Smoking Cessation Experience and Socioeconomic Status of Online Motorcycle Taxi Drivers in Surabaya

Pengalaman Berhenti Merokok dan Status Sosial Ekonomi Pengemudi Ojek Online di Surabaya

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ABSTRACT

Online motorcycle taxi drivers are at risk of experiencing exposure to air pollution, and smoking habits can exacerbate the risk of decreased lung function. The success of smoking cessation could be influenced by the experience of cessation and socioeconomic status. In this regard, the study aimed to investigate the success of smoking cessation of online motorcycle taxi drivers in Surabaya, Indonesia, using a cross-sectional design from May–December 2020. A questionnaire was used to collect data through interviews, and the data were analyzed using a chi-square test. The number of respondents was 92. Among the respondents, 43.5% failed to quit smoking, while 56.5% of them succeeded. The chi-square test results demonstrated a relationship between all experience factors and the success of smoking cessation. Additionally, a relationship between education level ($p<0.001$) and income level ($p<0.001$) with socioeconomic status was observed. Further research is needed to observe how other factors such as knowledge, motivation, and environmental factors affect smoking cessation.

ABSTRAK

Pengemudi ojek online berisiko mengalami paparan polusi udara, dan kebiasaan merokok dapat memperparah risiko penurunan fungsi paru-paru. Keberhasilan berhenti merokok dapat dipengaruhi oleh pengalaman berhenti merokok dan status sosial ekonomi. Berkenaan dengan hal tersebut, penelitian ini bertujuan untuk mengetahui keberhasilan berhenti merokok pada pengemudi ojek online di Surabaya, Indonesia, dengan menggunakan desain cross sectional dari Mei-Desember 2020. Kuesioner digunakan untuk mengumpulkan data melalui wawancara, dan data dianalisis menggunakan uji chi-square. Jumlah responden adalah 92. Diantara responden, 43,5% gagal berhenti merokok, sedangkan 56,5% berhasil. Hasil uji chi-square menunjukkan hubungan antara semua faktor pengalaman dan keberhasilan berhenti merokok. Selain itu, hubungan antara tingkat pendidikan (p<0,001) dan tingkat pendapatan (p<0,001) dengan status sosial ekonomi. Diperlukan penelitian lebih lanjut untuk mengamati bagaimana faktor lain seperti tingkat pengetahuan, motivasi, dan faktor lingkungan mempengaruhi berhenti merokok.

INTRODUCTION

Surabaya is the second metropolitan city in Indonesia after Jakarta city. As its population grows, the number of vehicles (i.e., motorcycles) increases, and this places Surabaya city among the cities with the highest number of motor vehicles in East Java.[1] In this regard, the city witnessed a breakthrough in transportation called Online Motorcycle Taxis, which is an application-based technology that works via smartphones. However, the profession of a driver (i.e., online driver) may put the individual at risk of experiencing fatigue and air pollution exposure, which can cause respiratory health problems such as coughing or shortness of breath.[2] Additionally, exposure to air pollution can increase the risk of decreased lung function.[3,4]

Moreover, respiratory health problems can also be affected by smoking. Ninety percent of online motorcycle taxi drivers smoke while waiting for passengers. Cigarette smoke can be dangerous because of nicotine, tar, CO (carbon monoxide), and various heavy metals. Additionally, it can also reduce lung function and can trigger other serious diseases such as stroke, lung cancer, impotence, COPD, throat cancer, and oral cancer.[7,8] On this note, smoking cessation requires people to be aware of their health, which helps them to avoid harmful diseases, know the health risks of smoking, and have a correct perception of smoking.[7,9,10]

The urge to smoke mostly comes from curiosity and the environment (e.g., family and friends).[8] Nicotine is the main substance in cigarettes and is primarily responsible for the dependence on cigarettes. By stimulating the acetylcholine receptors on dopamine-containing neurons, it causes an abundance of dopamine in the brain's reward system, which generates the addictive pleasure that smokers crave. Without this, smokers feel anxious and depressed. The longer nicotine is in the body, the more assertive the smoking behavior becomes, and this poses a huge challenge for people who want to quit smoking.[11,12,13]

People who smoke will have the corresponding attitude and tendency for smoking whether they continue to smoke or not.[14,15] Therefore, their opinions and attitudes could affect smoking cessation.[9]

This research, thus, aimed to investigate the experience of smoking cessation and the impact of the socioeconomic status on the success of smoking cessation of online motorcycle taxi drivers in Surabaya, Indonesia.

