CHOCOLATE AND STUDENT ANXIETY IN FACIN THE FINAL PROJECT

Wijayanti[1*], Evanthe Haida Sunata [2], Estin Yuliastuti[3]
[1]Faculty of Health Sciences ITS PKU Muhammadiyah Surakarta (Indonesia)
[2]Faculty of Health Sciences ITS PKU Muhammadiyah Surakarta (Indonesia)
[3]Faculty of Health Sciences ITS PKU Muhammadiyah Surakarta (Indonesia)

[*]wijayanti@itspku.ac.id

Abstract

Background: DIII Nursing students are health students with a diploma level. Anxiety is a condition that can cause a person to feel uncomfortable, restless, afraid, worried, and uneasy followed by various physical symptoms. Chocolate contains phenethylamine which triggers the release of endorphin which can increase happiness. Chocolate contains serotonin, a natural anti-depressant. Methods: This study is a quantitative research with a quasi experimental design of one group pretest and posttest. The population in this study were 55 respondents. The sample in the study was 40 respondents. Inclusion criteria are DIII nursing students at the third level who compile scientific papers, students with anxiety> 20, follow the research from start to finish and do not have chocolate allergies. While the exclusion criteria are students who are not on leave, not sick, absent, and not taking anti-anxiety drugs. This study used the ZSAS anxiety questionnaire and 68g dark chocolate. Students consume 3x in one week. Researchers used the Wilcoxon non-parametric statistical test. Results: The results of this study were the most age at the age of 21 years as many as 22 respondents (55%) and the most gender was female as many as 28 respondents (30%). Bivariate results of pretest chocolate consumption with mild anxiety level 22 (55%), moderate 15 (37.5%), and severe 3 (7.5%). Whereas, posttest chocolate consumption with mild anxiety level 37 (92.5%), moderate 3 (7.5%) and severe 0 (0%). Based on these results, the effect of chocolate consumption on anxiety levels in DIII Nursing students in facing the final project.

***Keywords**: Students, anxiety, chocolate.*

1. INTRODUCTION

College students are a special population of young people who are about to enter university. This stage is considered a sensitive time and can be the most frightening time in one's life. According to the Indonesian Higher Education Database, in 2022, there were 532,935 health students in Indonesia. The percentage of D3 education level is 2.0%. Therefore, completing the D3 nursing education level is not an easy thing. To graduate from higher education, students must complete a scientific paper. The purpose of this level is to produce skilled, superior, and professional health workers who meet the requirements of graduates (Irawan 2023).

The final project is one of the main requirements for a student to obtain a graduation degree; however, some students are not prepared to complete it. Students usually consider this phase as stressful in itself. This is due to the fact that the preparation of the final project is

considered difficult and a long process. This assumption makes some students apprehensive when they have to do their final project (Malfasari, 2019).

Currently, about 450 million people worldwide suffer from mental disorders, according to the World Health Organization (WHO), and uncontrollable stress is one of the main causes of mental disorders. Stress is a person's physical and emotional (mental/psychic) reaction to environmental changes that require them to adjust (Kemenkes Ri, 2022). Situations or factors that create stress and place physical and mental demands on a person are known as stress (Muslim, 2020). More than 19 million people over the age of 15 experience mental emotional disorders, according to the 2018 Basic Health Research (Kemenkes RI, 2019). According to the results of the Basic Health Research (Riskesdas) in 2018, 6% of Indonesians aged 15 years and over experience anxiety disorders, which are indicated by symptoms of depression and anxiety (Riskesdas, 2018).

Anxiety is a condition in which a person feels depressed, restless, afraid, anxious and nervous, accompanied by various physical symptoms (Sugiharno, 2022). Fear of something that is caused by the anticipation of danger and is also a signal that helps people prepare to cope with the threat is known as anxiety. Disasters and the demands of competitive living can impact physical and mental health. Psychological impacts include fear and anxiety (Yunere, 2022). Factors that cause anxiety in final semester students are divided into two categories: internal factors and external factors. Internal factors include problems such as the cost of making a thesis, busy organizations, laziness, and lack of enthusiasm. External factors include the number of submission requirements, supervisors, and examiners (Maulana, 2021).

2. METHODOLOGY

This research is a type of quantitative research using the quasi experimental method. This research design uses one group before the test and after the test, meaning that there is no control group (comparison) and the first observation is carried out before the test, which could be to assess changes that occur after the test (Anggito, 2018). In this research design,

a questionnaire will be administered before and after consuming 68g dark chocolate to determine whether there is a decrease in anxiety levels before and after being given chocolate.

