SMOKING BEHAVIOUR AND STRESS LEVEL AMONG STUDENTS OF UNIVERSITAS UDAYANA, BALI, INDONESIA

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Abstract: **Smoking prevalence amongst people with a mental health condition which includes stress is substantially higher than in the general population. There is a strong relationship between smoking and reduction of stress level, witnessed since a very long time back yet caught less attention compared to in general population. This study was aimed to describe smoking behaviour and stress level among students of Universitas Udayana. Methods: This research was a descriptive study of smoking behaviour and stress level among medical faculty students of Udayana University from December 2015 to December 2016. The sampling was simple random and consecutive sampling. The stress levels were measured by Holmes and Rahe Stress Scale. Results: There were 100 students were taken in this study, of which 50 were males and another 50 were females. The majority of the males (84%) had a low-moderate risk of stress illness. Females were found ten to had a higher risk to get stress illness than males. There were 56% of smoker respondents, with the ratio male/female were 35 to 21. There were 18 males and 10 female smokers who had a stress level score of 150-299, which means they were at a moderate risk to get a stress-related illness. Conclusion: Smokers with a higher level of stress score on the Holmes and Rahe Stress Scale tend to have a higher nicotine dependency.**

Keywords: **Smoking behaviour, stress level, student.**

I. INTRODUCTION

1.1 Background

The term stress which is widely used today was invented by Hans Selye. (Zelman, 1996) Selye had noticed that in almost all his experiments that laboratory animals subjected to acute but different noxious physical and emotional stimuli (blaring light, deafening noise, extremes of heat or cold, perpetual frustration) all exhibited the same pathologic changes of stomach ulcerations, shrinkage of lymphoid tissue and enlargement of the adrenals. This theory later gained noticeable attention and soon became a popular buzzword [Zelman, 1996] Stress in medical terms is defined as a physical, mental, or emotional factor that contributes to bodily or mental tension. Stress can be from external or even internal sources that even initiate a fight or flight response. (Zelman, 1996)

Stress is primarily a physical response such as the body thinks it is under attack and switches to 'fight or flight' mode, releasing a complex mix of hormones and chemicals such as adrenaline, cortisol and norepinephrine to prepare the body for physical action. (Zelman, 1996) This causes a number of reactions, from blood being diverted to muscles to shutting down unnecessary bodily functions such as digestion.(Society, 2015) Through the release of hormones such as adrenaline, cortisol and norepinephrine, the caveman gained a rush of energy, which prepared him to either fight the tiger or run away. (Zelman, 1996) That heart pounding, fast breathing sensation is the adrenaline; as well as a boost of energy, it enables us to focus our attention so we can quickly respond to the situation. (Zelman, 1996) In the modern world, the

'fight or flight' mode can still help us survive dangerous situations, such as reacting swiftly to a person running in front of our car by slamming on the brakes. (Society, 2015)

There is a strong relationship between smoking and reduce of stress level, witnessed since a very long time back yet caught less attention compared to in general population. There are a few epidemiological evidences based on studies done all over the world provided here. Cigarettes which contain nicotine, is a psychoactive or mood altering drug. When someone smokes, nicotine reaches the brain in eight seconds and causes the release of a chemical called dopamine. Dopamine causes feelings of pleasure and relaxation and this is a sensation that the body craves again and again. (Newfoundland and Association, 2016)

Smoking prevalence amongst people with a mental health condition which includes stress is substantially higher than in the general population. (Day and Garnham, 2015) Since the mid 1990's, smoking in the general population has fallen from around 27% to 19% by 2014. (Newfoundland and Association, 2016) By contrast, smoking rates among people with a mental health condition have not fallen, with estimates putting the figure at around 40% throughout the Smoking and Mental Health March 2016 15 2 ASH Fact Sheet on Smoking and Mental Health past 20 years. (Szatkowski and McNeill, 2014) Mental health conditions vary but there is evidence that smoking prevalence is higher across a range of conditions and that smoking rates increase with the severity of the illness. (Szatkowski and McNeill, 2014) A Public Health England and NHS England survey revealed that 33% of people with a mental health condition smoke compared to 18.7% of people in the general population. (Day and Garnham, 2015)A similar ratio can be seen in the USA where data from the 2009-2011 National Survey on Drug Use and Health found smoking prevalence among people with any mental condition was 36.1% compared to 21.4% among people with no mental condition. (Day and Garnham, 2015)In addition, people with mental health conditions smoke significantly more, have increased levels of nicotine dependency and are therefore at even greater risk of smoking-related harm. (Royal College of physicians: Summary of report on smoking, 1962)

In 2014, an estimated 16.8% (40.0 million) U.S. adults were current cigarette smokers. Of these, 76.8% (30.7 million) smoked every day, and 23.2% (9.3 million) smoked some days. When you divide it by ethnicity, American Indians make up the highest number at 29.2%, Asians 9.5%, Blacks 17.5, Hispanics 11.2%, Multiple Race 27.9% and Whites 18.2%.Prevelence by sex show that males are 18.8% more prone to smoking compared to woman 14.8%. As we go by age those aged 18-24 have a smoking rate of 16.%, followed by the highest being 25-44 years old at 20.0%, 45-64 years old 18.0% and lowest is 65 years old at 8.5%. (CDC, 2016) Meanwhile as we look at Indonesia, it has the highest ale smoking rate in the world according to Global Adult Tobacco Survey (GATS). Two-thirds of Indonesian males which acoounts to 67% smoke tobacco. (CDC, 2016)

Smoking becomes an addiction because of the nicotine in it. About 2 out of 3 of smokers say they want to quit and about half try to quit each year, but few succeed without help. This is because smokers not only become physically dependent on nicotine. There's also a strong emotional (psychological) dependence. Nicotine affects a smoker's behavior, mood, and emotions. If a smoker uses tobacco to help manage unpleasant feelings and emotions, it can become a problem for some when they try to quit. The smoker may link smoking with social activities and many other activities, too. All of these factors make smoking a hard habit to break. (Rosen and Rosen, 2015)