MATERIAL AND METHOD

This research was a cross-sectional study conducted in May–December 2020 in Surabaya, Indonesia, and it was approved by the University of Surabaya Ethics Committee Number 016-OL/KE.VII/2020. On one hand, the experience of smoking cessation included the factors that provoke smoking and smoking cessation,[16,17,18] the steps and the changes experienced after cessation,[8,19] and the duration of cessation.[20] On the other hand, the socioeconomic status consisted of education level and income level.[21,22] Respondents were characterized by cigarette consumption per day,[23] and smokers were classified based on the Brinkman Index (BI).[24]

The population was online motorcycle taxi drivers, and the minimum sample required by the Lemeshow formula was 49 respondents. The inclusion criteria for the sample were being male, over 18 years of age, an active smoker, and assigned informed consent. The data collection methods consisted of a validation and reliability test of the questionnaire and the respondents who met the inclusion criteria using purposive and snowball sampling techniques. The internal validity developed according to the relevant theory was empirical facts. The reliability test used a coefficient value (Cronbach's Alpha); the results were in a range of good reliability ($0.96 > 0.6$).

Accordingly, content and construction validation were employed. In this regard, content validity is a validity test that focuses on the content of the research instrument to ensure that it follows the circumstances to be measured. The questionnaire was adapted from previous research and was tested on 30 online motorcycle taxi drivers according to subject criteria at the Rungkut base. Furthermore, validation was also examined using SPSS 24, and the results were 0.3061 and this indicates the validity of the data. Additionally, the result of the reliability test was 0.988, which indicated that the data was reliable. The data were analyzed using a chi-square test

to examine the association between smoking cessation experience and socioeconomic status with smoking cessation success.

RESULTS

The number of respondents involved was 170. However, only 92 respondents met the criteria for being included in the sample of this study.

Characteristics of Respondents

The respondents were male, with most belonging to the age range of 25–35 years old; 81.52% of them had graduated from senior high school. The income level was mostly moderate at 34.78%. The level of cigarette consumption per day was moderate at 40.22% (Table 1).

Experience and Success with Smoking Cessation

Most respondents answered that the first incidence of consuming cigarettes involved family and friends (92.39%).

On the other hand, factors that triggered respondents to quit smoking were health factors (47.83%), economic factors (34.78%), social factors (14.13%), and family factors (2.17%). Most respondents quit smoking by diverting their focus to activities such as work or hobbies (55.43%). Respondents also experienced discomfort in the mouth after quitting smoking (35.87%). A high percentage of the respondents (58.69%) ceased smoking for a period of 1–3 months (Table 2).

Table 1. Characteristics of Respondents

Characteristics	n=92	%
Age (Years)		
17–25	19	20.65
26–35	41	44.57
36–45	28	30.61
45–55	4	4.08
Education Level		
Elementary School	6	6.52
Junior High School	2	2.17
Senior High School	75	81.52
Undergraduate Studies	9	9.78
Income Level (IDR)		
Very High (> 3.5 x 10^5)	9	9.78
High (2.5–3.5 x 10^5)	23	25.00
Medium (1.5–2.5 x 10^5)	32	34.78
Low (< 1.5 x 10^5)	28	30.43
Consumption of Cigarettes/Day		
Non-daily	25	27.17
Light daily (1–10)	37	40.22
Heavy daily (> 10)	30	32.61
Classification of Smokers based on the Brinkman Index (BI)		
Mild (0–200)	66	71.74
Moderate (200–600)	26	28.26

