

## The experience of nicotine dependence among adolescent smokers

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### Article Info

#### Article history:

Received July 22, 2021

Revised Apr 13, 2022

Accepted Jun 20, 2022

#### Keywords:

Adolescents

Anxiety

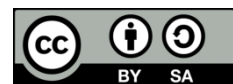
Nicotine dependence

Smoking cessation

### ABSTRACT

A cigarette contains nicotine substance that can cause smokers to become dependent on nicotine. Smokers who are already addicted will experience withdrawal syndrome. The earlier age people smoke at, the higher level of dependence they have. The adverse effect of nicotine dependence is that smokers will find it difficult to stop smoking. This study aimed to investigate the experiences of adolescent smokers who are dependent on nicotine. This was a qualitative study conducted with a phenomenological approach. Data were collected through an in-depth interview with five informants who were selected through purposive sampling technique. Triangulation was employed to enhance the credibility of the study. Data were analyzed using a phenomenological approach. This study resulted in four main themes, namely: age to start smoking; the causes of smoking; perceptions of smoking; experience of smoking cessation. Conclusion that can be drawn for this study was smoking abstinence led to anxiety, decreased concentration and craving to cigarette. The smokers need to educate about the nicotine withdrawal symptoms that they can anticipate it when symptoms appeared.

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## 1. INTRODUCTION

Smoking is prevalent in society, especially among men. The average age of people who smoke are currently still in their teens [1], who still attend primary schools and high schools. Indonesian government, in fact, has made regulations on smoking ban. It is stipulated in the Government Regulation of the Republic of Indonesia Number 109 Year 2012 on "Control of Materials Containing Addictive Substances in Tobacco Products in the Interests of Health". This regulation, however, has not worked well. Thus, many people still consume cigarettes.

Based on the results of the health basic research of Ministry of Health on the prevalence of smoking among adolescents in Indonesia, 5.1% aged 13 to 15 years and 20.9% aged 16 to 19 years were reportedly to smoke every day [2]. Meanwhile, 0.4% of adolescents tried to smoke for the first time at the age of 10 to 12 years. These results are quite similar with the results of National School-based Health Survey, indicating that 51% of the students of junior and senior high school smokers. Thus, it can be clearly seen that smoking is one of the major problems among adolescents in Indonesia.

According to WHO, an adolescent is any person between ages 10 to 19 years [3]. Adolescents who continue to smoke tend to increase the frequency of smoking [4]. They usually experience escalation to daily smoking. Cigarettes contain a substance called nicotine. If consumed from a young age, nicotine will affect their brain function [5]. Smoking at an early age is a serious health problem because the younger people start smoking, the more dependent on nicotine they will be [6].

Nicotine in cigarettes can cause addiction. The effects of nicotine tend to be relatively mild, but can seriously lead to nicotine dependence [7]. The phenomenon of nicotine dependence suggests that someone is not able to stop smoking. One of the predictive factors of smoking is smoking at an early age. This can cause smokers to be increasingly unable to stop taking nicotine [8]. This type of dependence is perceived as a pleasure that gives psychological satisfaction. This means that when a smoker suddenly stops consuming nicotine, he or she will suffer from stress [7]. Smokers who are nicotine dependent will usually continue taking nicotine in order to eliminate signs of withdrawal symptoms. Thus, many smokers find it hard to give up smoking. The symptoms of nicotine withdrawal occur when smokers are trying to stop consuming nicotine. They may experience depression, agitation, anxiety, irritability, fatigue, and sleepiness [5]. 55.9% of smokers and 47.1% of the research sample experienced more than two symptoms of nicotine withdrawal after a week of smoking cessation [9].

Almost 70% of smokers in USA said that they wanted to quit smoking every year, but 40% could last only for a day. As a matter of fact, highly addicted people can only last for hours [10]. It can be concluded that smokers who have high level of addiction to nicotine experience greater difficulties in smoking cessation. Smoking is the main cause of premature mortality in the United States. On an average, 435,000 Americans who died prematurely every year consumed cigarettes [10].

