

The Description of Stress Levels among Medical Students

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Abstract. Stress is the body's reaction to any change that requires an adjustment or response. The body reacts to these changes with physical, mental, and emotional responses. This research aims to comprehend the stress levels of students in the medical faculty of Nusa Cendana University, Kupang based on sex and years. The design in this research is descriptive quantitative by collecting data used stress scale (consisted of 40 items) compiled by the researcher. The trial results of the measuring instruments show that the value of Cronbach's Alpha is 0.936. The participants are 173 students. The result shows that medical students have a moderate stress level that seen from the percentage is 46.8%, and female students have a higher stress level than males based on sex, then last semester students have a higher stress level than the other students based on semester, means that students experience and show symptoms of moderate stress, which usually last for hours or several days, and which can have positive or negative effects on the students themselves.

Keywords: *stress, medical students*

Abstrak. Stres merupakan keadaan yang dirasakan ketika seseorang dituntut untuk menyesuaikan diri dengan lingkungannya namun melebihi kapasitas atau kemampuan orang tersebut sehingga tubuh menunjukkan respon secara fisik, emosi dan perilaku. Penelitian ini bertujuan untuk mengetahui gambaran tingkat stress mahasiswa fakultas kedokteran Universitas Nusa Cendana Kupang, baik secara umum maupun berdasarkan jenis kelamin dan semester. Jenis penelitian ini merupakan penelitian deskriptif kuantitatif dengan menyebarkan skala stres (terdiri dari 40 aitem) yang disusun oleh peneliti. Hasil uji coba alat ukur menunjukkan nilai *Alpha Cronbach* sebesar 0,936. Partisipan pada penelitian ini berjumlah 173 mahasiswa. Hasil penelitian ini menunjukkan bahwa partisipan memiliki tingkat stres yang tergolong dalam kategori sedang dilihat dari jumlah persentasenya sebesar 46.8%, dan partisipan perempuan memiliki tingkat stres yang lebih tinggi daripada laki-laki berdasarkan jenis kelamin, lalu partisipan semester 8 memiliki tingkat stres yang lebih tinggi dibandingkan partisipan dari semester 2, semester 4, dan semester 6 berdasarkan semester, artinya mahasiswa sedang mengalami serta menunjukkan gejala-gejala stres sedang yang biasanya berlangsung selama beberapa jam atau beberapa hari dan dapat berdampak positif maupun negatif terhadap mahasiswa itu sendiri.

Kata kunci: Stress, Mahasiswa Fakultas Kedokteran

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Introduction

Students are individuals who study both publicly and privately in higher education (Triyana et al., 2015). According to Mustikawati & Putri (2018), students as government assets are in great demand in realizing high-quality human resources to develop their skills and abilities to be competitive in the age of globalization. The many requirements and responsibilities that are accepted make it impossible for students to avoid stress (Ambarwati, et al., 2017).

Stress is a state that is felt when a person has to adapt to their surroundings but is beyond that person's capacity or ability so that the body reacts physically/emotionally to existing stimuli or stressors (stressors). Stress can cause anxiety, depression, social dysfunction, and even an intention to end life (Maulana et al., 2014). Taylor et al. (2009) stated that stress can damage the body and make it more prone to physical illness. Gender differences can also have an impact when a person is under stress. Women have higher levels of hormones than men, which makes women more sensitive to the environment and prone to stress. Hormonal changes that lead to changes in the body can make women feel more stressed than men.

The prevalence of students suffering from stress in the world is 38-71%, while in Asia it is 39.6-61.3%. In Indonesia, the prevalence of students suffering from stress in Indonesia is between 36.7 and 71.6%. This shows that high levels of stress in Indonesia can lead to more serious mental disorders such as depression (Ambarwati et al., 2017).

Various studies show that medical students are exposed to greater stress than students from other courses in the non-medical field (Maulina & Sari, 2018). According to the results of studies by Maulana et al. (2014) found that of 92 students in the first year, at most 66 respondents (71.7%) had moderate stress, while of 92 students in the second year 71 respondents (77.2%) suffered from moderate stress. Subsequent studies

by Wahyudi et al. (2015) on students of the medical faculty of the University of Riau showed that the highest stress level for students of the medical school of the University of Riau was moderate stress with 95 respondents (57.23%). In 2019 Rahmayani et al. A similar study by and the results of their research showed that the stress level of some samples had moderate stress levels (48.4%).