In fact, it may be harder to quit smoking than to stop using cocaine or opiates like heroin. In 2012, researchers reviewed 28 different studies of people who were trying to quit using the substance they were addicted to. They found that about 18% were able to quit drinking, and more than 40% were able to quit opiates or cocaine, but only 8% were able to quit smoking. (Rosen and Rosen, 2015)

Apart from cigarettes, nicotine is also available in cigars. Nicotine in cigar smokers, who inhale, absorbs nicotine through their lungs as quickly as cigarette smokers. For those who don't inhale, the nicotine is absorbed more slowly through the lining of the mouth. This means cigar smokers can get the desired dose of nicotine without inhaling the smoke directly into their lungs. (Rosen and Rosen, 2015)

Most full-size cigars have as much nicotine as several cigarettes. Cigarettes contain an average of about 8 milligrams (mg) of nicotine, but only deliver about 1 to 2 mg of nicotine to the smoker. Many popular brands of larger cigars have between 100 and 200 mg, or even as many as 444 mg of nicotine. The amount of nicotine a cigar delivers to a smoker can vary a great deal, even among people smoking the same type of cigar. (Rosen and Rosen, 2015)

Nicotine withdrawal syndromes are quite serious and take place as early as 24 hours of cigarette cession and peak at 48 hours of continued abstinence. Smoker would normally feel withdrawal syndrome somewhere between three to four weeks, but the time course for most individuals would widely vary. Some symptoms, such as hunger, desire, decreased heart rate, weight gain and negative effect will persist up to 6 months. (Krigel, 2007)

As smoking is being spotlighted by various parties in western countries, this issue receives less concern in developing countries especially in Asia. For instance Indonesia has the world's highest smoking prevalence among males, as 67.4 percent of males over 15 years old smoke.(POMERLEAU and POMERLEAU, 1991) This is evidenced in lack of research, emphasis and study related the reasons why people smoke in this country. One of the main reasons of smoking is said to be stress.

Using a cross-sectional sample of 668 adults, Billings & Moos(1983) it is found that smokers, especially heavy smokers, differed from non-smokers in showing higher levels of anxiety/depression symptoms and negative life events. (POMERLEAU and POMERLEAU, 1991) This research is to find out if smoking actually helps lower depression and stress and do people who smoke have more problems or negative life events compared to non-smokers. This research doesn't only benefit smokers but also doctors in analyzing the reasons and causes of people smoking and alternative way to overcome this problem, apart from being a stepping stone in aiding future researches on this particular subject. (POMERLEAU and POMERLEAU, 1991)

1.2 Problem Formation

A few questions can be assessed to find out the purpose if this research. The following are:

1. The incidence of smoking among students of Universitas Udayana ?

2. What are current smoking behavior and reasons for smoking among students in Universitas Udayana?

3. How does smoking correlates to the cause among students in Universitas Udayana?

4. Does smoking actually help eliminate stress among students in Universitas Udayana?

1.3 Research Purpose

1. To figure out the incidence of smoking among students of Universitas Udayana.

2. To figure out the current smoking behavior and reasons for smoking among students in Universitas Udayana.

3. To figure how smoking correlates to stress among students in Universitas Udayana.

4. To figure out does smoking actually help eliminate stress among students in Universitas Udayana

1.4 Research Benefits

1.4.1 Academic Benefits

1. The benefits of the research are to obtain a statistic on the number on smokers among Universitas Udayana students. Furthermore it will be able to address the causes of smoking among Universitas Udayana students and provide alternatives to overcome them.

2. Data and information of this descriptive study can enhance researches in the future.

1.4.2 Practical Benefits

1. This research may serve as a base for the public healthcare to evaluate how smoking actually correlates with stress level of students.

2. It will also help formulates other alternatives to counter smoking among the students.

II.   LITERATURE REVIEW

2.1 Epidemiology of smoking worldwide in comparison with Indonesia

WHO in 2003 to address the increasing number of tobacco use, adopted the World Health Organization Framework Convention on Tobacco Control (WHO FCTC). Signed by 180 Parties as at March 2015, the WHO FCTC currently

covers about 90% of the world's population. According to Global Health Observatory Data (GHO) in the year 2015, a staggering number of 1.1 billion people engage in tobacco use every day. About 5.8 trillion (5,800,000,000,000) cigarettes were smoked worldwide in the year 2015; and cigarette consumption is still on the rise. Developing first world countries show a decreasing trend in cigarette consumption such as United Kingdom, Australia, Brazil, and other countries. This is partly due to the implementation of tight tobacco control laws have been offset by the growing consumption in a single nation: China. The Chinese market now consumes more cigarettes than all other low- and middle-income countries combined together. The prevalence of tobacco smoking has been significantly increasing in the Eastern Mediterranean Region and the African Region. (WHO, 2015)

China , Eastern and Southern Europe tend to consume the most cigarettes per person which is not only due to the high smoking prevalence but also high smoking intensity, in return means the large number of cigarettes smoked by average smoker per day. The WHO Eastern Mediterranean Region (EMRO) now has the highest growth rate in the cigarette market, which would account for more than a one-third increase in cigarette consumption since 2000. Due to its recent dynamic economic development and continued population growth, Africa presents the greatest risk in terms of future growth in tobacco use. Without appropriate prevention policies across the continent, Africa will lose hundreds of millions of lives in this century due to tobacco smoking. (WHO, 2015)

