SOCIOECONOMIC FACTORS AND SMOKING HABITS IN INDONESIA: ANALYSIS OF INDONESIAN FAMILY LIFE SURVEY (IFLS) 2014/2015

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Abstract
This study aims to find out what effects affect individuals to become smokers. So that the influence of socio-economic conditions and smoking habits in Indonesia can be helpful to literacy for policymakers. This study uses secondary data from the Indonesia Family Life Survey 2014/2015 (IFLS-5). The main variables in this study were smoking habits, while socio-economic conditions, social demographics and health conditions as control variables to see other factors that influence smoking habits. Using a logistic regression model, the results of this study indicate that several variables that represent socioeconomic conditions have a positive relationship and several other variables have a negative relationship to smoking habits in Indonesia and some show significant results. In the control variable, all demographic factors have a negative and significant effect on smoking habits. People with heart disease have a negative and significant effect, while people with symptoms of depression and physical activity have a positive and significant effect if health conditions are the control variables. With the results of the analysis above, it ends in a discussion of the Human Development Index (HDI) which can be a solution to the problems caused by cigarette consumption in Indonesia.

Keywords: socioeconomic, smoking habits, IFLS, Indonesia

Abstrak
mengenai Human Development Index (HDI) yang dapat menjadi solusi dari permasalahan yang ditimbulkan oleh konsumsi rokok di Indonesia.

Kata kunci: kondisi social ekonomi, kebiasaan merokok, IFLS, Indonesia

BACKGROUND

Smoking is one of the common activities found in daily life. Regarding social aspects, most smokers state that smoking behavior generally comes from the influence of the surrounding environment. They say smoking is a form of relaxation to reduce tension or forget about life problems (Sari, Ramdhani and Eliza, 2003). Emotional changes during smoking are seen in adolescents' and adults' cigarette consumption habits (Parrott, 1999). When viewed from various aspects, cigarette consumption is detrimental for yourself and others (Komasari and Helmi, 2011). Furthermore, there are many adverse effects caused by cigarette consumption or tobacco use, especially on health.

In general, tobacco use is considered very harmful to health, but many aspects of tobacco use have not been explained in detail so that it is difficult to understand by the public (Rahmadi, Lestari and Yenita, 2013). Cigarette smoke produced by tobacco use contains hundreds of substances, including nicotine, carbon monoxide, and mutated carcinogens such as radioactive polonium, benzo(a)pyrin, dimethyl-benzo(a)anthene, dimethylnitrosamine, naphthalene, and methylnaftalen (Stedman, 1968). One of the substances contained in cigarette smoke is nicotine, an addictive substance with a higher level of addiction than cocaine, morphine, or alcohol when used in more significant proportions (Henningfield, Jack E. Clayton, Richard Pollin, 1990). The higher level of addiction can result in habits that are very detrimental to society, especially for people who do not smoke or are passive smokers. The effect that smoking has on passive smoking will be much more harmful than active smokers (Naresawari et al., 2020).

The higher level of cigarette consumption will increase health costs. It can cause various diseases that are harmful to the human body, such as heart attack, stroke, mouth cancer, throat cancer, lung cancer, tuberculosis, asthma, decreased fertility rate, birth abnormalities, vision loss, hearing loss, gastrointestinal diseases, damage to the skin, infant mortality and a weakened immune system (WHO, 2019). Other than that, cigarette consumption can also shorten life expectancy and decrease quality of life (Ginting and Maulana, 2020). At least eight million people die each year from tobacco or cigarette use (WHO, 2021). On the World No Tobacco Day 2020, World Health Organization (WHO) states that about 225,700 people in Indonesia die from smoking or other tobacco-related diseases (WHO, 2020).