The population in this study amounted to 55 students, with a sample size of 40 respondents by setting criteria. The inclusion criteria are DIII nursing students at the third level who compile scientific papers, students with anxiety> 20, follow the research from beginning to end and do not have chocolate allergies. Exclusion criteria are students who are on leave, sick, absent, and taking anti-anxiety drugs. This study used the ZSAS anxiety questionnaire. Respondents consumed 68 grams of dark chocolate compound. The chocolate was eaten 3x in one week (day 1, 3, and 6.). Researchers used the Wilcoxon statistical non-parametric test. The research instrument used in this study is a questionnaire through google form used to measure anxiety levels before and after consuming chocolate. The data obtained were analyzed statistically, the prerequisite test used the Shapiro wilk test data normality test and hypothesis testing using non-parametric tests, namely the Wilcoxon test. The results of the Wilcoxon test, the results obtained $p < 0.005$ so it can be concluded that there is an effect of chocolate consumption on the level of anxiety in students in facing the final project.

3.   RESULTS
3.1   Frequency distribution of respondent characteristics

Table 1: Frequency distribution of respondent characteristics.

	Ages	**Frequency**	**%**
Ages	20 years	3	7,5
	21 years	22	55,0
	22 years	10	25,0
	23 years	3	7,5
	24 years	1	2,5
	25 years	1	2,5
	Total	40	100,00
Gender	Female	28	70,0
	Male	12	30,0
	Total	40	100,00

The distribution of respondent characteristics based on age shows that the majority of respondents are aged 20 years, 3 respondents (7.5%), aged 21 years, 22 respondents (55%), aged 22 years, 10 respondents (25%), aged 23 years, 3 respondents (7.5%), aged 24 years, 1 respondent (2.5%), aged 25 years, 1 respondent (2.5%). The distribution of respondent characteristics based on gender is known to be dominated by women totaling 28 respondents (70%) while male respondents totaled 10 respondents (30%).

The characteristics of respondents based on age and gender obtained by researchers show that the highest age is 21 years old with a total of 22 respondents. A study conducted by Fadley (2020) shows that age is closely related to a person's level of development and ability to handle stress. It seems that young people are more likely to suffer from anxiety disorders. According to Malfasari (2018), teenagers tend to suffer from anxiety because they are psychologically immature, especially when it comes to their first final project.

The findings of this research obtained by researchers show that there is a large number of gender, namely the female gender. A study conducted by Fahrianti (2021)

was conducted on 119 freshmen in the Psychology Department of Padang State University, where 98 of them were female (82.4%). Judging from some of the results of research on gender differences in coping with stressors, it can be seen that women are more prone to suffering from anxiety because they tend to be more sensitive while men tend to be more active. Exploring the feelings of female students, it can be reviewed if they are more likely to experience higher levels of anxiety than with men. Researchers assume that both men and women can experience anxiety, the only difference is the way they cope with the problem, known as coping strategies between men and women. They also believe that women will be more sensitive and think about their inadequacies, and men will focus more on the cause of the problem.

3.2 **Bivariate Analysis**
3.2.1 Level of anxiety

Table 1: *Level of anxiety.*

	N	Mean	Std.	Min-Max
Pre Test	40	44.83	6.218	36-61
Post Test	40	30.78	6.867	23-48

Table 2 shows the anxiety of respondents before being given minimal chocolate consumption anxiety scores at 36-61, after being given chocolate consumption anxiety scores dropped to 23-48. The research shows that there is a comparison between before chocolate consumption and after chocolate consumption in DIII nursing students. Some factors that cause anxiety According to Fadli (2020), there are several factors that cause anxiety, namely findings show that anxiety disorders are more common in younger people. With age, a person has more knowledge and is better prepared to deal with situations. In addition, female gender is more sensitive to anxiety levels because they see an event in detail than men who only see events globally. As well as a socio-economic level that is not enough to make someone less confident and also a low level of knowledge in students which makes anxiety levels increase.

Research conducted by Boang (2022), confirms that if many respondents eat chocolate affects daily stress. At this time, humans are awakened, their thinking field increases, they see, hear and understand more than before. This type of anxiety can support a person to learn and develop creatively. However, it affects the individual by causing anxiety, vigilance, difficulty dealing with stressful situations, curiosity, questions and sleep deprivation.