There is also an alarming figure of youth who are engaged in smoking tobacco. The Global Youth Tobacco Survey (GYTS) which is a joint project of WHO, the US Centers for Disease Control and Prevention, the Canadian Public Health Association and most WHO member states. The GYTS is a schools-based survey for teenagers between the age of 13 to 15, which has enabled consistent data collection from 395 sites encompassing 131 countries, plus the Gaza Strip and the West Bank. The data shows African region has 14% of boys who smoke compared to 5% of girls, America region slightly higher with 17% boys against 14% girls with Eastern middle region accounting for 21% boys compared to 10% girls. European region recorded the highest data with 21% boys who smoke in comparison to 17% girls, meanwhile Western Pacific Region has the lowest amount of teenager who smoke, which are 12% boys and 4% girls. As for Southeast Asia Region which also compromises Indonesia, it has 21% boy smokers and 7% girl smokers. (WHO, 2015)

Facts from the most recent New Zealand survey showed that the current smoking prevalence in youth (those aged 15–17 years) reduced to half in between 2006–07 and 2013–14, declining from 16% to 8%. The latest Canadian Youth Smoking Survey (YSS) stated that in the year 2012–2013, about 2% of overall students in grades 6–9 and about 8% of students in grades 10–12 were current smokers. There was an overall reduce in smoking prevalence among students in grades 6 to 12 compared to 2010-2011. Ireland's Health Behavior in School-aged Children Survey 2006 reported that 15% of 10–17 year olds in the country were current smokers. A 2014 survey of health behaviors among 15 year-olds across England found that 8 per cent were current smokers. (WHO, 2015)

The amount of smokers in Indonesia has been increasing at a very alarming rate. According to WHO, in the year 2000, at a population 71,900,000 men and 72,979,000 women above the age 15 years, the estimated no of current smokers were 42,977,000 people of both sex combined which is about 29.66%. This number drastically increased to 39.53% of estimated people who smoke in the year 2015 with a population of 183,981,000. It is predicted that in the year 2025 there will be an estimated 96,776,800 smokers out of a population of 215,528,000 people which is 44.9%. (WHO, 2015)

2.2 Physical and biochemical properties of cigarette smoke

Theoretically, cigarette smoke is divided into two which is a "tar phase and a gas phase." The tar or particulate phase is defined as the material that is trapped when the smoke stream is passed through the Cambridge glass-fiber filter that retains 99.9% of all particulate material with a size >0.1 μm . The gas phase is the material that passes through the filter. The particulate (tar) phase of cigarette smoke contains >10 free radicals/g, and the gas phase contains $>10^{15}$ free radicals/puff . The radicals associated with the tar phase are long-lived which is hours to month, meanwhile the radicals associated with the gas phase have a shorter life span which are seconds.

Cigarette smoke that is drawn through the tobacco into an active smoker's mouth and inhaled is known as mainstream smoke. Side stream cigarette smoke is the smoke emitted from the burning ends of a cigarette. Mainstream cigarette smoke comprises 8% of tar and 92% of gaseous components. Environmental tobacco smoke results from the combination of sidestream smoke (85%) and a small fraction of exhaled mainstream smoke (15%) from smokers . Sidestream cigarette smoke contains a relatively higher concentration of the toxic gaseous component than mainstream cigarette smoke. Of all

the known constituents, nicotine, a component of the tar phase, is the addictive substance of cigarette smoke. (Ambrose and Barua, 2011)

2.3 Cigarette Dependency and Dopamine Release

A cigarette dependence scale or better known as CD-5 scale is a five item scale that is used to measures cigarette dependence based on varied conceptualizations and definitions of dependence without taking tolerance into account. It is a short and simplified version of the CDS-12 scale with similar properties but its content is less comprehensive. Its target population compromises of adults between 12-74 years old. (Rohsenow et al., 2013)

According to a research by the National Institute of Drug Abuse, it shows that nicotine may not be the only ingredient in tobacco that affects a smoker making them addicted to smoking. With the enhancement of neuroimaging technologies, scientists can see the drastic effect of cigarette smoking on the brain and are finding a marked decrease in the levels of monoamine oxidase (MAO), an important enzyme that is responsible for the breakdown of dopamine. This change is likely due to some ingredient in tobacco smoke other than nicotine, because its known that nicotine itself does not dramatically alter MAO levels. The decrease in two forms of MAO (A and B) results in significantly higher dopamine levels and may be a reason that smokers continue to smoke which is to sustain the high dopamine levels that lead to the desire for repeated drug use. (D. Volkow, 2012)

Studies on animals by NIDA-funded researchers have shown that a substance called acetaldehyde; another chemical found in tobacco smoke, dramatically increases the reinforcing properties of nicotine. This may also contribute to tobacco addiction. The investigators further reported that this effect is also age-related. This means that, adolescent animals display far more sensitivity to this reinforcing effect, which suggests that the brains of adults may be more vulnerable to tobacco addiction compared to children. (D. Volkow, 2012) Not only that, Penelope Truman of the Institute of Environmental Science and Research (ESR) presented a case study at Smokefree Oceania conference in Auckland, New Zealand, that showed how rats exhibited a greater urge to obtain a dose of smoke from non-nicotinic rolling tobacco compared with doses of nicotine and smoke from factory-made cigarettes that contain nicotine. (D. Volkow, 2012)

2.4 Dopamine in Reducing Stress

Dopamine synthesized by our body from the dietary intake of an amino acid called tyrosine, found in protein-rich foods such as meats and cheese, is defined as a neurotransmitter, one of those chemicals that are responsible for sending signals in between the nerve cells (neurons) of the brain. (D. Volkow, 2012)

The functions of dopamine are many, but in general it inhibits transmission of nerve impulses. This transmitter is found all over the body, though mainly housed in the brain's interior basil ganglia, in the frontal lobe of the information-processing center of the brain, or in the limbic system. (Broock, 2008) Very few neurons actually make dopamine. When dopamine neurons become stimulated, they release dopamine. (Broock, 2008)

Dopamine is the chemical that signals pleasure in the brain of all beings. It is released during pleasurable situations and stimulates one to seek out the pleasurable activity or occupation. This means food, sex, and several drugs of abuse are also stimulants of dopamine release in the brain, particularly in areas such as the nucleus accumbens and prefrontal cortex. This is why when smoking reduces monoamine oxidase (MAO) in the brain, a higher level of dopamine is found in smokers, making the feel a sense of pleasure from smoking.