In Indonesia, tobacco use is still relatively high for adults and adolescents. Based on Basic Health Research (Riskesdas) in 2007, 23.7% of Indonesians have smoking habits (Departemen Kesehatan Republik Indonesia, 2014). The prevalence of smoking in adults still has not shown a decrease during these five years, while the prevalence of smoking in adolescents aged 10-19 years increased from 7.2% in 2013 to 9.1% in 2018, there was a 20% increase. Based on the Global Youth Tobacco Survey (GYTS) in 2019, whose results were released on May 30, 2020, 40.6% of students in Indonesia (ages 13-15 years), 2 out of 3 boys, and almost 1 in 5 girls have used tobacco products: 19.2% of students currently smoke (WHO, 2020). The latest data in 2020 from the Central Bureau of Statistics (BPS) shows nine provinces with smoking percentage rates above 30% in the population aged ≥ 15
years. The five areas with the highest smoking percentage include Lampung Province with 33.43%, followed by West Java at 32.55%, Bengkulu at 32.31%, Banten at 31.58%, and Central Sulawesi at 30.64% (Badan Pusat Statistik, 2020).

The cigarette consumption in Indonesia continues to increase, including for underprivileged families. According to the survey by the Institute for Demographic and Poverty Studies (IDEAS), 77.1% of respondents from low-income families did not reduce their cigarette consumption, and it actually increased at this time (Agustiyanti, 2021). For smokers from underprivileged families, cigarettes have become a basic need equivalent to food needs (Miranti, 2021). Meanwhile, Indonesian smokers have different characteristics and backgrounds of socio-economic status. Those characteristics are related to an individual's smoking behavior. Several studies have found that smoking habits had a negative relationship with education levels and occupation. Furthermore, smoking behaviors can also exacerbate poverty levels because of tobacco products (Robinson and Marsinta Arsani, 2020).

A study conducted by Laaksonen et al., (2005) using logistic regression estimated that socioeconomic status is associated with smoking in both men and women. But that study did not include other factors that affect smoking, such as socio-demography and health conditions, while this study added both factors. Therefore, this study was conducted to analyze socioeconomic status and smoking habits in Indonesia using secondary data from the Indonesia Family Life Survey (IFLS) 5 in 2014/2015. This research uses secondary data from IFLS because in IFLS there is a multi-topic survey that observes in detail about health, economy, people's life behavior, etcetera. The period observed in this study uses the latest data from the IFLS survey, published every seven years with the latest data, specifically 2014/2015. This study uses several variables, including income, per capita expenditure, education, food consumption, and employment status as socio-economic status. The control variables have individual marriage status, age, gender, place of residence as socio-demography variables; history of heart disease, depression, and physical activity as health conditions.

**METHODS**

This study uses secondary data from the Indonesia Family Life Survey (IFLS). IFLS is a longitudinal socioeconomic and health survey conducted on a large scale in Indonesia that collects data on individuals, households, and communities (RAND, 2017). Participants in this survey were selected using a multistage stratified sampling method and represented around 83% of Indonesians living in 13 out of 27 provinces in 1993 (the first time IFLS was conducted). The authors used IFLS wave 5 (2014/2015) for this study, which contained 50,148 individuals and 16,204 households as respondents. The respondents who answered did not know or had missing answers will be dropped from the sample. After cleaning the data, the samples met the research criteria are 13,460 individuals. The findings of this study will be very relevant to the smoking status in Indonesia. This is shown by the increase in smoking prevalence in Indonesia, which was originally 28.69% in 2020 and increased in 2021 to 28.96% (Badan Pusat Statistik, 2021). In addition, Indonesia is an ASEAN country with the highest number of smokers with a population of 65 million (Southeast Asia Tobacco Control Alliance, 2018).

The main variables in this study are smoking habits and socioeconomic conditions, where the smoking habit is a dummy variable (0 = not having or quitting smoking habit while 1 = having a smoking habit). To represent socioeconomic conditions, the authors used household expenditure, education, employment status, and expenditure on food consumption,
including rice, fish, meat, milk, vegetables, and fruit. The authors also included control variables in the study to look at other factors influencing smoking habits. These control variables include age, gender, and place of residence which represent social demographic conditions. In contrast, a history of heart disease, vigorous physical activity, light physical activity, and depression represent health.

