., conventional Western cigarettes), and 7 (4%) smoked e-cigarettes. Among the 66 younger smokers (aged 18-24 years), who comprised 42,58% of the smoking participants, 51 (77.24%) smoked kretek cigarettes (Table 1).

Perceptions of smokers and non-smokers associated health risks during COVID-19

There are mixed perceptions about the importance of smoking cigarettes during pandemic. Among smokers, the majority (63.2%) considered smoking unimportant, while 36.1% considered it to be important. Among non-smokers, equal proportions considered smoking important or unimportant, or they did not know (35.8%, 35.1%, and 29.0%, respectively) (Table 2).

Most participants (69.7%) believed that the COVID-19 pandemic had not influenced their smoking behaviour, but almost a third (30.3%) did, and they were decreasing their daily cigarette consumption. More than half of smokers admitted that they felt stress during the pandemic (63%), one third of the non-smokers did not know whether they felt stress or not (30.9%).

Table 2. Knowledge, attitudes, and concerning smoking during pandemic

Variable	Frequency	Percentage
Perception about the importance of smoking cigarettes		
Smoker (n-155, 25.4%)		
Important	57	36.1
Not Important	98	63.2
Non-smoker (n=455, 74.59%)		
Important	163	35.8
Not important	160	35.1
Do not know	132	29.0
Preferable product choice		
Kretek cigarettes	124	79
Other tobacco products	24	15
E-cigarettes	7	3.2
Non-smokers	455	100
Pandemic influenced their smoking behavior		
Smoker		
Yes	47	30.3
No	108	69.7
Increase number of cigarettes		
Smoker		
Yes	55	35.4
No	100	64.5
Stress during pandemic		
Smoker		
Yes	98	63.0
No	9	5.8
Do not know	48	30.9
Non-smoker		
Yes	381	62.0
No	152	24.9
Do not know	77	12.6
Number of cigarettes smoked		
	Mean ± SD	**P value [a]**
Before pandemic	8.25±0.69	0.003*

During pandemic	11.5±1.27	

[a] T test; * 0.05 level of significance

A paired sample t-test was conducted to investigate the difference between the number of cigarettes consumed before and during the COVID-19 pandemic. There is a significant difference between the number of cigarettes consumed before the pandemic (mean=8.25±0.69) and the number of cigarettes consumed during it (mean=11.5±1.27),t (143), p=0.003 (Table 2).

Attitudes and barriers of quitting smoking during COVID-19

As shown in Table 3, the vast majority of smokers (90.7%) did not consider that they faced any difficulties in terms of getting cigarettes during the pandemic, although over a fifth stated that they faced social barriers from their families (22.5%) and from government regulation (21.9%). Almost half of smokers stated that quitting smoking is quite important (47.1%), and that they are quite sure they wanted to quit, while 41.9% have tried to stop smoking. Those who tried to quit did so cold turkey (30.7%), eating candy (41.5%), using NRT or medication (10.7%), and using other ways, such as herbal medicine and acupuncture etc. (16.9%). Half of smokers (52.2%) believed that health professionals have tried to help smokers quit during pandemic

Table 3. Smoking practice during COVID-19 pandemic

Variable	Frequency	Percentage
1. Difficulty in getting cigarettes		
Yes	6	9.3
No	149	90.7
Total	155	100
2. Social barriers from family		
Yes	35	22.5
No	120	76.7
Total	155	100
3. Social barriers from government		
Yes	33	21.9
No	122	78.7
Total	155	100
4. Social barriers from peers		
Yes	7	4.5
No	148	95.4
Total	155	100
5. Health professionals have tried to help		
Yes	81	52.2
No	74	47.7
Total	155	100
6. Tried to stop smoking		
Yes	65	41.9
No	90	58.0
Total	155	100
7. Ways of quitting smoking		
Cold turkey	20	30.7
Eating candy	27	41.5
NRT	7	10.7
Others	11	16.9
Total	155	100
8. Quitting is important		
Yes	73	47.1
No	82	52.9

Total	155	100

Binomial logistic regression analysis of factors associated with smoking status

After adjusting for age and sex, binomial logistic regression analysis showed that smokers were more likely to believe that smoking cigarettes increases the risk of getting COVID-19 (a OR =2.2, 95% CI =2.1-4.0), and of increasing the risk of associated complications (a OR= 2.8. 95%CI 1.5-5.3).