III.   FRAME OF MIND AND RESEARCH CONCEPT

3.1 Frame of Mind

Smoking has become such a norm in our society in this era of globalization. It is so common that the general population thinks it's an acceptable act by smoking anywhere and almost everywhere regardless age group. There are a lot of factors that contribute to this increasing amount, and one of it is lack of awareness. Everyone takes the easy way out of dealing with daily pressure and stress by smoking. Many started of smoking at a very young age some being influenced by peers, while others grew up watching people they are close with smoking.

Apart from parents, doctors are the main people who would be advising their patients on awareness of smoking. The purpose of this research is to see how the medical students of Universitas Udayana who are future doctors themselves feel about smoking in relation to stress.

3.2 Conceptual Framework
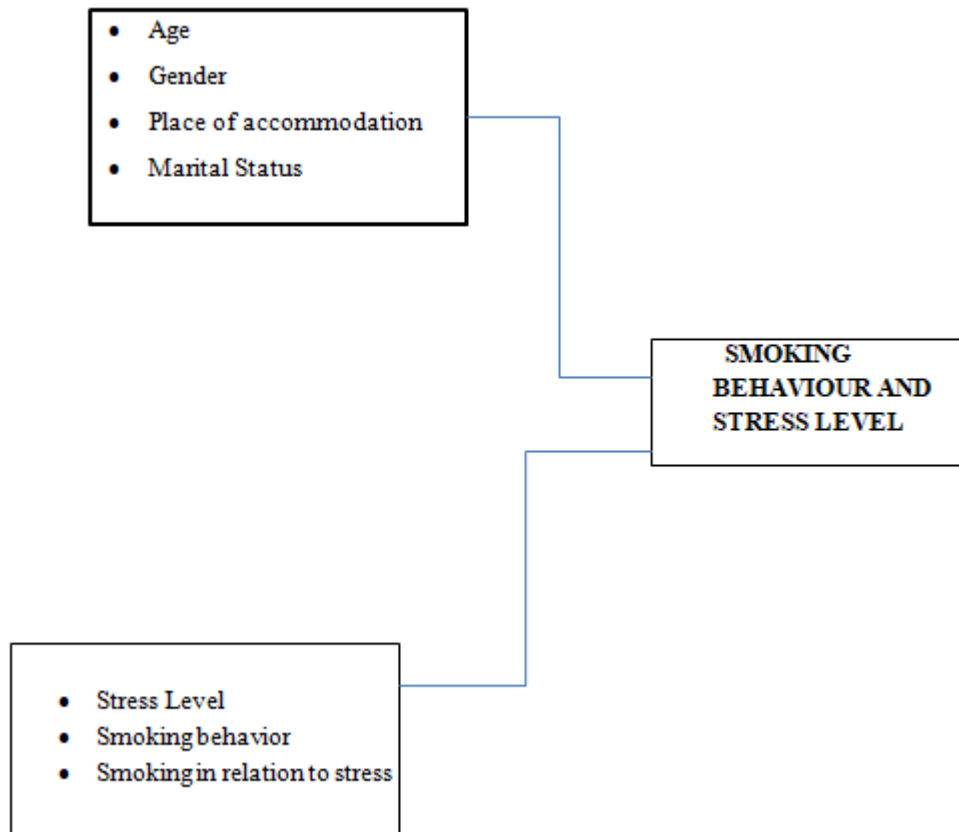
IV. RESEARCH METHOD

4.1 Research Design

The design of this research is a descriptive study of smoking behavior and stress level among medical faculty students of Udayana University from December 2015 to December 2016.

4.2 Location and Duration

4.2.1 Location

The location is at Medical Faculty of University Udayana.

4.2.2 Duration

This research was conducted December 2015 to December 2016

4.3 Population and Sample Research

4.3.1 Population of Research

The target populations of this study are University Udayana Medical Faculty students

$$\text{n} = \frac{z_{a^2} \times P \times Q}{d^2}$$

Explanation,

n = needed sample size

$z_{a^2} = a$ value is determined. In this study , a= 0.05 is used till get z_{a^2}= 1.96

P = prevalence for the level of stress level among medical student study is 0.6

Q = 1-P (0.4)

d = needed level of absolute accuracy is (0.1)

So, estimated population is

$$n = \frac{1.92^2 \times 0.6 \times 0.4}{0.1^2}$$

$= 88.4$

To anticipate drop out, 10% is added to become 88.4 + 10% = 97.24, as a whole number make the value as 100. So, 100 sample size is needed for this study. (Jayakaran, Saxena D, Yadav P, Kantharia ND, 2011)

4.3.2 Sampling techniques

In this study, the sampling is simple random and consecutive sampling

4.4 Research variable

4.4.1 Variable identification

The variables that will be sorted in this research is age, gender, and the level of stress

4.4.2 Definition of the operational variable

1. Age is the age of students from different batch in the faculty of medicine Udayana University. The range of age will be from youngest that is 19 years old to 25 years old.

2. Gender is divided into male and female and the date obtained from the students medical records.

3. Level of stress will be calculated by using Holmes and Rahe Stress Scale, the number of "Life Change Units" that apply to events in the past year(12 months) of an individual's life are added and the final score will give a rough estimate of how stress affects health.