Based on the results of the above research, the researchers conducted initial interviews with 10 medical students at the University of Nusa Cendana Kupang. The results of preliminary interviews conducted by researchers showed that six out of ten students at Nusa Cendana Kupang University's medical faculty admitted that they suffered from stress caused by various sources of stress and how they affect them. Even so, none of the students left the faculty or were expelled, but they are still motivated to continue their studies until now.

Before conducting the research, the researchers conducted initial interviews with 10 medical students from the medical faculty of Nusa Cendana University in Kupang. The results of pre-interviews conducted by researchers showed that four out of ten students at Nusa Cendana Kupang University's medical faculty admitted to experiencing stress caused by various sources of stress and how they affected them. However, some students also admit that they enjoy their studies as medical students, even though they often face many problems and pressures (one of the causes of stress). The data also shows that none of the medical school students resigned or were expelled from the faculty, but they are still motivated to continue their studies until now. Some of them even graduated on time with the title cum laude, the youngest and the best graduate.

The presence of a gap between the results of previous research and the reality based on the results of the initial interviews conducted by researchers made the researcher needs to conduct further research to comprehend the stress levels among the medical students at the Nusa Cendana University in Kupang.

Method

The design in this research is the quantitative approach with a descriptive method by collecting data used stress scale (consisted of 40 items) compiled by the researcher. The variable in this study was a single variable. The trial results of the measuring instruments showed that the validity of the instrument values ranging from 0.312 to 0.694, and the value of Cronbach's Alpha was 0.936, which means the validity and the reliability of the instrument were good enough. Participants in this study were 173 active students of the Medical Faculty, Nusa Cendana University of Kupang in the 2019 to 2020 school year. Sample was taken to the technique of simple random sampling. Data were analysed by t-test and explain descriptively presented based on age and semester.

Result

The results of the descriptive analysis of the voltage variable data, which consists of computerized minimum, maximum, range, standard deviation (SD) and mean (m) values are shown in the table below:

a) The Measurement of Variable Stress

Variable	Hypothetic					Empiric				
	Min	Max	Range	Mean	SD	Min	Max	Range	Mean	SD
Stress	40	160	120	100	20	45	159	114	92,44	13,55

This table shows that the maximum theoretical value of the voltage variable is 160 and the theoretical minimum value of the voltage variable is 40, while the empirical maximum value of the voltage variable is only 159, the empirical minimum value of the voltage variable being greater, namely 45.

The value of the theoretical range of the voltage variable is 120 while the value of the empirical range of the voltage variable is only 114. Then the standard deviation (SD) and theoretical mean (m) are 20 and 100, respectively, while the empirical standard deviation (SD) of the voltage variables is 13.55 and 92.44, respectively.

The results of measuring stress levels among medical students at the University of Nusa Cendana Kupang are shown in the table below:

b) The Measurement of the Stress Levels

Category	Interval	Frequency	Percentage
Very Low	40-70	7	4%
Low	71-90	73	42,2%
Moderate	91-110	81	46,8%
High	111-130	11	6,4%
Very High	131-160	1	0,6%
Sum		173	100%

Based on the data contained in this table, it is known that of the 173 participants, 7 students from the Medical Faculty of Nusa Cendana University Kupang were in the very low-stress category, or 4%, the other 73 students, or 42.2%, were in a low category, then there were 81 students in the stress level category of moderate or equal to 46,8% there were 11 in the high category of stress level or equal to 6.4%, and there was one student in the very high category.

The results of a computerized descriptive analysis of stress levels in medical students at Nusa Cendana University by gender are shown in the table below:

c) The Measurement of The Stress Levels based on sex

Sex	Stress				
	Min	Max	Range	Mean	SD
Male	45	111	66	90,48	12,08
Female	49	159	110	93,24	14,07

Based on the data in this table, the empirical mean stress variable for men and women is 90.48 and 93.24, respectively, less than the theoretical mean stress variable which is 100. Therefore, the theoretical mean for the stress variable is higher than the empirical mean for the stress variable for men. -Male and empirical mean of female stress variables.

