



# Adolescent and Smoking-seeking Behavioural

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## Abstract

Age at start smoking was a determinant factor of smoking-seeking behaviour in adulthood. This study investigated the association of smoking at adolescence age with Fagerstrom Test for Nicotine Dependence (FTND) level and their nicotine-seeking behaviour in one of the campuses in Malaysia. Results showed that there was no correlation between age at start smoking and FTND level. Boredom, depression and anxiety lead them to smoke. Smoking rate and nicotine exposure duration could be the factors of a low level of FTND. Busy in daily life makes the respondent disregard about smoking.

**Keywords:** adolescence, addiction, smoking, Fagerstrom Test for Nicotine Dependence (FTND).

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## **1.0 Introduction**

A cigarette which content nicotine has a pharmacological in tobacco addiction or smoking-seeking behaviour. the majority of smokers started smoking since their adolescents period (Global Youth Tobacco Survey Collaborative and Global Youth Tobacco Survey Collaborative, 2002). The previous study also mentioned that individual who smokes are likely to have begun and established smoking habit during adolescence (Substance Abuse & Mental Health Services Administration, 2009; Johnson et al 2003; Young 2005; Dieker at al 2007). According to the survey by Spilková and Dzúrová (2012), most of the students in Czech have changed their perception of cigarette smoking, alcohol, and illicit drugs. This type of stuff has become a part of their lifestyle.

This study was to investigate the association between the age at start smoking, smoking- seeking behaviour and FTND level among university students in a northern state of Malaysia. It was important to know what are the factors or reasons for engaging in the smoking behaviour among adolescents in Malaysia. The study of smoking prevalence among university students in Malaysia is very limited. So we conducted this cross-sectional study for a better understanding of smoking-seeking behaviour among students.

## **2.0 Literature Review**

The essential concept of tobacco dependence is referred as physical dependence on nicotine as the nicotine-delivering actions in the central nervous system. In this context tobacco dependence frequently referred to nicotine dependence or addiction. Even though the basis of nicotine addiction respires its effects on the brain, other agents like genetics, experience or conditioned factors, social and environmental conditions may be the influencing factors of the addiction. Nicotine involves the regulation of brain monoamines levels and in particular dopamine and it explains how nicotine induces pleasure, reduces stress and anxiety (Benowitz 2010).

Fagerstrom Test for Nicotine Dependence or FTND is a very useful tool to determine the ranges of dependency level in a clinical and research setting (Li & Burmeister, 2009). There are six criteria assessing different aspects of smoking behaviour such as the number of cigarettes smoked per day and the time after waking when the first cigarette is lit (Dijkstra & Tromp, 2002). The development of FTND was to assess the level of tobacco dependence from a physical perspective (Heatherton et al. 1991). This is a useful guide to making match treatments to individuals on the basis of the extent of the physical dependence. The development of FTND was to comply to adolescent questionnaire adjustment. The FTND has shown better reliability and validity among adolescents, compared to the Fagerstrom tolerance questionnaire (FTQ) (Prokhorov et al. 1998).

## **3.0 Methodology**

We conducted this study in two universities in Penang State. We distributed a set of self-administered questionnaires the validated to the undergraduate students to gather

demographic data, smoking history, the current smoking habits, and FTND level. To determine the smoking status of the participants we used the definition from World Health Organization (1996). The definition of a smoker by World Health Organization (1996) is a person who has smoked at least 100 cigarettes or more in his/her lifetime. We collected and analysed the data using SPSS version 20.

#### 4.0 Findings and Discussions

There were 57 of smokers age from 18 to 24-year-old students have voluntarily participated in this study (figure 1). All of the respondents are male. All of the respondents are from the undergraduate study programmes. Figure 2 shows the majority of 49.1% respondents were studying in the diploma programme and 40.4% of respondents were from the degree programme. Only 10.5% of respondents are studying in the pre-diploma programme.