4. For smoking frequency, fagerstrom test for nicotine dependence scoring will be used.

4.5 Material and Instruments

- Stationary (pen,pencil)

- Self-administrated questionnaire

- Laptop

4.6 Data collecting method and analysis

Data will be collected through interview of medical students from Medical Faculty of Udayana University.

4.7 Analysis Data

Data from survey are primary data. Data thus collected will be analyzed and relevant statistics will be calculated and presented through graph and pie charts.

V.   RESULTS AND DISCUSSION

5.1 Prevalence of Stress Level among Medical Faculty students of Udayana University

All the data included in this research are of students who have met the required criteria. The data were collected from the questionnaire answered by the Medical Faculty of Udayana University. Samples of 100 students were taken, of which 50 were males and another 50 were females. There were 43 questions regarding stress which were asked using Holmes and Rahe Stress Scale. Each questions had a score which if ticked "yes" would be counted and summed up in the end. The results are divided into 3 particular sections. Individuals who had a score of 300 or more were suspected to be at risk of illness, meanwhile respondents with score of 150-299 are at risk of illness at moderate level which reduced by 30% from the above risk. Lastly students who have a score of 150 or less only have a slight risk of illness.
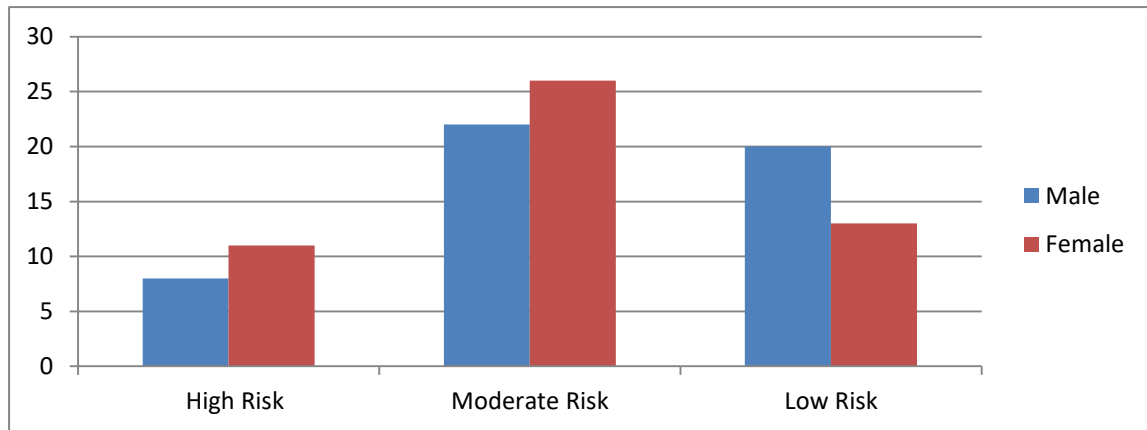
Figure 1: Stress Level of Respondent

Out of total 50 male respondents, 8 of them had a score of more than 300 which means these groups of individual's raises the odds to about 80%, according to the Holmes-Rahe prediction model to have stress related illness. Meanwhile the tally for males with moderate risk and low risk were 22 and 20 respectively. As for the females, out of 50 respondents, the number of those with high risk of stress illness were slightly higher than males by 3 people making it 11. The number for moderate risk was also more than 4 people compared to males, which meant that 26 females were at risk according to the survey. On the other hand, females raked 7 people lower on the stress scale compared to males for the low risk category.

Based on the figures present from the survey, women tend to show a higher percentage of high and moderate stress level compared to men. This is supported by various studies that show women have been found to have more chronic stress than men (McDonough & Walters, 2001; Turner et al., 1995; Nolen-Hoeksema, Larson, & Grayson, 1999) and are exposed to more daily stress associated with their routine role functioning (Kessler & McLeod, 1984).

In addition, women experience gender-specific stressors such as gender violence, sexual abuse, sexist discrimination, which are related with women's physical and psychiatric events (Heim et al., 2000; Klonoff, Landrine, & Campbell, 2000; Koss, Koss, & Woodruff, 1991; Landrine, Klonoff, Gibbs, Manning, & Lund, 1995). Women also were more affected by the stress of those around them, as they tend to be more emotionally involved than men in social and family networks (Kessler & McLeod, 1984; Turner et al., 1995).

5.2 Prevalence rate of smoking of Medical Faculty Students of Universitas Udayana

Out of the 100 respondent, 56 of them are smokers. For the smoking test, fagerstrom test for nicotine dependence scoring was used. The ratio between male to female smokers are 35 to 21. Out of the 35 male smokers, 7 of them had a stress level scale of more than 300, with 4 of them having high nicotine dependence based on the fagerstrom test, 2 with moderate dependence, 1 with low to moderate dependence. Meanwhile for female, out of the 21 smokers, 8 of them are susceptible to high level of stress. Out of the 8 females, 2 had nicotine dependence score of more than 8 (high dependence), 3 with a score range of 5-7 (moderate dependence), 2 having a score of 3-4 (low to moderate) dependence, and 1 with score of 1-2 (low dependence).
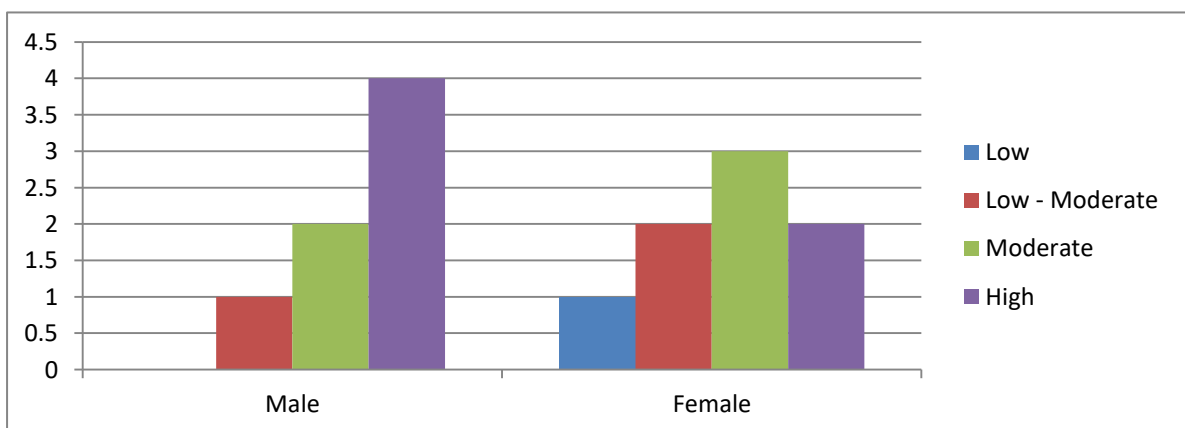