More specifically, the independent variables in this study are divided into three data forms: continuous, dummy, and order. Household expenditures and expenditures for the consumption of rice, fish, meat, milk, vegetables, and fruit are continuous variables whose values are expressed in logarithmic form. The education variable is the respondent’s highest education, which is expressed in the form of an order, namely elementary school (SD/equivalent = 1) as the base group, junior high school (SMP/equivalent = 2), high school (SMA/equivalent = 3), and university (diploma 1, diploma 2, diploma 3, bachelor, master, and doctorate = 4). Employment status is expressed as a dummy where the value is 1 when the respondent states that he/she is working and 0 otherwise (looking for work, attending school, housewife, retired, sick, and disabled). Age is expressed in continuous form with units of years. Gender is a dummy variable whose value is 1 when the respondent is female and 0 otherwise (male). The residence variable is expressed as a dummy where the value is 1 when the respondent states that he lives in the city and 0 otherwise (lives in the village). The variable history of heart disease is expressed in dummy form with a value of 1 when the respondent has been diagnosed with heart disease by a doctor and is worth 0 otherwise. Light and heavy physical activity are dummy variables where the value is 1 when the respondent has carried out these activities within the last 7 days and 0 otherwise. Specifically for the depression variable, the authors used the Rasch model for the CEDR-10 question, which then formed a dummy variable based on the cutoff score. A score that is more than 10 or -0.52 in logit indicates that the respondent has symptoms of depression (Fahmi et al., 2019). Respondents who have symptoms of depression will have a value of 1 and 0 otherwise.

The research method used in this study is the Binary Logistic Regression Model with Stata 16 as the data processing software. The Binary Logistic Regression Model is an analytical method used to find the relationship between dependent variables (y), which are binary and independent variables (x) with logistic functions (David W. Hosmer & Stanley Lemeshow, 2000). This regression method is a parametric method with dependent variables (y) categorized into two categories which are denoted as y = 1 "success" and y = 0 "failed" (Bekti et al., 2017).

The data analyzed is a cross-sectional data type and mathematically can be written with the following equation (Sperandei, 2014):

\[ L_i = \log \left( \frac{\pi}{1-\pi} \right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + u_i \]

\[ smoking_i = \log \left( \frac{\pi}{1-\pi} \right) = \beta_0 + \beta_1 expenditure_i + \beta_2 education_i + \beta_3 employment_i + \beta_4 rice_i + \beta_5 vegetables/fruit_i + \beta_6 meat_i + \beta_7 fish_i + \beta_8 milk_i + \beta_9 age_i + \beta_{10} woman_i + \beta_{11} urban_i + \beta_{12} married_i + \beta_{13} heart disease_i + \beta_{14} depression_i + \beta_{15} vigorous activity_i + \beta_{16} light activity_i + u_i \]
RESULTS

Statistical Description

Table 1 is a statistical description of each variable in this study. The statistical description results are obtained through data processing using Stata 16. The majority answered that they did not have or quit smoking habit by 8,947 (66.5%). In the education variable, the majority of respondents are individuals who have the highest education are Primary School/Equivalent by 4,462 (33.1%) followed by Middle School/Equivalent by 2,856 (21.2%), High School/Equivalent by 4,370 (21.2%) and Universities by 1,772 (13.2%). In addition, more respondents were employed (64.9%) than those who were unemployed (35.1%).