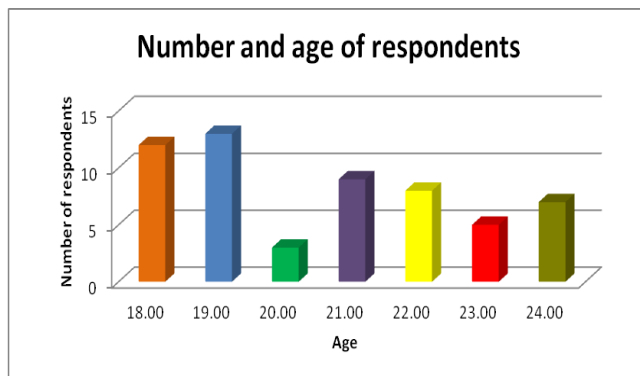


Figure 1. Number and age of respondents who participated in this survey  
(Source: Roz Azinur et al 2014)

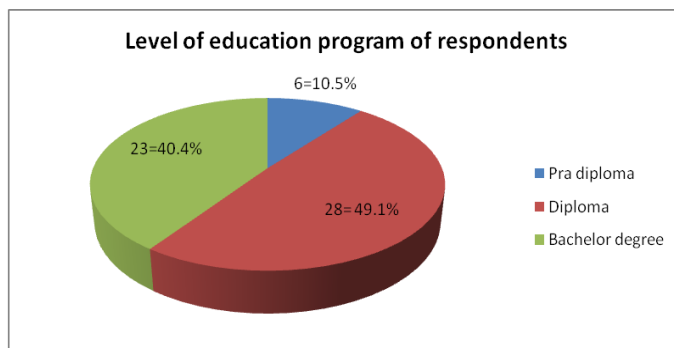


Figure 2. Respondent's education program  
(Source: Roz Azinur et al 2014)

Our finding in Figure 3 shows that 63.2% of respondent started their first cigarette during at secondary school or adolescence phase. About 19.3% of respondent have admitted that they have been smoking since their childhood or at primary school. Whereas, there were 17.5% of respondents started smoking when they were studying at college or university. Generally, almost 82.5% of smokers in this study have committed with smoking habits before the age of 18 years. This finding was agreeable with Substance Abuse & Mental Health Services Administration (2009) that 80% of adult smokers begin smoking before the age of 18 years and established a smoking habit during adolescence.

We listed 8 possible reasons to investigate why these adolescents smoked at the first time. Figure 4 shows that the highest reason factor of smoking among respondents was the influence of their friends and the frequency was 77.2%. From the findings, 45.6% of the respondents started smoking due to their curiosity instinct driven. About 12.3% of the respondents claimed that they smoked because they wanted to become "macho" or having the manly characteristic. Having problems at school was the third prominent reason of smoking at the first time. While other four reasons, smoking parent(s), smoking sibling, family conflict and financial problems contributed 3.5%, 7%, 5.3% and 1.8% respectively.

Johnson et al. (2003) suggested that tobacco dependence among youth described that the first attempts at smoking as requiring cigarettes in order to function socially. In youth social context it was important for them to smoke with or in front of their peers. It was a process of social identification or self-categorization to seek acceptance. The reasons of smoking for youth always associated with curiosity, peer pressure or influence from the same or different sex, stress about the study or school and the isolation (Young 2005). Findings from this study indicated that smoking prevalence among parents and sibling also promoted the pro-tobacco social environment for youth to smoke. Even though smoking prevalence probability among the adult and siblings may influence 10.5% of the adolescents, smoking behaviours among family members were the key social factors influencing uptake in tobacco use.

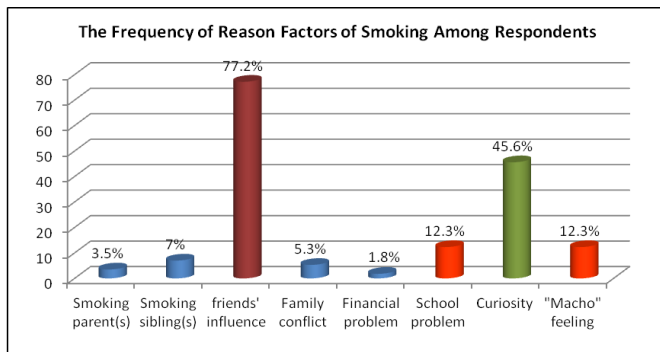


Figure 4. List of reason factors and the frequency of smoking among respondents.  
(Source: Roz Azinur et al 2014)