The results of the interview with three teenagers conducted for the preliminary study reveal that the teenagers felt relaxed and calm when smoking cigarettes. However, when they did not smoke a day, they suffered from anxiety. Furthermore, when asked if they could quit smoking, they said that they could, but not completely. There was one teenager, however, who said that he could stop smoking by eating candies. Hence, this study aimed to explore the smokers' experience of quitting nicotine intake.

## 2. RESEARCH METHOD

This was a qualitative study conducted with a phenomenological approach in order to explore the adolescent smokers' experience of nicotine dependence. Purposive sampling technique was employed to choose the sample of the research. The research informants were selected based on the criteria: adolescents between the ages 11 and 20 years, active smokers, able to communicate well, and willing to be informants. The number of participants who meet the inclusion criteria of five people is determined after reaching data saturation.

The study passed the ethics review test from health research ethics committee, faculty of medicine and health sciences, Universitas Muhammadiyah Yogyakarta UMY Number: 010/EP-FKIK-UMY/I/2019. The data analysis used is data analysis with a phenomenological approach including: i) the making of interview transcripts; ii) read and look for meaningful statements; iii) do coding; iv) compiling categories of keywords; and v) collect categories into themes and present interpreted data. Triangulation and member check was employed to enhance the credibility of the study.

## 3. RESULTS AND DISCUSSION

### 3.1. Results

The results of the study are discussed in terms of four categories: i) the age when the informants began smoking, ii) the causes of smoking, iii) the perceptions of smoking, and iv) the experience of smoking cessation.

#### 3.1.1. Age to start smoking

Results suggest that the informants started smoking at different ages. Some started when in elementary schools, in junior high school, or in senior high schools. Two informants started smoking in the elementary school, but at different ages. Besides, there was an informant who had smoked since he was in the third grade. This is supported by the statements of the informants:

*"... when I was a third grader ..."* (P3, male, 20 years old)

*"... elementary school, in the sixth grade..."* (P1, male, 20 years old)

Furthermore, there was an informant who started smoking when still in junior high school. This is supported by his statement:

*"... the first time I smoked was when I was in junior high school grade 8 ..."* (P4, male, 19 years old)

Besides in elementary school and junior high school, some informants started smoking in senior high school. This is supported by the statements of the informants:

*"... I smoked for the first time when I was in senior high school grade 11 ..."* (P2, male, 20 years old)

*"... I started smoking when I was in senior high school grade 12 ..."* (P5, male, 20 years old)

### 3.1.2. The causes of smoking

Smoking among adolescents is caused by internal and external factors. The internal factor that affects teenagers to smoke is that they just wanted to try and to know what it feels like to smoke cigarettes. On the other hand, in regard to external factor, the informants smoked because of the influence from their peers. There are the statements of the informants:

*"... I just wanted to try. Many people who are older than me smoke. My friends, too, so I wanted to know what smoking cigarette feels like. That's why I started smoking..."*

*"... and because my environment, too ..."* (P1, male, 20 years old)

*"...at first I saw my friends smoking at school recess. Then I joined them. I was also curious, so I tried..."* (P2, male, 20 years old)

*"...yes, because I hung out with people older than me ..."* (P3, male, 20 years old)

*"... yes, that's when it happened. I was still in junior high school, so I was a little mischievous. Every time I went home from school, I stopped by at a small shop. Many friends were there. Some of them were active smokers; some others were not. Then they offered me a cigarette. They said 'I have cigarettes. Do you want some?'. Because I was curious, I said yes and tried it. At first, it tested weird. Because it was still the beginning, I often coughed. But the more I tried because I always stopped by at the shop after school; it didn't taste weird anymore..."* (P4, male, 19 years old)

*"... as we know it in general, it all started because I got influenced from my friends. All my senior high school friends smoked. I didn't smoke in junior high school..."* (P5, male, 20 years old)

### 3.1.3. Perceptions of smoking

The informants' perceptions of nicotine dependence are related with smoking. The informants had two categories of perceptions towards smoking: what they feel after smoking and what they feel when they do not smoke. After smoking, the informants think that they feel calm. This is in line with the statements of the informants:

*"... I feel anxious all the time. I don't feel peaceful. It's like I have many burdens. When I smoke, I feel better, calmer, and more relaxed. Those may be the effects of smoking..."* (P1, male, 20 years old)