The results of a descriptive analysis of stress levels among medical students at the University of Nusa Cendana based on a computer semester are shown in the table below:

d) The Measurement of the Stress Levels based on years or semester

Semester	Stress				
	Min	Max	Range	Mean	SD

2	62	117	55	92,30	13,39
4	49	123	74	93,17	13,26
6	45	114	69	90,57	14,56
8	70	159	89	93,14	13,53

From the data in this table, it can be seen that the empirical mean for semester 2 is 92.30, the empirical mean for semester 4 is 93.17, the empirical mean 6 is 90.57, and the empirical mean is 8 93.14. The theoretical mean is 100, which indicates that the theoretical mean is greater than the empirical mean of all semester categories.

e) The Measurement of the Stress Levels based on year or semester

Semester	The Stress Levels										Sum
	Very Low		Low		Moderate		High		Very High		
	F	P	F	P	F	P	F	P	F	P	
2	2	5.1%	17	43.6%	16	41.0%	4	10.3%	0	0%	39
4	2	3.8%	20	38.5%	26	50.0%	4	7.7%	0	0%	52
6	2	5.7%	14	40.0%	18	51.4%	1	2.9%	0	0%	35
8	1	2.1%	22	46.8%	21	44.7%	2	4.3%	1	2.1%	47
Sum	7		73		81		11		1		173

Based on the data in this table, it is shown that most of the participants from the four semesters are in the middle category, namely the second-semester group of 16 people (41.0%), in the fourth-semester there are 26 people (50.0%), in the sixth semester there were 18 people (51.4%) and in the eighth semester, there were 21 people (44.7%), while the lowest number of participants was in the very high category, with one person in the eighth semester (2.1%). In addition, in the very low category there were 2 participants in each semester group except in the eighth semester there was only one person (2.1%).

Discussion

Students are individuals who study both publicly and privately in higher education (Triyana et al., 2015). According to Mustikawati & Putri (2018), students as government assets are in great demand in realizing high-quality human resources to develop their skills and abilities to be competitive in the age of globalization. The many

requirements and responsibilities that are accepted make it impossible for students to avoid stress (Ambarwati, et al., 2017).

Stress is a condition that a person experiences when they have to adapt to their surroundings but is beyond that person's capacity or ability so that the body exhibits a physical, emotional, and behavioral response to existing stimuli or sources of stress (stressors). Various studies show that medical students are exposed to greater stress than students from other courses in the non-medical field (Maulina & Sari, 2018). For the 2019/2020 academic year, there are 221 students at the Nusa Cendana Kupang University Medical Faculty.

The results of the measurement of the stress level among medical students at the University of Nusa Cendana, Kupang, showed that out of a total of 173 participants and 40 items, the statement that the empirical mean of the stress variables ($m = 92.44$) was smaller than the theoretical mean of the Stress variables ($m = 100$). In addition, 46,8% of the participants had a moderate level of stress while there was only 0,6% had a very low level of stress. Therefore, from the results of the measurement of the stress level, it can be demonstrated that medical students at the University of Nusa Cendana Kupang suffer from moderate stress.

This means that Nusa Cendana University medical school students experience stress that lasts for more than a few hours to several days. As explained by Priyoto (2014), moderate stress can be caused by many things, one of which is unresolved disputes. Based on previous research by Rahamayani (2019) with the same research, namely students of the Medical Faculty of Andalas University, the loads were moderate. In his research, he said that the cause of moderate stress was that medical school students had added stress and were at higher risk of disease due to longer study time. This has led to the emergence of various symptoms such as abdominal pain, tense muscles, tense feelings, and insomnia (Priyoto, 2014).

In addition, the research results obtained are consistent with the results of the initial interviews conducted by researchers prior to conducting the research. The results of the first interviews conducted by researchers showed that four out of ten

students at Nusa Cendana Kupang University's medical faculty admitted to experiencing stress caused by various sources of stress and their effects on them. However, some students also claim to enjoy their studies as medical students, although they often face a lot of problems and stress (one of the causes of stress). The data also shows that none of the medical school students resigned or were expelled from the faculty, but they are still motivated to continue their studies until now. Some of them even graduated on time with the title cum laude, the youngest and the best graduate. This is in line with the positive effects of stress or so-called eustress, that is, the effects are self-confidence, control, and the ability to cope with tasks, challenges, and demands, increasing mental alertness, and increasing motivation. Individuals looking to complete studies on time are usually referred to as eustress, or positive stress (Looker & Gregson, 2004).