Discussion

This study found a higher proportion of male smokers (42.28%) than female ones (1.9%) among the random sample from the Health Polytechnic of the Ministry of Health, Yogyakarta, Indonesia. This indicates much lower prevalence among both males and females than the WHO's estimates of 65.7% and 3.7% male and female smoking prevalence in Indonesia (respectively) in 2021 (World Health Organization, 2020). It is impossible to infer whether this is due to lower localized smoking prevalence in the study setting (compared to the national average), or social desirability bias among respondents (who had just received COVID-19 vaccination in a public healthcare facility). Three-quarters (75%) of self-identified smokers consumed kretek, while WHO data based on a 2018 survey reported higher kretek prevalence (around 80%) among smokers (World Health Organization, 2020). There seems to be a popular belief that cigarettes with filters are safer for consumption. A systematic review by Nuryunarsih et al. showed that the health risks of kretek cigarettes are at least as harmful as regular cigarettes (Nuryunarsih, Lewis, & Langley, 2021).

Social acceptability vs. health risk perception of smoking during COVID-19

Social acceptability refers to the social approbation or tolerance of behaviours or opinions in within specific cultural contexts. In Indonesia, smoking behaviour continues to be seen as conventionally appropriate in general contexts (Nichter et al., 2009) This is a factor that enables smokers to continue smoking, despite knowing that they are harming themselves and others. Related to social acceptability, peer pressure commonly induces young people to take up smoking, and peer influence continues to be an important mechanism for maintaining smoking behaviour(Liu, Zhao, Chen, Falk, & Albarracín, 2017). Study in Jayapura (Indonesia) showed that 29.8% of teenagers smoked, of whom 73.9% had parents who smoke, and 25.64% of them had other family members who also smoked (Herawati, Budiman, Haryono, & Mulyani, 2017).

This is consistent with our study findings, where only a third of smoking participants agreed that they faced social barriers to smoking from their families, and less than a quarter believed that they faced social barriers from their peers. Although participants agree that smokers have a higher chance of getting COVID-19 and associated complications, there was significantly increased consumption of cigarettes before and after COVID-19, and people admitted that they smoked cigarettes indoors more often during the pandemic.

Disposable income related to COVID-19

Public health measures related to COVID-19 have had massive economic impacts worldwide.[13] Indonesia has traditionally been anomalous in the relatively low price of cigarettes for local consumers, but in the context of the pandemic people have been increasingly sensitive to the relatively high price of cigarettes in other countries. Price usually influences whether people stop smoking during certain situations, and also how much they smoke (He, Shang, & Chaloupka, 2018).

However, this study found that only a quarter of smoking participants admitted that they decrease their daily cigarette consumption or changed their cigarette brand.

The Indonesian government has made tentative efforts to address smoking, including a 23% increase in the excise tax and establishing minimum selling prices to reach an average of 35% increase tax, but cigarettes remain relatively affordable (Baramuli, 2020). Kretek cigarettes are essentially inexpensive; depending on the brand, the price of a packet of 12 or 16 cigarettes ranges from IDR 13,000-30,800 (approximately USD 0.85-2.02) (Tbk, 2017). Kretek cigarettes can also be bought individually; a single cigarette can be purchased for around IDR 1000 (USD 0.066), and approximately 30 percent of sales by Sampoerna companies are in single cigarette sales (Tbk, 2017). Consequently, in spite of economic loss due to lockdown, cigarettes remain relatively affordable for Indonesian smokers (World Health Organization, 2020). It should also be noted that the low price of cigarettes is but one factor in purchase and use decisions, and addiction is a profound motivator, whereby smokers may prioritize the purchase of cigarettes even when they have to go without food. Environmental and physiological factors in smoking are explored below.

Environmental factors

Availability

In addition to the affordability of cigarettes in Indonesia, they are also widely available. During the pandemic, 90% of smokers reported that they faced no difficulties in purchasing cigarettes. The easier tobacco is to obtain, the more likely it is that people will use it; it is important to limit availability to prevent dependence.