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>N</th>
<th>%</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Habits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t Have Smoking Habits</td>
<td>8,973</td>
<td>66.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have Smoking Habits</td>
<td>4,487</td>
<td>33.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly Household Expenditure (log)</td>
<td>13,460</td>
<td>100%</td>
<td>13.21</td>
<td>18.55</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School/Equivalent</td>
<td>4,462</td>
<td>33.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle School/Equivalent</td>
<td>2,856</td>
<td>21.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School/Equivalent</td>
<td>4,370</td>
<td>32.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>1,772</td>
<td>13.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>4,725</td>
<td>35.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>8,735</td>
<td>64.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenditure (log)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice Consumption</td>
<td>13,460</td>
<td>100%</td>
<td>8.934</td>
<td>15.18</td>
</tr>
<tr>
<td>Vegetable/Fruit Consumption</td>
<td>13,460</td>
<td>100%</td>
<td>7.681</td>
<td>14.82</td>
</tr>
<tr>
<td>Meat Consumption</td>
<td>13,460</td>
<td>100%</td>
<td>8.374</td>
<td>15.62</td>
</tr>
<tr>
<td>Fish Consumption</td>
<td>13,460</td>
<td>100%</td>
<td>7.681</td>
<td>14.74</td>
</tr>
<tr>
<td>Milk Consumption</td>
<td>13,460</td>
<td>100%</td>
<td>8.374</td>
<td>15.23</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;35</td>
<td>6,315</td>
<td>46.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 to 49</td>
<td>4,788</td>
<td>35.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 to 64</td>
<td>1,996</td>
<td>14.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;65</td>
<td>361</td>
<td>2.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1,649</td>
<td>12.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>11,811</td>
<td>87.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>5,797</td>
<td>43.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>7,663</td>
<td>56.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>6,424</td>
<td>47.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman</td>
<td>7,036</td>
<td>52.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of Heart Disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not diagnosed</td>
<td>13,248</td>
<td>98.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosed</td>
<td>212</td>
<td>1.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vigorous Physical Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactive</td>
<td>10,218</td>
<td>75.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>3,242</td>
<td>24.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The majority of respondents were individuals under 35, as many as 6,315 (46.9%). The majority of respondents have married status by 11,811 (87.7%), and more live in urban areas by 7,663 (56.9%). Most respondents were female by 7,036 (52.3%) and not diagnosed with heart disease by 13,248 (98.4%). The majority of respondents were not active in vigorous physical activity by 10,218 (75.9%), but more were involved in light physical activity by 9,497 (70.6%). The majority of respondents in this study who did not have depression symptoms were 10,922 (81.1%).

**Regression Analysis**

Table 2 is the result of regression using Stata 16 software. In the variables that represent socioeconomic conditions, it is known that household expenditure has a positive and significant effect, which means that any increase in household expenditure will increase the individual’s probability of smoking by 4.31% percentage point. The recent education variable has a negative and significant effect where individuals who have the highest education are Middle School/Equivalent, High School/Equivalent and University, it will reduce the probability of having a smoking habit by 2.63%; 5.33%; 11.5% percentage point compared to individuals with the highest education is Primary School/Equivalent (base group). The employment status variable has a positive and significant effect, which means that when individuals are employed, they will have a higher probability of having a smoking habit of 2.93% percentage point compared to unemployed individuals (studying, taking care of the household, looking for work and disability). The expenditure variables for consumption had a negative and significant effect with different levels of significance, except for rice and meat consumption which was not significant. Any increase of expenditure on the consumption of fish, milk, vegetables, and fruit will reduce individuals' probability of having a smoking habit by 0.621%; 1.13%; 1.22% percentage points.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(Logit Coefficient) smoking_habits</th>
<th>(Marginal Effect) smoking_habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Expenses</td>
<td>0.390***</td>
<td>0.0431***</td>
</tr>
<tr>
<td></td>
<td>(0.0764)</td>
<td>(0.00860)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School/Equivalent (base group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle School/Equivalent</td>
<td>-0.199**</td>
<td>-0.0263**</td>
</tr>
<tr>
<td></td>
<td>(0.0816)</td>
<td>(0.0108)</td>
</tr>
<tr>
<td>High School/Equivalent</td>
<td>-0.437***</td>
<td>-0.0533***</td>
</tr>
<tr>
<td></td>
<td>(0.0754)</td>
<td>(0.00954)</td>
</tr>
<tr>
<td>University</td>
<td>-1.253***</td>
<td>-0.115***</td>
</tr>
<tr>
<td></td>
<td>(0.0971)</td>
<td>(0.00968)</td>
</tr>
<tr>
<td>Employed</td>
<td>0.265***</td>
<td>0.0293***</td>
</tr>
<tr>
<td></td>
<td>(0.0812)</td>
<td>(0.00905)</td>
</tr>
</tbody>
</table>
Rice Consumption -0.0355 -0.00393 (0.0417) (0.00461)
Vegetable & Fruit Consumption -0.111*** -0.0122*** (0.0402) (0.00446)
Meat Consumption -0.0503 -0.00557 (0.0307) (0.00340)
Fish Consumption -0.0562* -0.00621* (0.0295) (0.00332)
Milk Consumption -0.102*** -0.0113*** (0.0324) (0.00361)