3.2.2 The Effect of Chocolate Consumption on Anxiety Levels in Diii Nursing Students Facing Final Project

Table 2: *Normality Test*

Shapiro – Wilk	
Variable	*p*
Pre Test	<,001
Post Test	<,001

Table 2 shows the calculated results of the data normality test before (pretest) and after (posttest) consuming chocolate. A probability value (p-value) of <0.001 was generated by the pre-test data normality test, and the post-test data normality test, respectively. The pre-test and post-test probability values are each smaller than the 0.05 error level, so it can be concluded that the pre- and post-test data distributions are not normal. Therefore, the analysis can utilize nonparametric approaches, such as the Wilcoxon test

Table 3: The Wilcoxon test.

	N	Mean	Std.	Min-Max	*p-value*
Pre Test	40	44.83	6.218	36-61	0.000
Post Test	40	30.78	6.867	23-48	

Based on table 3, the results of the study obtained a p-value (0.000) < α (0.005) which explains that there is an effect of chocolate consumption on student anxiety in facing the final project. This study was conducted to understand the decrease in anxiety scale in college students for seven days. Researchers provide interventions for students with nonpharmacological therapy, namely consuming 68 grams of dark chocolate for one week in 3 days, namely days 1, 3, and 7. The results of distributing anxiety level questionnaires to respondents, namely respondents showed that they had an increased level of anxiety. This is shown by anxiety traits such as feeling more restless and anxious, fearful for no apparent reason, and disturbed by head, neck and back pain. These feelings arise because students have to go through the stages of working on the final project from the initial stage until the final stage of the task is completed.

Students often experience fear of not completing the assignment, fear of many revisions, anxiety because they get a fierce lecturer, anxiety because the supervising lecturers 1 and 2 do not acc or differ in opinion, and anxiety because they are afraid that the time to do it is getting less. There is also pressure from outside such as: demands from parents who turn against students. These factors include individual feelings that are usually shown as a response to difficulty or loss of security, which causes mental tension and anxiety characterized by physical and psychological changes known as anxiety.

Anxiety symptoms are generated by a neurophysiological alarm played by the amygdala. Because the brain will produce chemical mediators such as norepinephrine, serotonin, dopamine and gamma-aminobutyric acid (GABA) which will be oriented towards anxiety. Hidayati (2020) states that an increase in the level of the hormone norepinephrine, which affects the central nervous system, is the cause of student anxiety.

Giving 68 grams of dark chocolate for 3x in seven days consuming on days 1, 3 and 6 with free time decreased anxiety levels. With the mechanism of chocolate in reducing anxiety levels, namely by releasing serotonin and dopamine in the body. In Sarah's explanation (2023) chocolate has a positive effect on mental

health and can reduce anxiety levels in a person. This time chocolate also contains flavoniods that allow the brain to work better and help reduce stress and anxiety. In addition, chocolate also contains compounds such as theobromine and phenylethylamine which can increase serotonin and dopamine levels in the brain. (Sarah, 2023).

Serotonin and dopamine, which are made by the amino acid tritophan, are important types of neurotransmitters that function to maintain or induce feelings of pleasure, calm, and happiness. Phenylethylamine and anandamide compounds found in chocolate cause dopamine to appear in the brain. (Hanan, 2019). So that chocolate can make students experience a decrease in anxiety levels.

It is shown that students have experienced a decrease in anxiety levels by decreasing the intensity of anxiety disorders such as restlessness, anxiety, and fear of something. Students are also more confident if they want to meet lecturers, as well as a decrease in the habit of thinking about something excessively such as comparing achievements with friends and fear of not completing the final project.

This study is comparable to research from Laveda (2017) Because phenylethylamine and anandamide contained in chocolate can stimulate the brain to make dopamine and release more β-endorphine compounds, which cause a sense of pleasure, anxiety levels can decrease with significant results ($p < 0.005$). An outside opinion states that chocolate has a higher cocoa content with health benefits because chocolate is rich in antioxidants, namely phenols and flanoids, besides that the phenyletylamie content of chocolate is able to produce dopamine in the brain which causes a feeling of pleasure and improves mood (Sobarniati, 2017).