*"... yes, I feel relaxed. I think it's the suggestion of smoking that makes me calm..."* (P2, male, 20 years old)

*"... when I am not relaxed, for example, and pressured. But when smoking, I feel less pressured, I can concentrate again. That's it. That's what smoking does to me. When I am under pressure, smoking can help me reduce pressure..."* (P5, male, 20 years old)

Besides calming a person's mind, smoking is thought to be able to improve concentration. When the informants cannot concentrate, they opt to smoke. This is in line with the statements of the informants as follows:

*"... so when I was in school, I had many things to memorize. It feels like smoking made me understand better, memorize faster; if I was memorizing things while smoking. I'm not sure it was just a suggestion or not, but I could do things faster..."* (P2, male, 20 years old)

*"... I think smoking affects me, especially the way I concentrate..."* (P5, male, 20 years old)

*"... in terms of concentration, I think smoking helps. When I get assignments and I can't complete it, I feel stressed. Then I smoke so that I feel calm. So smoking can help me finish assignments..."* (P1, male, 20 years old)

In addition to calming their mind and making them have better concentration, the informants also feel that they have better moods after smoking. When the informants are not in a good mood, they smoke to put them in an amiable mood. This is in line with the statements of the informants:

*“... the point is when I am in a bad mood, then I smoke, I feel good again...” (P1, male, 20 years old)*  
*“... yes, like what I said before, my mood improves. Let’s say I’m having a bad mood because I’ve got problems with other people. To deal with it, I smoke so that I can feel calm...” (P3, male, 20 years old)*

What the informants experience when not smoking is anxiety. When they do not smoke, they feel like something is missing. This is in line with what the informants stated as follows:

*“... I feel anxious. When I don’t smoke, I feel like something is missing. I usually smoke after eating. When I don’t smoke, it’s like something is missing...” (P3, male, 20 years old)*  
*“... it was hard at the beginning. After eating, I usually smoke. I was influenced by what other people said that if you don’t smoke after eating, it will taste bitter in your mouth. I don’t feel like that actually, but I feel strange if I don’t smoke after eating. I think it’s because it’s been my habit to smoke after meal. Suddenly I feel like I want to smoke after eating. And I feel weird if I don’t smoke...” (P4, male, 19 years old)*  
*“... yeah it’s hard if I am with my friends. I always want to smoke. I don’t smoke at home, but I do when I go out...” (P2, male, 20 years old)*

Besides feeling anxious, what the informants feel when they do not smoke is the desire to smoke again. This is in line with what the informants stated as follows:

*“... in the morning I can handle it, but at night when my friends visit me, I smoke...” (P3, male, 20 years old)*  
*“... there is a desire to smoke when I am going out. I hang out with my friends and we smoke together...” (P2, male, 20 years old)*  
*“... surely there is (a desire for smoking again)...” (P4, male, 19 years old)*

### 3.1.4. Experience of smoking cessation

The last discussion on nicotine dependence is the informants’ experience of smoking cessation. The discussion on the experience of smoking cessation includes the reasons for quitting smoking, perceptions of smoking cessation, and how to give up smoking. The informants usually stop smoking when they suffer from an illness. The following are what the informants stated about this topic:

*“As I remember, I stopped smoking when I was in junior high school grade 2. I was sick and my parents got angry at me, so I wanted to stop smoking. Then I was in senior high school, I got many more friends. I liked to hang out with them on the streets. I was naughty, finally I smoked again...” (P4, male, 19 years old)*  
*“... No. I stopped because I felt hard to breathe. Then the pain in my chest stopped. When I hung out with my friends, I still brought a cigarette. At first time I didn’t smoke for a week, but then I smoked again one or two cigarettes, and finally I start to smoke again...” (P2, male, 20 years old)*

The informants also perceived that smoking is a difficult thing to do. The following are what the informants said about it.