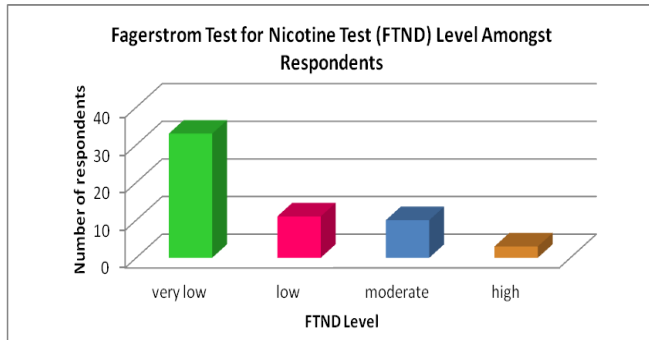


Figure 5. FTND level among respondents  
(Source: Roz Azinur et al 2014)

We used FTND score scales to measure the level of nicotine dependency among students. According to Heatherton et al. (1991), there were 5 classifications of dependence. Very low dependence was started with the score (0-2), low dependence (score value 3-4), moderate (score value 5), high dependence (score value 6-7) and very high dependence (score value 8-10). A majority 58% of smokers in this study has a very low nicotine-dependent and 19% of smokers have low nicotine-dependent. The percentages of moderate and high nicotine dependence were 18% and 5% respectively. None of the respondents was categorised as a very high dependency.

In this study smoking behaviour among the university students was one of the main objectives. There were 12 identified situations of student's smoking preference probability. The respondents needed to self-rating the frequency of their smoking habits by using 4 scales. The scales rated as never, seldom, always and every time. The 12 probabilities of the smoking situations criteria and the rated scales could give the information on how the student's campus lifestyles associated with their smoking behaviour. Figure 6 illustrated the preference smoking habits among the respondents and the highest frequency from the four rating scales (never, seldom, always and every time).

Figure 6 shows 12 possible factors of nicotine seeking behaviours. There were nine situations that "always" stimulate the students to smoke. The nine identified situations: they were thinking of a cigarette, after taking the meal, seeking for ideas, in pressure condition, feeling bored and finally when they were with their peers. In this study, the phrases "I smoked when I was thinking of a cigarette" and "I smoked in the morning" were to indicate whether have the addiction or craving of cigarettes. According to Heatherton et al. (1991), seeking for a cigarette in the morning is one of the nicotine dependence symptoms. For about 66.7% of respondents admitted that they will "always" smoke when they were craving to smoke but they can control the addiction. Only 50.9% of respondents claimed that they "seldom" smoked in the morning time. This finding was consistent with the previous outcomes where the majority of the respondents has a low nicotine dependence.

The previous study illustrated that those who started smoking during adolescence showed a greater degree of nicotine dependence than those who started smoking as adults

(U.S. Department of Health & Human Services, 1994). From our observation, most of the respondents have started smoking during adolescence but the outcome shows that their nicotine dependence levels were very low and low. This is because most of the respondents smoked when they were at aged 13 to 17-year-old. Currently, the respondents now are at the university level (18 to 24-year-old student). Their smoking duration was on average 5 years or below than 5 years. From the bivariate correlation analysis, the result shows that there was no significant correlation between age at start smoking and the level of FTND. This may be due to the short period of smoking exposure.

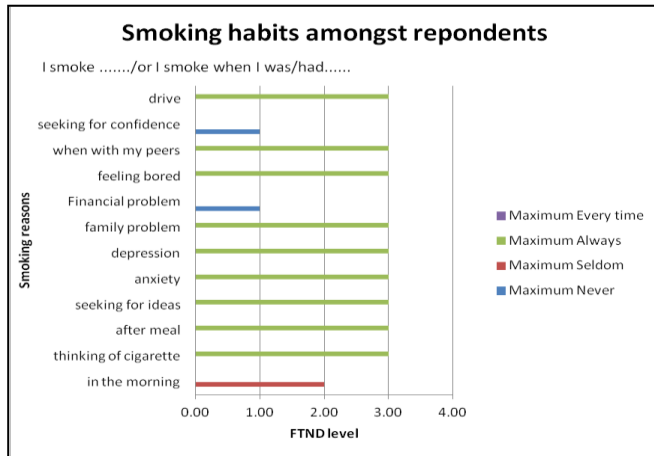


Figure 6. Smoking behaviour among respondents and their preference  
(Source: Roz Azinur et al 2014)

According to DiFranza et al. (2000), they hypothesised that there may be different trajectories of emerging dependence. The trajectories were the rapid onset, slower onset and those who are resistant. These findings emphasised the conception that tobacco dependence emerges over time. Besides that maybe there are a lot of contributing factors such as different personality and environmental that accounted for its emergence. Unfortunately, there is limited information on the smoking frequency that essential to result in the nicotine dependence.