Age
<35 (base group)
35 to 49 -0.160** -0.0186** (0.0674) (0.00783)
50 to 64 -0.409*** -0.0433*** (0.0876) (0.00894)
>65 -0.991*** -0.0850*** (0.142) (0.00982)
Married 0.243*** 0.0269*** (0.0860) (0.00957)
Urban -0.127** -0.0141** (0.0569) (0.00632)
Woman -5.144*** -0.569*** (0.118) (0.0154)

History of Heart Disease -0.699*** -0.0773*** (0.230) (0.0256)
Vigorous Physical Activity 0.232*** 0.0257*** (0.0587) (0.00660)
Light Physical Activity 0.0132 0.00146 (0.0604) (0.00668)
Depression 0.251*** 0.0278*** (0.0732) (0.00815)
Constant -0.868 (0.814)

Pseudo R2 0.4990
Prob > chi2 0.0000
Observations 13,460 13,460

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Variables that represent social demographic conditions, it is known that the age variable has a negative and significant effect, which states that individuals in the age range of 35-49, 50-64, and more than 65 years will reduce the probability of having a smoking habit by 1.86%; 4.33%; 8.5% percentage point compared to individuals less than 35 years old (base group). The marital status variable has a positive and significant effect. When the individual is married, the probability of having a smoking habit will be higher by 2.69% percentage point than individuals who are not yet married. The place of residence has a negative and significant effect, which means that when an individual lives in an urban area, the probability of smoking will be lower by 1.41% percentage point compared to an individual living in a rural area. Finally, the gender variable has a negative and significant effect, which means that individuals of female have a lower smoking habit by 56.9% percentage point compared to male individuals.
The history of heart disease, which represents the health variable, has a negative and significant effect, which means that when an individual is diagnosed with heart disease, the probability of having a smoking habit will be lower by 7.73% percentage point compared to individuals who are not diagnosed with heart disease. The physical activity variable had a positive and significant relationship with vigorous physical activity but not significant on the light physical activity. When individuals perform vigorous physical activities which take hard physical effort that you did in the last 7 days, it makes you breathe much harder than normal. It may include heavy lifting objects, digging, hoeing, plowing, aerobics, fast bicycling, cycling with loads, etc. The probability of having a smoking habit will be higher by 2.57% percentage point compared to individuals who do not engage in vigorous physical activity on the last seven days of the week for ten consecutive minutes. The variable of depression symptoms has a positive and significant effect. When an individual has depression symptoms, the probability of having a smoking habit will be higher by 2.78% percentage point compared to individuals who do not have depression symptoms.

**DISCUSSION**

**Socio-Economic**

In the regression results, the last education variable has a negative sign and has a significant effect where individuals who have the highest education are SMP/equivalent, high school/equivalent, and colleges. It will reduce the likelihood of having a smoking habit so that the probability of these individuals smoking decreases as their education level increases.