*“... of course, I’ve tried, but it’s difficult. It’s really hard to stop smoking. I can only reduce the number of cigarettes. I used to smoke a pack of cigarettes a day, so I find it really hard to quit. So, I reduce it to a half pack a day...” (P1, male, 20 years old)*  
*“... It’s difficult. At first time I could not just stop as what I had planned. It needs process. For instance, I smoke three cigarettes a day, and then I reduce it. The only way to do is to reduce it. I reduce how many cigarettes I smoke in a day. The more difficult thing is how long I don’t smoke. The longest I could do is one or two weeks...” (P5, male, 20 years old)*

In addition to the perceptions of smoking cessation, the informants also talked about the ways to give up smoking. According to the informants, a way to stop smoking is to divert their attention from smoking by eating candies, playing video games, or drinking coffee. The following are what the informants said regarding this topic.

*"... There is a way. In the first week, I tried to forget smoking by chewing gums so that my mouth doesn't stop doing something. It's already my habit to smoke. So when I'm chewing gums, it feels like my mouth keeps moving and I can taste something for a long time. So I finally feel okay if I don't smoke..." (P4, male, 19 years old)*

*"... yes, I got myself distracted. So to stop smoking I must find a way to substitute it. Otherwise, I always want to keep smoking. In my boarding house, I always prepare a pack of candies. So when I want to smoke, I eat candies instead. So I must find a substitution..." (P1, male, 20 years old)*

*"... there is (a way). I have candies to remove a bitter taste in my mouth after eating meals..." (P2, male, 20 years old)*

*"... I substitute it by drinking coffee..."*

*"... yes, because I heard that caffeine in coffee can balance it..." (P3, male, 20 years old)*

### 3.2. Discussion

#### 3.2.1. Age to start smoking

Adolescents are often considered a healthy population, but in fact, they are a group prone to get mental disorders [11]; because a vulnerable group has an impact on the risk of smoking at a young age. The results of the study suggest that the number of aged people who start smoking varies. Based on the data, the informants started smoking in elementary school, junior high school, and senior high school. In Indonesia, smoking cigarettes among adolescents aged between 10 and 19 years is relatively high. This is relevant to the condition in Indonesia that smoking is a common thing. Based on the data of Basic Health research in Indonesia, 0.4% of adolescents started smoking at the ages of 10 to 12 years; 5.1% at the ages of 13 to 15 years; and 20.9% at the ages of 16 to 19 years. The 80% of adolescents started smoking before the age of 18 years [12]. This finding signifies that most people start smoking before they are 18 years old.

One of the factors that cause adolescents to have a risk for smoking before 18 years is that adolescents are in the academic and cultural adaptation phase, increasing the risk of self-esteem and anxiety [13]. The age a person starts smoking dramatically affects the level of nicotine dependence and difficulty in smoking cessation. This is in line with the study results that mentioned that the younger a person starts smoking, the higher level of nicotine dependence a person will have [6].

Furthermore, smoking at a young age can cause problems in the brain. This is in parallel with the study's finding that the younger a person starts smoking, the more severe problems the brain function has [5]. Especially those who start smoking from the age of 18 or 20 years [14]. This happens because the brains of adolescents are susceptible to neuroinflammatory as an effect of nicotine [15], hence the effects are the presence of psychological disorders compared to nonsmokers [16]. As consequently, smoking leads to anxiety disorder [17].

#### 3.2.2. The causes of smoking

The results of the study show that external factors and internal factors cause smoking. The internal factors include environment and association. Most informants said they smoke because they associate with people who smoke or are older than them, including their parents. The pressure from the peer group is an essential factor that contributes to the cause of smoking among adolescents [18]. This is because they feel reluctant to ignore their friends who smoke. Having a relationship with a peer group is highly influential on one's smoking behaviour [19]. One who has a smoker friend is more likely to become a smoker than one who does not associate with a friend who does not smoke.

Another environment-related factor that causes adolescents to smoke is that their parents smoke; this is likely to lead a teenager to have a smoking habit [20]. Adolescents who have parents who smoke tend to assume that smoking is an accepted thing; therefore, teenagers feel it is okay to smoke because their parents smoke [21]. The average age to start smoking in adolescents is between the ages of 14 and 18 years, and the reason they smoke because of dependence is 25.02%, because the peer group is 4.24%, and because of fashion is 1.47% [22].