Figure 2: Nicotine Dependence Level for Correspondents with High Risk of Stress

Meanwhile, 18 males and 10 female smokers had a stress level score of 150-299, which means they are at moderate risks to get stress related illness. Out of the 18 males, 3 of them had a nicotine dependence score of more than 8, 9 with a score of 5-7, 4 with a score of 3-4 and 2 with a score range of between 1-2. As for females, 2 had a nicotine dependence score of more than 8, 6 with a score of 5-7, 1 with a score of 3-4 and lastly 1 with a score of 1-2.
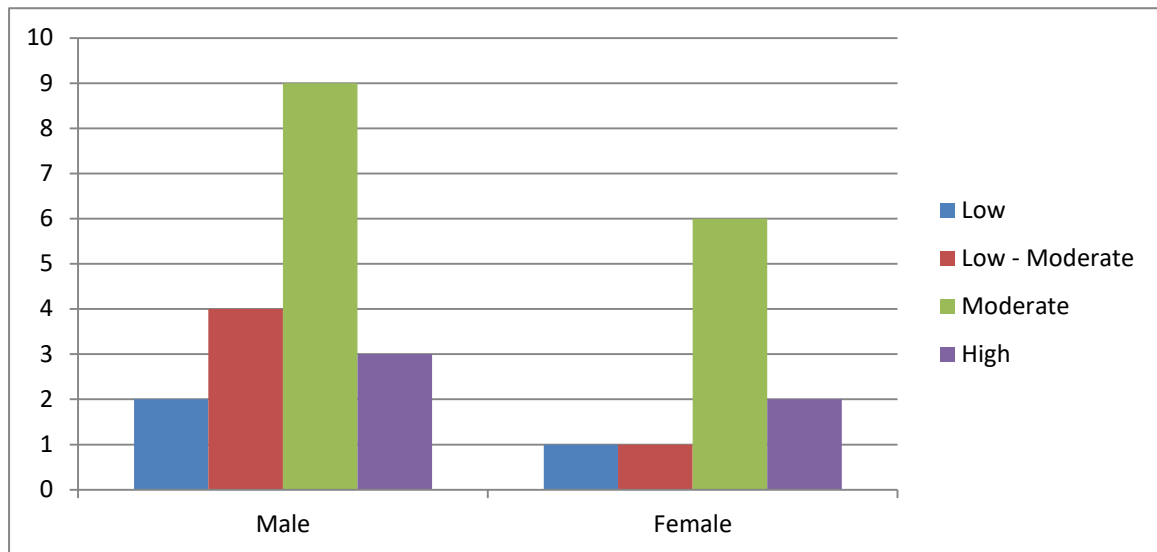

Figure 3: Nicotine Dependence Level for Correspondents with Moderate Risk of Stress

Lastly, there were 10 males and 3 females who are smokers and have shown to have a stress level score of 150 or less, which means they least likely to get stress related illness or are at low risk. Out of the 10 males, 1 of them had a nicotine dependence score of 5-7, 2 with a score of 3-4 and 7 with a score range of between 1-2. In contrast to females who recorded a much lower score, none had a high or moderate nicotine dependence level with only1 having a nicotine score of 3-4 and another 2 with a score of 1-2.
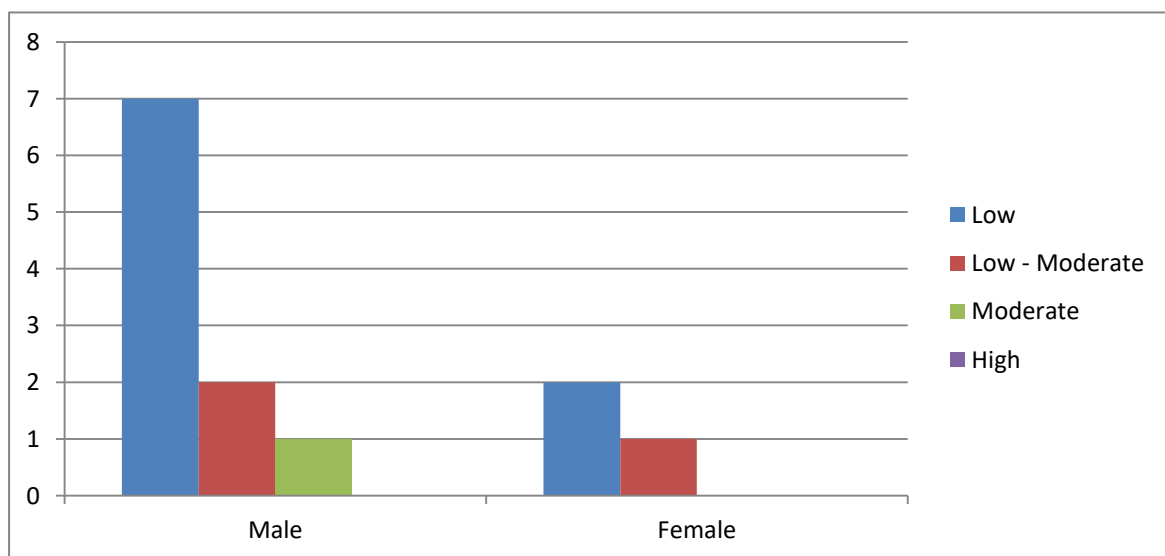