A study of smoking prevalence in United States counties found that the country has made significant progress in reducing the number of individuals smokers in the 1996-2012 period. According to the data from 2012, this effort to reduce the number of smokers increased in line with rising in education levels resulted in a 39% reduction in adult smokers with less than 12 years of education and a 49% reduction in those with a degree (Smoking Cessation Leadership Center, 2020). Therefore, it is estimated that education significantly influences smoking habits in the younger populations. Regarding education and smoking habits, low-educated individuals tend to have smaller opportunities to obtain knowledge and information about smoking and its health effects than those with higher education, so there is a higher prevalence of smoking. In addition, living in a society that demands high academic qualifications is one of the reasons for the increase in smoking prevalence between college graduates and middle school graduates among young people (Tomioka, Kurumatani and Saeki, 2020).

The food expenditure describes the amount spent by households to purchase food consumed. The higher expenditure on food consumption is generally in line with the increase in the quantity of food consumed by individuals, and vice versa. Food consumptions such as vegetables, fruit, fish, and milk have a negative and significant correlation with individual smoking habits, whereas meat consumption has a negative but not significant correlation. These results align with the previous research, which stated that adolescent smokers who have a smoking habit are less likely to consume healthy foods such as fruits, vegetables, and milk or dairy products. They tend to spend their money to buy fast food (Larson et al., 2007). Another study in South Korea by Bokim Lee and Yunjeong Yi in 2014 showed that boys who regularly consumed milk or dairy products twice or more per day were less likely to smoke than those who did not (Lee and Yi, 2016). Most of them are more likely to consume soda (Toltzis et al., 2012). They are less interested in eating healthy foods than non-smokers who prefer a healthy lifestyle (Wilson and Nietert, 2002).
According to data from the National Socioeconomic Survey (Susenas) quoted from research by Surjono and Handayani, the percentage of cigarette consumption in Indonesian households was 60% in 2003. Meanwhile, in 2006, household expenditure in Indonesia to buy cigarettes increased to 52.4 thousand rupiahs compared to 2003, only 42.3 thousand rupiahs. Therefore, family needs, such as food, health costs, children's education costs, fulfillment of children's and family's nutritional requirements, treatment, and savings, will decrease if the portion to buy cigarettes increases. The study also stated that an increase of 1 percent of total household expenditure in poor households would increase the proportion of cigarette consumption by 3.8% (Surjono and Handayani, 2013). Other studies have also found two effects on the household budget resulting from spending on cigarette consumption, including crowding-out or direct effects and indirect effects. The immediate impact is that cigarette expenditures will directly reduce the consumption of other goods, such as food, education, and utilities (Ginting and Maulana, 2020).

Several studies found that a person's employment status correlates with smoking habits. For example, in a study conducted by (Aksoy et al., 2019), household heads earn income from working and owning their business, and spending on tobacco consumption also tends to increase. Another study also found that employed individuals consume more cigarettes than unemployed individuals (Gilani and Leon, 2013) and (Uguru et al., 2015). Increased consumption of cigarettes in employed individuals can be caused by several factors, such as increased per capita income, interactions in the social environment, work and life pressures, depression due to work, and lack of supervision in the workplace, where smoking is not prohibited (Aksoy et al., 2019).