Besides the external factors, the internal factors also play a role in causing adolescents to smoke. The factors come from within the smokers themselves. In this regard, adolescents start smoking because they want to find their true identity. This relates to the process of adolescent development and the crisis in their psychological aspects [7]. Another factor that influences smoking behaviour is self-control [23]. Instant satisfaction in adolescents makes them behave impulsively, think selfishly and act without thinking first. Adolescents do not consider the dangers of smoking even though they already know the risks [24]. They assume that the risk of death due to smoking is expected [25].

### 3.2.3. Perceptions of smoking

The study results also reveal that smokers' perceptions toward smoking are that smoking helps them calm their minds, improve their concentration, and boost their moods. Most adolescents in Indonesia prefer conventional cigarettes to e-cigarettes and shisha [26]. When one is smoking, nicotine will enter one's body and then blood vessels. Nicotine will flow into the brain and enter ventral tegmental area (VTA). Nicotine will then bind to ion channels which generally bind to acetylcholine, but the channels transform into cholinergic nicotine receptors (nAChRs). When nicotine binds to nAChRs, the channels will open, and sodium and calcium will get in them. When calcium enters neurons, the release of neurotransmitters, which is dopamine, occurs [10], [27], [28].

Dopamine that the bonds between ions and nAChRs have produced is the neurotransmitter produced in the brain, which functions to control attention and cognitive behaviours. Therefore, when dopamine is produced in one's brain, one will feel calm, pleased, and motivated [29]. Nicotine positively affects someone to feel joyful or calm when consuming it [9]. Smokers perceive smoking as an agent that can reduce anxiety, increase concentration, and give pleasant sensations [7].

Another perception of smokers toward smoking is related to how the informants feel when they do not smoke. The study results show that the informants tend to feel anxious and have the desire to smoke again. When nicotine decreases or does not even exist, the body will show reactions that appear as signs and symptoms due to the absence of nicotine which is called nicotine withdrawal syndrome [30]. When the smoker is not exposed to nicotine, he or she will experience symptoms, such as a strong desire to return to smoking, anxiety, decreased concentration, and depression [31], [32]. The habit of consuming nicotine will affect brain function and psychology. Nicotine will cause cognitive dependence, demotivation, memory loss, and concentration problems [33]–[35].

### 3.2.4. Experience of smoking cessation

The results show that the informants had experience related to smoking cessation. Based on their experience, quitting smoking is difficult, but stopping can be overcome by substituting cigarettes with chewing gums. In America, there are 41% of people trying to quit smoking, but of the many people who try to quit, only 7% are able and successful to stop smoking [6].

The finding explained above is in line with the research that showed in USA there are 70% of smokers who want to try to quit smoking each year, but of those, very few succeed to stop smoking [10]. A few per cent of smokers are only able to stop smoking in a matter of hours. When someone is experiencing nicotine dependence, it will be challenging to stop smoking. The inability of a person to tolerate the signs of withdrawal syndrome is likely to make a person stop smoking [9]. Nicotine in cigarettes is addictive so that adolescents trying to stop smoking will experience the symptoms of a nicotine withdrawal syndrome that will cause them to fail to stop smoking [18], [36].

Despite the difficulties in quitting smoking, smoking can be reduced and can even be stopped by diversion. The informants stopped smoking by diverting their attention using gum and other activities based on the study results. This is following the research that argues smoking can be stopped by diverting attention from smoking by doing other activities, reducing cigarette consumption, and avoiding smokers [37]. Therefore, this study only explores the experience of nicotine dependence. However, this study did not explore the level of nicotine dependence.

## 4. CONCLUSION

This study revealed that most informants started to smoke at the age of under 18 years. The causes of smoking are divided into two: internal and external factors. In addition, the informants' perception of smoking is that smoking makes them feel happy and calm, as well as concentrate better. However, when the informants do not smoke, there will be feelings of anxiety, decreased concentration and cigarette craving. Finally, the experience the informants have related to quitting smoking is that they find it difficult to give up smoking, but they have a way to stop doing it that is by diverting their attention from smoking. Furthermore, the smokers need to educate about the nicotine withdrawal symptoms that they can anticipate it when symptoms appeared.

## ACKNOWLEDGEMENTS

We would like to say thank you for the participants in this study and LP3M Universitas Muhammadiyah Yogyakarta for research grant with the number SK 194/SK-LP3M/XII/2018 and all of their efforts for entries time.





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