Source: Primary Data, 2020

Table 2. Experience of Participants about Smoking Cessation

Experience of Smoking Cessation	n=92	%
Factors Provoking Smoking Behavior		
By Others	85	92.39
By Own Self	6	6.52
Factor Affecting Smoking Cessation		
Economic Factor	32	34.78
Health Factor	44	47.83
Family Factor	2	2.17
Social Factor	13	14.13
The Steps of Cessation		
It was Distracting	51	55.43
Changing My Mindset	14	15.22
Self-Resistance	10	10.87
Feeling the Change While Quitting	16	17.39
The Change After Quitting		
Mouth Feels Uncomfortable	33	35.87
Feel Dizzy	4	4.35
Body Feels Fresher	11	11.96
Weight Gain	10	10.87
Weight Loss	8	8.69
Feel Calm	12	13.04
Breathing Feels Easier	14	15.22
The Longest Duration of Cessation		
< 1 Week	12	13.04
< 1 Month	14	15.21
1–3 Months	54	58.69
3–6 Months	7	7.61
< 6 Months–1 Year	5	5.43

Source: Primary Data, 2020

Among the respondents, 43.5% were unsuccessful in quitting smoking, while 56.5% of them succeeded (Table 3). In this regard, most of the respondents who succeeded in smoking cessation did so due to economic factors (17 of 40) and were able to divert their attention (23 of 40). Moreover, most of the respondents who succeeded in smoking cessation experienced changes, including feeling fresher and more relaxed and finding breathing more comfortable (25 of 40), and they lasted for a duration of 1–3 months (24 of 40) (Table 4).

Cross Tabulation of Smoking Cessation Experience with Socioeconomic Status

The results of the chi-square test demonstrated an association between all experience factors and the success of smoking cessation (Table 4), and a relationship between education level (*p*<0.001) and income level (*p*<0.001) with socioeconomic status was noted (Table 5).

Table 3. The Success of the Smoking Cessation

Do You Think Your Smoking Cessation Efforts Have Been Successful?	n=92	%
Success	40	43.48
Not successful	52	56.52
Reason?		
Can't Restrain	45	86.54
Environmental Influence	7	13.46
Have There Been Any Changes?		
There is No Change	29	55.77
The Number of Cigarettes Consumed/Day Decreases	15	28.85
The Number of Cigarettes Consumed/Day Indeed Increases	8	15.38

Source: Primary Data, 2020

Table 4. Cross Tabulation of Experience and Success of the Smoking Cessation

Experience of Smoking Cessation	Smoking Cessation Experience		Total	*p-value*
	Success (n = 40)	Not Successful (n = 52)		
Factors Provoking Smoking Behavior				
By Others	39	46	85	0.017*
By Own Self	1	5	6	
Factor Affecting Smoking Cessation				
Economic Factor	17	15	32	
Health Factor	11	33	44	0.000*
Family Factor	0	2	2	
Social Factor	9	4	13	
The Steps of Cessation				
Using Distractions	23	28	51	
Changing My Mindset	9	5	14	0.000*
Self-Resistance	3	7	10	
Feeling the Change While Quitting	5	11	16	
The Change After Quitting				
Mouth Feels Uncomfortable	9	24	33	
Feel Dizzy	0	4	4	
Body Feels Fresher	7	4	11	
Weight Gain	6	4	10	0.000*
Weight Loss	0	8	8	
Feel Calm	7	5	12	
Breathing Feels Easier	11	3	14	
The Longest Duration of Cessation				
< 1 week	3	9	12	
< 1 month	1	13	14	
1–3 months	24	30	54	0.000*
3–6 months	7	0	7	
< 6 months–1 year	5	0	5	

Source: Primary Data, 2020
*If the *p-value* < 0.05, then this means that there is a relationship

Table 5. Cross Tabulation of Smoking Cessation Experience with Socioeconomic Status

Socioeconomic Status	Smoking Cessation Experience		Total	p-value
	Success (n = 40)	Not Successful (n = 52)		
Education Level				
Elementary School & Junior High School	2	6	8	
Senior High School	33	42	75	0.000*
Undergraduate Studies	5	4	9	
Income level (IDR)				
Very high (> 3.5×10^5)	6	3	9	
High (2.5–3.5×10^5)	17	6	23	0.000*
Medium (1.5–2.5×10^5)	9	23	32	
Low (< 1.5×10^5)	8	20	28	