Figure 4: Nicotine Dependence Level for Correspondents with Low Risk of Stress

As from the results, it can be seen that students with a higher level of stress are generally heavy smokers tend to be more prone to nicotine dependency. This can be because studies have shown that cigarette smoking helps in reducing stress and anxiety (Nesbitt, 1973, Pomerleau and Pomerleau, 1987, Perkins et al., 1992 and Parrott, 1995), which is in line with the expectation of smokers that cigarette smoking relieves stress. Not only that, according to a survey study of adolescent smokers (Dozois et al., 1995 and Nichter et al., 1997), the most frequently mentioned reasons for cigarette smoking were stress reduction and relaxation.

5.3 Limitation of Survey

In this survey the sampling was done using consecutive sampling. This has the made the sample unable to represent the whole population of people suffering from stress and their smoking behavior. The Stress Scale by Holmes and Rahe have been criticized mostly for its lack of accuracy, for the scale includes both positive and negative life events as well as events that are in your control and events that are out of your control in the same scale. This is inaccurate because events that are sudden negative and out of your control are much more predictive of illness than are positive, controllable life changes.

Furthermore, the scale also does not take into consideration each person's interpretation of a stressful event. Apart from that the Fagerstorm tes for nicotine dependency doesn't take into account the amount of nicotine as each cigarette's percentage varies by brand and type. A more in-depth and precise study is needed to find out the relationship of stress level and smoking behavior of respondents.

VI. CONCLUSION AND SUGGESTION

6.1 Conclusion

According to my aim which has been stated earlier, I managed to collect the information about the stress level of 100 students with the proportion of gender being 50 males and 50 females in the Medical Faculty of Udayana University. From the results obtained. I could see a clear pattern of how it relates to their nicotine dependency level for smokers. I can conclude that smokers with higher level on stress score on the Holmes and Rahe Stress Scale tend to have a higher nicotine dependency for the fagerstrom test. This is likely due to the fact cigarette attributes to reduction in stress and anxiety levels (Nesbitt, 1973, Pomerleau and Pomerleau, 1987, Perkins et al., 1992 and Parrott, 1995).

6.2 Suggestions

Students who have high probability to suffer from stress related illness should seek immediate help from university counselors or talk someone they can rely on. This will help ease the stress on them. Furthermore, those with more severe cases can be referred to psychiatrist to solve their problems. Apart from that, studies have shown that socializing and working out or playing sports have proven to reduce stress (Caltabiano, 1994) among students.

Meanwhile students who smoke should immediately stop smoking as it is injurious to their health and may cause illnesses such as, lung cancer, chronic obstructive pulmonary disease which includes emphysema and chronic bronchitis. Not only that, those with asthma, tobacco smoke can trigger an attack or make an attack worse. Furthermore, it also causes premature aging and infertility. Students can take nicotine patches or call smoking hotlines to help them to put an end to smoking. Support from parents and surroundings, motivations, awareness campaigns and also regular exercising can also aid individuals who wish to stop smoking.

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APPENDIX 1

SURVEY SCHEDULE

Activity	Date	
1. Data collection for proposal	January 2016	: week 1 – week 4
2. Proposal approval and survey permission	February 2016	: week 1 – week 4
	March 2016	: week 1 – week 4
	April 2016	: week 1 – week 2
3. Preparation of apparatus and instruments for survey.	April 2016	: week 2 – week 4
	May 2016	: week 1 – week 4
4. Data collection	May 2016	: week 4
	June 2016	: week 1 – week 4
	July 2016	: week 1 – week 4
	August 2016	: week 1 – week 4
5. Data analysis	September 2016	: week 1 – week 4
6. Survey report	September 2016	: week 4
	October 2016	: week 1 – week 4
7 Consultation and revision	October 2016	: week 4
	November 2016	: week 1 – week 4
	December 2016	: week 1 – week 4
	January 2016	: week 1 – week 2
8. Exam	January	: week 2 – week 3

APPENDIX 2

COSTING

Proposal

Material	Total Unit	Cost Per Unit (Rupiah)	Total Price (Rupiah)
Printing Proposal	40	500	20,000
Photocopy	4	4,500	18,000
Subtotal			38,000

Equipment's and Instruments

Material	Total Unit	Cost Per Unit (Rupiah)	Total Price (Rupiah)
Printing Questionnaire	10	500	5,000
Photocopy	100	1,000	100,000
Subtotal			105,000

Operational

Material	Total Unit	Cost Per Unit (Rupiah)	Total Price (Rupiah)
Communication throughout the survey			300,000
Transportation			50,000
Subtotal			350,000