Young people smoking during the pandemic

This study found that around 20 percent of smokers were aged 18-24 years, and 90% of smokers smoke kretek cigarettes. Comparing prevalence before and after the pandemic, the number of smokers is not decreasing. In general, the majority of smokers start smoking during their teenage years and continue with this behaviour into adult life (health, 2019). Tobacco companies have been found to market their products to young people by various covert and overt means (Isip & Calvert, 2020).The association between a ban on sales to minors and young smokers has been explored in many research studies. A systematic review study suggested that when a ban on sales to minors is strongly enforced, minors faced difficulties in accessing cigarettes, which may reduce cigarette consumption (Nuyts, Kuijpers, Willemsen, & Kunst, 2018).

In Indonesia, there is no strict regulation on sales of cigarettes. An MPOWER (Monitoring tobacco use, Protecting people from tobacco smoke, Quitting tobacco, Warning about the dangers of tobacco, Enforcing tobacco advertising, Promotion and sponsorship bans, Raising taxes on tobacco) report of 2019 states that Indonesian Government Regulation Number 109/2012 controls the distribution of tobacco cigarettes; for example, it is prohibited to sell cigarettes using a vending machine, or to sell tobacco cigarettes to minors (aged 18 years old or under) or pregnant women (World Health Organization, 2020). However, a recent study by Astuti et al. showed that this regulation was not fully implemented, and 57% of retailers within a 250 m radius of a school admitted selling cigarettes to young people. The study concluded that unregulated retailer settings in Indonesia enable commonplace selling by cigarette retailers to underage smokers (Astuti, Assunta, & Freeman, 2020).

Physiological factors

Nicotine is a potent psychoactive drug. Both manufactured and hand-rolled kretek cigarettes have higher tar, nicotine, and carbon monoxide (CO) levels than regular cigarettes (Delnevo & Hrywna, 2015). Nicotine is a very addictive substance. In this study almost half participant tried to quit. Among attempted quitters, 75% used cold turkey method and eating candy. The findings suggest that most participants believed that the best way to quit smoking was to do so without any support from health professionals. However, studies indicate that only 3-5% of all people who try to quit without any support will be successful, while the rest will relapse. The best smoking cessation strategy is a combination of pharmacological therapy and psychological support, which increases cessation success rates from 35% to 55% after 6 months if compared with cold turkey (Andritsou et al., 2016). This is because smoking activities are influenced by many factors, and it is incredibly difficult to quit. One of the best things to do is to get help from health professionals and plan to have smoking cessation guidelines.

Negative emotions

The COVID-19 pandemic influenced people emotionally, and smokers commonly report that the habit helps them cope with loneliness, grief, anger, and frustration. Smoking supports their emotional imbalance and sometimes the only support available. However, most participants in this study reported that they did not feel stress or anxiety during the pandemic.

WHO Framework Convention on Tobacco Control (FCTC)

Indonesia has not ratified the FCTC, which might otherwise help to address the tobacco-related disease burden of Indonesia. However, the Indonesian government has started to adopt several MPOWER measures, such as conducting regular tobacco surveys, starting to offer smoking cessation clinics, and a national toll-free quit line (World Health Organization, 2020). Indonesia has theoretically adopted MPOWER tobacco measures, which include protecting people from tobacco smoke; warning about the dangers of tobacco; enforcing bans on tobacco advertising, promotion, sponsorship; raising taxes on tobacco; and reducing the number of cigarettes per pack. However, tobacco control measures conducted in Indonesia since 2007 were unsuccessful in reducing cigarette use among adults. A comprehensive program to implement MPOWER recommendations in Indonesia on the grassroots level is still lacking (Davis, Wakefield, Amos, & Gupta, 2007). WHO reports attribute this to lobbying by the tobacco industry to influence the implementation of adequate tobacco control policy, as manifest in the low uptake of smoke-free policies and advertising bans (Davis et al., 2007)

Conclusion

This study shows that the majority of smokers in Indonesia are male, and they smoke kretek. Smokers were more likely to believe that smoking cigarettes increases the risk of getting COVID-19, and that smoking cigarettes increases the risk of getting complications due to the virus. However, even for people who seek COVID-19 vaccination, COVID-19 factors did not significantly affect smoking behaviour. The number of cigarettes consumed daily slightly increasing during the pandemic. For smokers who are ready to quit smoking, there is lack of support to quit. It is very important to have established smoking cessation, encouraging family and peers support to smokers who want to quit. The COVID-19 pandemic can be a steppingstone for the Indonesian government to continue supporting people's health, and one of the most fundamental things it can do in this regard is to ratify the FCTC.

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Ethical approval

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Competing of Interests

The authors declare that they do not have any conflicts of interest.

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