**Social Demographics**

In general, smoking habits begin when stepping into adolescence, which will increase according to the increased frequency and intensity of smoking. This happens because teenagers have high curiosity, so once they try to smoke, it is not uncommon for teenagers to experience nicotine addiction and become smokers since adolescence. In addition, smoking occurs due to the influence of the social environment. This is a behaviour in which an individual imitates the behaviour of others as one of the determinants in initiating smoking behaviour (Dewi, 2012). The transition between adolescence to adulthood, at the transition between adolescence to adulthood, usually, an individual smokes to reduce stress caused by the burden of responsibility in college if they are students, or the burden of responsibility at work if they are workers or anxiety due to other things such as problems in relationships with family or the surrounding environment. It is proven by the results in this study that individuals under 35 years old have a higher probability of smoking. Individuals in the adults and elderly categories, namely, those aged 35-49, 50-64, and over 65 years old, tend to reduce their probability of having a smoking habit. This happens because as they get older, there will be a decrease in the function of the body's organs physiologically (Van Beek, Kirkwood and Bassingthwaighte, 2016). The decline occurs when a person turns 30 years old and older. When individuals already know the risks of smoking, they will think again about continuing smoking or leaving this behavior. This will affect the physical risk, where someone controls them to quit smoking because it can affect their health. In addition, it affects the individual's perceived behavioral control (PBC), which is one aspect of the intention to quit smoking. Perceived behavioural control (PBC) is a function based on beliefs called control beliefs, which are beliefs about the sources and opportunities needed to generate behaviour and
perceived power about how strong the control influences him or herself in generating those behaviours. (Rahmawati, 2016). It is one of the reasons that as they get older, individuals become more aware of their health, so they tend to reduce smoking habits.

In general, men tend to consume cigarettes or use tobacco products more than women. Based on the results of this study, it is known that females will be having a lower probability of smoking habits than males. These differences may be related to physiological combinations (especially hormones in ovaries), an individual's culture, and behavioural factors (Jones, Sudweeks and Yakel, 1999). Results from neuroimaging studies show that smoking can activate reward pathways in males more than females. Reward pathways are one of the pathways in the brain that start from the Ventral Tegmental Area (VTA) to the part of the brain in front of the Prefrontal Cortex (Jones, Sudweeks and Yakel, 1999). When this path is active, there will be a sensation of comfort. These findings are consistent with the idea that men smoke to amplify the effects of nicotine (to activate reward pathways). In contrast, women smoke to regulate mood or in response to cigarette-related cues. A study of the stress response and desire to smoke among male and female smokers who tried to quit found abstinence more difficult in men. Lower levels of the stress hormone cortisol in men cause relapse or desire caused by sensory cues, and stress to return to smoking is more significant in men than women (NIDA, 2020).

In addition, another idea that strengthens male smokers more than female smokers is from a cultural perspective in Indonesia. Female smokers will be seen negatively and get a bad image by some individuals with such beliefs. Therefore, some of the above are strong reasons why men tend to consume cigarettes or use tobacco products more than women.

Living in urban areas has a negative and significant correlation with individual smoking habits. In line with NJ Dougan et al., urban residents have a lower smoking prevalence than rural residents. This is due to the disproportionate policies controlling tobacco consumption in rural areas (Doogan et al., 2017). Besides that, smoking habits are also used as a marker of success by people in rural areas. It makes the decline in cigarette consumption in rural areas lower than cigarette consumption in urban areas, especially for adolescents (Ziller et al., 2019).

Married individuals have a positive and significant correlation with smoking habits. Married individuals are more likely to have smoking habits due to the influence of their partners. In line with research by (Homish and Leonard, 2005), smoking habits in an individual are determined by smoking habits in their partners, especially women. Suppose their partner is a smoker, women who do not have a smoking behaviour before marriage can have such habits after marriage. However, men who do not smoke before marriage do not necessarily have such habits after marriage, even if their partner is a smoker.

Health

There is a negative correlation between the chronic history or heart disease variables with smoking habits. The results showed the individuals with a history of chronic disease had a lower probability of having a smoking habit than individuals who had no history of chronic disease. The results explain that some individuals are aware of the dangers of smoking, which is a significant risk factor for heart disease, including heart attack and stroke, and has a solid correlation to Coronary Heart Disease (CHD), so quitting smoking will reduce the risk of heart attack (Indrawan, 2014). This study may also explain that some individuals who state that they are aware of the dangers of smoking, then those who suffer from chronic diseases do not get used to smoking. It can be seen from the probability of having a lower smoking habit. There are many
diseases caused by smoking, namely cancer, tuberculosis, asthma, and other respiratory diseases, it's just that the most caused by smoking is heart disease. We find a lot of research on diseases caused by smoking behavior that include heart disease as the main disease variable. It seems that what the World Health Organization (WHO) states is that smoking causes millions of cases of heart attacks. In this study, the author only uses one variant of this disease with the reason of focusing the discussion on one disease that is most affected more in Indonesia.