TOTAL: 443,000 RUPIAH

APPENDIX 3

SURVEY DATA

NO	NAME	SEX	AGE	STRESS LEVEL SCALE	INTER-PRETATION	NICOTTINE DEPENDENCE SCALE	INTER-PRETATION (DEPENDENCE)
1	AZ	Male	20	285	Moderate Risk	7	Moderate
2	LS	Female	21	423	High Risk	-	-
3	CV	Female	18	142	Low Risk	-	-
4	JDRP	Male	22	112	Low Risk	1	Low
5	DV	Female	18	178	Moderate Risk	-	-
6	GR	Female	23	200	Moderate Risk	-	-
7	HVR	Male	23	256	Moderate Risk	7	Moderate
8	RM	Female	25	111	Low Risk	-	-
9	GM	Female	21	444	High Risk	-	-
10	PK	Male	20	456	High Risk	5	Moderate
11	DM	Female	20	100	Low Risk	-	-
12	KS	Female	21	80	Low Risk	-	-
13	KV	Female	22	365	High Risk	6	Moderate
14	TV	Male	22	388	High Risk	5	Moderate
15	SG	Female	25	232	Moderate Risk	8	High
16	MIP	Female	25	211	Moderate Risk	6	Moderate
17	P	Male	23	132	Low Risk	2	Low
18	PV	Male	20	88	Low Risk	2	Low
19	PV	Female	18	151	Moderate Risk	-	-
20	SB	Male	20	188	Moderate Risk	3	Low to Moderate
21	SA	Female	22	55	Low Risk	-	-
22	SJ	Male	23	298	Moderate Risk	5	Moderate
23	SK	Female	22	9	Low Risk	-	-
24	SAGB	Female	22	401	High Risk	8	High
25	KS	Female	22	159	Moderate Risk	-	-
26	YM	Female	25	280	Moderate Risk	-	-
27	SN	Male	20	77	Low Risk	1	Low
28	VK	Male	18	178	Moderate Risk	5	Moderate
29	RM	Male	20	167	Moderate Risk	5	Moderate
30	TP	Female	20	121	Low Risk	-	-
31	RP	Female	25	257	Moderate Risk	-	-
32	JP	Female	23	287	Moderate Risk	-	-
33	PKN	Female	23	209	Moderate Risk	-	-
34	MS	Male	22	54	Low Risk	-	-
35	VS	Female	21	170	Moderate Risk	-	-
36	SM	Female	22	263	Moderate Risk	-	-
37	VM	Male	22	71	Low Risk	-	-
38	MS	Female	24	122	Low Risk	2	Low
39	ARN	Male	26	44	Low Risk	3	Low to Moderate
40	MG	Female	20	140	Low Risk	-	-

41	GF	Male	**18**	114	Low Risk	-	-
42	VS	Male	**19**	599	High Risk	8	High
43	SM	Female	**22**	199	Moderate Risk	5	Moderate
44	SK	Female	**22**	154	Moderate Risk	6	Moderate
45	GF	Male	**24**	212	Moderate Risk	8	High
46	SS	Male	**24**	133	Low Risk	4	Low to Moderate
47	KL	Male	**19**	111	Low Risk	2	Low
48	KT	Male	**19**	290	Moderate Risk	6	Moderate
49	PS	Male	**19**	290	Moderate Risk	9	High
50	NA	Female	**24**	196	Moderate Risk	-	-
51	NM	Female	**24**	265	Moderate Risk	-	-
52	GC	Male	**25**	356	High Risk	9	High
53	FG	Male	**23**	100	Low Risk	-	-
54	DN	Female	**19**	600	High Risk	7	Moderate
55	SA	Female	**22**	555	High Risk	4	Low to Moderate
56	YS	Male	**18**	289	Moderate Risk	6	Moderate
57	MF	Female	**20**	476	High Risk	-	-
58	PV	Female	**20**	421	High Risk	1	Low
59	SI	Male	**24**	99	Low Risk	-	-
60	MR	Male	**23**	410	High Risk	9	High
61	BR	Male	**25**	192	Moderate Risk	7	Moderate
62	MS	Male	**25**	313	High Risk	8	High
63	THY	Male	**24**	292	Moderate Risk	-	-
64	TS	Female	**24**	79	Low Risk	1	Low
65	AS	Male	**23**	274	Moderate Risk	4	Low to Moderate
66	RG	Female	**25**	41	Low Risk	-	-
67	SS	Male	**18**	78	Low Risk	2	Low
68	GU	Male	**18**	200	Moderate Risk	-	-
69	FD	Female	**20**	311	High Risk	4	Low
70	GJ	Female	**19**	399	High Risk	6	Moderate
71	AT	Female	**21**	566	High Risk	8	High
72	KS	Male	**21**	77	Low Risk	-	-
73	NR	Male	**23**	201	Moderate Risk	4	Low to Moderate
74	VR	Male	**24**	77	Low Risk	-	-
75	SR	Female	**20**	130	Low Risk	-	-
76	SE	Male	**18**	284	Moderate Risk	2	Low
77	DG	Female	**24**	178	Moderate Risk	-	-
78	NR	Female	**24**	171	Moderate Risk	5	Moderate
79	SK	Female	**19**	222	Moderate Risk	5	Moderate
80	TS	Male	**21**	543	High Risk	-	-
81	RS	Female	**23**	266	Moderate Risk	-	-
82	SSL	Female	**21**	289	Moderate Risk	-	-
83	VM	Male	**24**	284	Moderate Risk	5	Moderate Risk
84	TG	Female	**25**	250	Moderate Risk	3	Low to Moderate
85	PM	Male	**23**	30	Low Risk	-	-
86	VS	Male	**24**	88	Low Risk	-	-
87	DD	Male	**22**	55	Low Risk	-	-
88	SS	Male	**22**	269	Moderate Risk	-	-

89	MN	Female	25	283	Moderate Risk	5	Moderate
90	JP	Male	18	149	Low Risk	5	Moderate
91	FA	Male	20	131	Low Risk	1	Low
92	EM	Female	19	69	Low Risk	3	Low to Moderate
93	AB	Male	22	233	Moderate Risk	8	High
94	DR	Male	22	234	Moderate Risk	6	Moderate
95	PA	Male	22	280	Moderate Risk	2	Low
96	AK	Male	25	401	High Risk	3	Low to Moderate
97	NR	Female	19	241	Moderate Risk	9	High
98	PP	Male	23	203	Moderate Risk	-	-
99	AF	Female	18	178	Moderate Risk	-	-
100	KM	Female	18	201	Moderate Risk	1	Low