Source: Primary Data, 2020
*If the *p-value* < 0.05, then this means that there is a relationship

DISCUSSION

In principle, cigarettes with nicotine, be it high or low, will increase the diastolic and systolic pressure, increase the heart rate, and supply the oxygen demand in the heart muscle. In return, this increase causes local release of norepinephrine from the terminals of the adrenergic axon, resulting in the release of catecholamines from the adrenal medulla and chromaffin tissue in the heart. Nicotine acts on chemoreceptors in the carotid body and aorta, inducing pulse reflex and arterial pressure; therefore, the low nicotine levels can still stimulate sympathetic ganglion cells.[25,26]

Lorensia et al. demonstrated that smoking cessation is tough and challenging.[8] For example, most studies reported respondents had understood the effect of smoking on health and its impact on the economy but they still continue to smoking. Further, several alternatives could divert smoking behavior, including pharmacological therapy and non-pharmacological therapy. In this study, the respondents quit smoking by changing their habits or mindset without drug therapy, and most of the methods used involved distractions. Meanwhile, the most success was caused by the diversion method. On another note, some of the drugs that are used for pharmacological therapy include bupropion, varenicline, clonidine.[27,28] However, the cost may be the main consideration while using this therapy, particularly when the cost of spending on drugs is higher than the cost of living.[29]

Moreover, the most common change that respondents experienced in smoking cessation is mouth discomfort and also likely associated with body weight. As theory explains, smokers have a lower ability to taste than non-smokers. There is a change in the shape and number of papillae in a tongue, decreasing the ability to taste in smokers. Furthermore, it can possibly affect an individual's appetite and weight.[30]

During smoking cessation, respondents reported that breathing felt lighter and easier (14 of 92). The possible reason is inflammation in the respiratory tract and increased sputum that induces coughing symptoms. Coughing is one of the most common and observable symptoms of smoking. The frequency of cough in smokers is high because smoking is a determinant of most respiratory diseases, starting with cough and potentially leading to respiratory tract inflammation, mucus hypersecretion, and cilia dysfunction.[31]

The effects of smoking addiction can include weight loss because of low appetite. Therefore, smokers will have a lower Body Mass Index (BMI) than non-smokers.[18] Burning a cigarette will make nicotine enter the brain through blood circulation for approximately 10 seconds. It will then be received by the acetylcholine receptors and stimulate the dopaminergic pathway system that can suppress the appetite and provoke malnutrition.[32]

Furthermore, the results of this study indicate that smokers' level of education may affect the success of smoking cessation. This aligns with previous research by Zhuang et al. that reported a significant difference in cessation rate between the lower and the higher education groups over the last two decades.[33] Additionally, income level also affects the success of smoking cessation. In this regard, smoking prevalence rates were higher in developing and low-income countries.

Conversely, in the economic view, smoking cessation at low incomes is easier than higher incomes.[34]

Continued motivational techniques and support are needed in the action stage when the individual stops smoking. Group or individual behavioral counseling can facilitate smoking cessation and improve success rates. Similarly, combined behavioral and drug therapies can also enhance the chance of smoking cessation success. Additionally, the five-stage transtheoretical model can be applied for smoking-induced addictive behaviors that consist of pre-contemplation, contemplation, preparation, action, and maintenance.[35,36]

On another note, the limitation of this study is the situation of the COVID-19 pandemic that possibly affects the obscure change of socioeconomic status. We cannot prove how significant the change is in the pandemic situation.

CONCLUSION AND RECOMMENDATION

Among the respondents in this study, 43.5% failed to quit smoking, while 56.5% of them succeeded. The chi-square test results demonstrated that there was a relationship between all experience factors and the success of smoking cessation. Additionally, a relationship between education level ($p<0.001$) and income level ($p<0.001$) with socioeconomic status was noted. Further research is needed to observe how other factors such as knowledge, motivation, and environmental factors affect smoking cessation.

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