Obviously from our findings, negative moods particularly boredom, depression and anxiety have affected the nicotine seeking behaviour with respective 50.9%, 47.4%, and 43.9%. Meanwhile, about 42.1% of respondents said that they will "always" smoke for social purposes like hanging out with their friends. Likewise, 43.9% of respondents declared that smoking after taking the meal and during driving as their "always" habits. It was difficult to resist for 36.8% of the respondents that they will smoke when they were seeking for ideas and facing with the family crisis because they believe it helps them to find ideas during their study association with to release their stress. It was quite impressive findings when 40.4% of respondents claimed that "never" smoked where they were in the circumstances when

their confidence level needs to be sustained. For about 38.6% of students will take the approach "never" smoked or not to buy the cigarettes and smoke when they were facing financial problems.

#### 4.1 Regression study on student's nicotine-seeking behaviour and FTND level

The estimation proportion of variance in the nicotine dependency level of 12 student's smoking habits, was performed by a standard multiple regression analysis. In combinations of 12 smoking habits, 60% of the variability in FTND level were significant with  $R^2 = 0.63$ , adjusted  $R^2 = 0.53$ ,  $F(12,44) = 6.3$  and  $p = 0.000$ . From the table 1, student's smoking habits in the morning were the most significant behaviour in affecting the FTND level with  $p < 0.001$ . Here,  $sr^2$  indicating that around 3.2% of the variance in FTND level can be uniquely attributed to smoking in the morning.

Table 1. Unstandardised (B) and Standardized ( $\beta$ ) Regression Coefficients and significant and Squared Semi-Partial Correlations ( $sr^2$ ) for each predictor smoking habits in regression model predicting the level of FTND.

Variables	B	$\beta$	Sig.	$sr^2$
Smoke in the morning	.860	.808	.000*	0.324
Thinking of smoking	-.198	-.136	.306	0.007
Smoke after meal	-.017	-.072	.496	0.003
Seeking of ideas	-.292	-.292	.083	0.031
Anxiety	-.031	-.031	.801	0.000
Pressure	.270	.252	.097	0.035
Family problem	.069	.076	.594	0.001
Financial problem	.081	.086	.601	0.003
Boredom	.020	.017	.899	0.000
Friends	.089	.077	.539	0.003
Confident	-.012	-.011	.938	0.000
Driving	-.070	-.065	.651	0.004

( $p < 0.001$ )

(Source: Roz Azinur et al 2014)

#### Correlation analysis between smoking predictors and FTND level

Table 2 showed the linear relationship between FTND and the number of cigarette per day among the respondents. From the analysis, the outcomes were a strong and positive correlation between FTND and the number of cigarette per day with the correlation coefficient,  $r(55) = 0.707$ . This result explains that the higher number of cigarette per day the level of FTND will also increase. Supported by Dieker et al. (2007) they presented a positive

association between smoking and nicotine dependence was showing the higher prevalence of dependence with higher levels of use among first-year college students.

Table 2: Correlation Coefficient between 2 variables

Correlation between 2 variables	Correlation coefficient	P value
FTND and number of cigarettes per day	0.720	0.000**
Age of start smoking and smoking family background	0.171	0.201
FTND and Age of start smoking	-0.139	0.302

\*\* Correlation is significant at the 0.01 level (2-tailed).  
(Source: Roz Azinur et al 2014)

To study the linear relationship between smoking family background and age of initiate smoking, a bivariate correlation analysis was determined as  $r(55) = 0.171$  and statistically not significant ( $p > 0.05$ ). As presume in our findings, 70% adolescents who were smokers also have the smoking family background.

## 4.2 Research limitation

Unfortunately, this study only discovered the smoking behaviour among male students. We are aware of the existence of smokers among female students. It was so difficult to get them involved in this study. From our conversation, generally, they feel modest to admit that they are smokers.

## 5.0 Conclusion

Based on the findings from this study, we emphasised those adolescents especially secondary school students are the vulnerable group of cigarette smoking influence. Curiosity instinct was another factor of adolescents claimed as the smoking attempt reasons and to have the manly characteristic. The student's FTND level highly related to the number of cigarettes that they smoked every day and the smoking habit in the morning. Nicotine craving symptom was the important affecting factor of smoking seeking behaviour. In addition, negative mood such as boredom, stress, anxiety, and crisis are cited as the reasons for smoking.

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