Individuals with depression symptoms are positively correlated with smoking habits. They will tend to have a smoking habit later in life (Fluharty, M., Taylor, A. E., Grabski, M., & Munafò, 2016). Quitting smoking may give mental health benefits, including a reduced risk of depression relapse than individuals who continue to smoke. As many as 60% of adults who have depression symptoms have smoking habits in their lifetime. People who have those symptoms tend to be more challenging to quit smoking than individuals who do not have depression symptoms (Weinberger et al., 2017).

Vigorous physical activity such as lifting heavy objects, digging, hoeing and other activities related to heavy work have a positive correlation with an individual's smoking habit. Heavy workers, especially factory workers, are more likely to smoke. Moreover, with long working hours and fewer hours of rest, it will affect their level of consumption of cigarettes (Mou et al., 2013). Working on a construction site can also increase the risk of smoking, as found in a study in Shanghai, China. Construction activities related to heavy things and have high hazards make the workers vulnerable to smoking (Liu et al., 2015).

CONCLUSIONS

Overall, socioeconomic conditions have an influence on smoking habits in Indonesian society. Therefore, the government must implement various policies to reduce the number of smokers in all Indonesian society. This study shows that if there is an increase in household expenditure when individuals have jobs, and married, the probability of having a smoking habit will be higher. For this reason, the government needs to establish various social programs that promote the importance of healthy living as early as possible in collaboration with community institutions or related educational institutions.

In addition, this study also found that the higher level of individual's education, the increasing of their age and expenditure for consumption (meat, fish, milk, vegetables, and fruit), and if they live in urban areas, and they are female, the probability of having a smoking habit will be lower. For this reason, the government must improve the welfare of its people by making various programs and policies that can encourage the Human Development Index (HDI), especially in the education sector. Especially during the Covid-19 period, cigarette consumption among the lower middle class increased. Even during the Covid-19 pandemic, health must be a top priority. For this reason, the government must actively promote a tobacco-free day and nicotine replacement therapy instead of cigarettes to reduce nicotine addiction to the public. The program is expected to expand and reach all levels of society, especially in remote areas such as rural areas.

Smoking habits are associated with depression symptoms, vigorous physical activity, and heart disease diagnosis. Individuals with depression symptoms who do vigorous physical activity tend to have a higher probability of smoking habits. In addition, individuals who have a history of chronic disease or heart disease have a lower probability of smoking. The health risks caused by smoking are hazardous, so individuals with a history of chronic diseases do not get used to smoking. The high risk of disease due to smoking can be the reason for the significant
expenditure on health costs. Seeing this phenomenon, a policy can be a person's decision to choose whether to keep smoking or not. So we suggest the government implement a new policy related to BPJS. The public must pay premi payment higher in payments insurance programs at BPJS Kesehatan for someone who is an active smoker, this can be a deterrent effect for people to be wiser in making smoking decisions.

All main factors related to socioeconomic conditions and smoking habits in Indonesia have been available in the secondary data from IFLS 5 2014/2015. Therefore, this study was only conducted using IFLS 5, and no other variables are needed outside IFLS or other data sources. For additional information, actually there are many diseases caused by smoking, namely cancer, tuberculosis, asthma, and other respiratory diseases, but the most common cause of smoking is heart disease. We find much research on diseases caused by smoking behavior that include heart disease as the main disease variable. It seems that the WHO states that smoking causes millions of cases of heart attacks. So in this study, the author only uses one variant of this disease with the reason of focusing the discussion on one disease that is most affected more in Indonesia. For readers who may want to do further research, it may involve other comorbid diseases from smoking habits.

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