4. CONCLUSIONS

The majority of respondents aged 21 years as many as 22 respondents (55.00%) and the majority are female. Respondents' anxiety before consuming chocolate was mild 20-45 with 22 respondents (55%), moderate 45-59 with 15 respondents (37.5%) and severe 60-74 with 2 respondents (7.5%). Anxiety after respondents consumed chocolate was mild 20-44 with 37 respondents (92.5%), moderate 45-59 with 3 respondents (7.5%) and severe 60-74 with 0 respondents (0%). Bivariate test shows that there is an effect of chocolate consumption on the level of anxiety in DIII Nursing students in facing the final project..

5. REFERENCES

1. Boang Manalu, E. K. A. F. R. I. A. N. A. (2022). Gambaran Tingkat Kecemasan Keluarga Dalam Merawat Pasien Gangguan Jiwa Di Poliklinik Rumah Sakit Jiwa Prof. Dr. Muhammad Ildrem Tahun 2022.

2. Claresta, L. J., & Purwoko, Y. (2017). Pengaruh Konsumsi Cokelat Terhadap Tingkat Kecemasan Mahasiswa Fakultas Kedokteran Praujian. Jurnal Kedokteran Diponegoro (Diponegoro Medical Journal), 6(2), 737-747.

3. Fadli, F., Safruddin, S., Sastria Ahmad, A., Sumbara, S., & Baharuddin, R. (2020). Faktor Yang Mempengaruhi Kecemasan Pada Tenaga Kesehatan Dalam Upaya Pencegahan Covid-19.

4. Fitriasnani, M. E., & Nikmah, A. N. (2020). The Effect Of Chocolate Consumption On The Level Of Anxiety In Primigravida Third Trimester Pregnant Women At Jatikalen Health Center Nganjuk District. Strada Jurnal Ilmiah Kesehatan, 9(2), 1056-1064.

5.   Hadi, N. S. (2020, May). Peran Coklat Dalam Penanganan Stress Saat Work From Home Dan Kesehatan Mata Saat Terpapar Radiasi Online. In Prosiding Seminar Nasional Hardiknas (Vol. 1, Pp. 65-70).

6.   Hanan, A., Sindarti, G. M., & Mudayatiningsih, S. (2019). Dark Chocolate Dan Nyeri Dysmenorrhea. J. Inf. Kesehat. Indonesia.

7.   Hidayati, E. N., Priyono, D., & Anggraini, R. (2020). Hubungan Tingkat Kecemasan Dengan Kualitas Tidur Pada Mahasiswa Keperawatan Yang Sedang Mengerjakan Skripsi. Tanjungpura Journal of Nursing Practice and Education, 2(1).

8.   Irawan, Dimas, And Sri Hartutik. "Penerapan Pemberian Relaksasi Otot Progresif Terhadap Tingkat Stres Mahasiswa Tingkat Akhir D3 Keperawatan." Public Health And Safety International Journal 3.02 (2023): 152-161.

9.   Jannah, R. (2018). Hubungan Perubahan Fisik Dengan Kecemasan Pada Perempuan Premenopause (Di Dusun Candimulyo, Kabupaten Jombang) (Doctoral Dissertation, Stikes Insan Cendekia Medika Jombang).

10.   Malfasari, Eka, Et Al. "Faktor-Faktor Yang Mempengaruhi Kecemasan Mahasiswa Dalam Menyelesaikan Tugas Akhir Di Stikes Payung Negeri Pekanbaru." Jurnal Ners Indonesia 8.2 (2019): 124-131.

11.   Maulana, M. V. (2021). Hubungan dukungan Sosial Teman Sebaya Dengan Kecemasan Mahasiswa Tingkat Akhir Dalam Menyusun Skripsi Pada Masa Pandemi.Universitas Muhammadiyah Surakarta.

12.   Muslim, M. (2020). Moh . Muslim : Manajemen Stress Pada Masa Pandemi Covid-19 ” 193. Jurnal Manajemen Bisnis, 23(2), 192–201.

13.   Riskesdas. (2018). Hasil Utama Riset Kesehatan Dasar. Kementrian Kesehatan Republik Indonesia, 1-100. Diakses.

14.   Sobarniati, N., & Sobarniati, N. (2018). Perbedaan Terapi Musik Klasik Dan Konsumsi Dark Chocolate Dalam Menurunkan Kecemasan

15.   Yunere, F. And Yaslina, Y. (2022). Hubungan Stigma Dengan Kecemasan Perawat Dalam Menghadapi Pandemi Covid-19. Prosiding Seminar Kesehatan Perintis, 3(1), Pp. 1–7