The results of measuring the stress level of students of the Nusa Cendana University Medical Faculty by gender showed that the empirical mean for men was lower than the empirical mean for women, namely $90.48 < 93.24$. Although the results of the presentation with a medium stress level showed that the male gender was higher than the female gender, namely $48\% > 46.3\%$, the female gender had at least 2 respondents with a high-stress level. Therefore, it can be said that women have higher levels of stress than men, based on the results of stress level measurements in medical students at Nusa Cendana University.

The results of the measurement of the stress level agree with the research previously carried out by Rahmayani (2019), which explains that this is due to different stress reactions in men and women. The difference is related to the activity of the HPA axis and the sympathetic nervous system, which provide negative feedback when the body is under stress. The HPA axis regulates the production of the hormone cortisol, while the sympathetic nervous system regulates heart rate and blood pressure. HPA and autonomic responses are higher in men, so they affect a person's response when dealing with stressors. In addition, sex hormones decrease the HPA response and the

sympathoadrenal in women, which can lead to a decrease in the negative feedback of the hormone cortisol to the brain, making women prone to stress.

Based on research data from students at the Nusa Cendana University Medical School, it can be seen that the empirical mean for semester 2 is 92.30, the empirical mean for semester 4 is 93.17, the empirical mean 6 is 90.57 and the empirical mean Mean 8 is 93.14. The theoretical mean is 100, which indicates that the theoretical mean is greater than the empirical mean of all semester categories. It was then shown that most of the participants from the four semesters were in the middle category, namely the second-semester group of 16 people (41%), in the fourth-semester 26 people (50%), in the sixth-semester there were 18 people (51.4%) and in the eighth-semester, there were 21 people (44.7%).

Based on the results of these measurements, it can be seen that the medical students at Nusa Cendana University dominate with moderate stress levels and the initial stress level is lower than with students in the last semester. This is in line with previous studies by Agusmar et al. (2019) which found that medical students' stress level in the 2015 class was higher than that of 2018. It has been explained that the factors causing stress in final students are failing to adapt, accumulation of college burdens, and finance factors, relationships to friends, partners, future careers, and a lack of time management. The causes of stress in early students are adaptation from the school environment to the university environment, the place where the parents live, and the poor environment.

The research carried out on the medical faculty students at Nusa Cendana University is also in line with the research carried out by Zakaria (2017). The graduate students experience stress caused by their thesis or project. Factors related to stressful work on a thesis include parents' demand for early graduation, inadequate economic factors, different perceptions between students and supervisors, then increasing age and delay factors in working on a thesis, as well as passing one Pressure due to social and environmental factors.

Conclusion

This study concludes that the stress level of medical students at the University of Nusa Cendana is in the moderate category, namely 85.5% or even 148 respondents out of a total of 173 participants. Female students at Nusa Cendana University's medical school tend to experience stress more easily than male students based on the stress level calculation with a mean male gender of 90.48 while the mean female gender is 93.24. The Nusa Cendana University Medical School students who were in the eighth semester or the final grade experienced more stress than the previous grade students, with a categorization percentage of 44.7%, means that students experience and show symptoms of moderate stress, which usually last for hours or several days, and which can have positive or negative effects on the students themselves.

Suggestion

Based on the conclusion, some suggestions are intended to address university students, institutions, and future researchers. University students are aware of the symptoms of stress they may have earlier. They need to cope with the stress they are facing, so they can remain focused to achieve their goals. Students can also convert the pressure they receive or the stress they experienced into motivation so that they can finish their studies on time.

For Medical Faculty, this result of this research can be a consideration for the faculty and all the employees to be aware of the symptoms of stress their students may have and help them to cope with the stress or help them to solve their problems related to medical study.

For the future researcher, who is interested in conducting an exploration study regarding stress, can expand to the students from another faculty as the participant based on age, gender, the current period time of the study, and how to cope with the stress.

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