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Research Article

Relationship Between Depression Status and Nutritional Status of Professional Study Students, Faculty of Medicine & Veterinary Medicine, Nusa Cendana University

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Abstract: Depression is a global mental disorder that affects eating patterns and physical activity, potentially leading to changes in nutritional status. Nutritional status is a key indicator of physical and mental health, and nutrient deficiencies may disrupt brain balance and mood regulation. This study aimed to examine the relationship between depression status and nutritional status among medical and veterinary professional students at Nusa Cendana University. An analytic observational study with a cross-sectional approach was conducted on 105 students. Depression status was assessed using the PHQ-9 questionnaire, while nutritional status was evaluated through Body Mass Index (BMI) and hemoglobin (Hb) levels. Statistical analysis was performed using the chi-square test with a 95% confidence level ($p<0.05$). The results showed that 68.5% of students experienced depression, and a significant relationship was found between depression and nutritional status ($p=0.047$). Students with depression tended to have imbalanced nutritional status. These findings highlight the importance of psychological support and nutritional monitoring among students.

Keywords: BMI; Depression; Hemoglobin; Nutritional Status; PHQ-9.

1. Introduction

Depression is a global and complex mental disorder. The World Health Organization (WHO) reports that 35 million people suffer from depression, and in 2017, more than 80% of cases of depression were experienced by people in low- and middle-income countries, including Indonesia. According to the 2018 Basic Health Research (RISKESDAS), Indonesia has a depression prevalence of 6.1%. East Nusa Tenggara Province ranks third with a prevalence of 9.65%, and Kupang City has an above-average prevalence of 10.26%. Meanwhile, research conducted by Juan et al. in 2023 showed that the prevalence of depression among students in the General Medicine Study Program, Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, was 69.22%. Depression has various negative impacts on the body, both physically and psychologically. Individuals with depression tend to neglect their diet and physical activity. This can lead to individuals with depression becoming overweight or even becoming underweight.

Depression not only has psychological impacts but also affects a person's eating behavior and physical activity. Individuals experiencing depression tend to neglect their diet and physical activity, which can result in significant weight changes, either weight gain or drastic weight loss.

Nutritional status is an important indicator in assessing a person's health and well-being. Poor nutritional status can seriously impact an individual's physical and mental health. Inadequate nutrition, both in terms of quality and quantity, can worsen nutritional status and lead to various health problems, including increased susceptibility to disease. Maintaining nutritional status is important not only for physical health but also for mental health. A balanced nutritional intake, including vitamins, minerals, proteins, and healthy fats, plays a vital role in maintaining brain balance, neurotransmitter synthesis, and healthy brain function.

Previous studies, such as the 2022 study by Anggraini DI and Riska Habriel et al., have shown a significant association between depression and nutritional status. Depression is

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influenced not only by genetics, environment, and stress, but also by nutritional intake and nutritional status. Nutritional deficiencies can affect brain balance and impact an individual's mood and behavior.

Based on this context, researchers are interested in examining the deeper relationship between depression and nutritional status in students of the Professional Program of the Faculty of Medicine and Veterinary Medicine, Nusa Cendana University in the 2022–2023 intake. Researchers also looked at the condition of medical and veterinary students who experienced depression. The research title "The Relationship Between Depression Status and Nutritional Status in Professional Program Students of the Faculty of Medicine and Veterinary Medicine, Nusa Cendana University" is expected to provide deeper insight into this relationship. With a better understanding of the relationship between depression and nutritional status, it is hoped that more effective prevention and intervention strategies can be developed for students, as well as providing benefits for the management of education and mental health on campus.

2. Literature Review

2.1. Depression

The term depression is often used to describe a mental state that includes feelings of hopelessness, fatigue, and a lack of interest in activities. According to, depression is a condition characterized by a change in a person's mood, characterized by feelings of low self-esteem, inability to make decisions, sadness, inability to concentrate, and attempts at self-harm or suicide. Depression is a medical condition, Worldwide, more than 264 million individuals experience this condition, characterized by feelings of profound sadness and a loss of interest or enthusiasm for daily activities. Furthermore, people experiencing depression can experience changes in sleep patterns, decreased appetite, excessive feelings of guilt, and sometimes even suicidal thoughts. Depression is a type of mental health disorder that is common and often occurs together with anxiety.

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2.2 Causes of Depression

The causes of depression are multifactorial and involve biological, genetic, and psychosocial factors.

Biological Factors

Depression is closely related to an imbalance of neurotransmitters in the central nervous system, particularly serotonin, dopamine, and norepinephrine. Decreased serotonin levels and dopamine activity play a role in the onset of depressive symptoms. This is seen in conditions or therapies that decrease dopamine, such as Parkinson's disease and the use of certain medications, which are often accompanied by depressive symptoms. Conversely, drugs or substances that increase dopamine concentrations have been reported to reduce depressive symptoms. Furthermore, depression is also associated with neuroendocrine dysregulation, particularly in the hypothalamic-pituitary-adrenal (HPA) axis. Chronic stress can overactivate the HPA axis, characterized by hypersecretion of Corticotropin-Releasing Hormone (CRH). This condition is thought to occur due to disruption of the cortisol feedback mechanism and abnormalities in the regulation of the monoaminergic and neuromodulatory systems influenced by emotional responses in the limbic system.

Genetic Factors

Genetic factors play a role in a person's susceptibility to depression. Individuals with a first-degree relative with major (unipolar) depression have a risk approximately two to three times higher than the general population, suggesting a hereditary role in the development of depression.

Psychosocial Factors

From a psychosocial perspective, depression is often triggered by stressful life events. In psychodynamic theory, the loss of a loved one is considered a primary factor causing depression. Other influential psychosocial factors include environmental stressors, personality characteristics, repeated failure, maladaptive cognitive thought patterns, and low social support. Stressful life events, particularly the loss of a spouse, often precede the first episode of depression and play a significant role in the onset of mood disorders.

3. Materials and Method

3.1. Research Design and Type

This study is a quantitative, observational analytical design using a cross-sectional approach. This design was used to analyze the relationship between depression status as the independent variable and nutritional status as the dependent variable in students of the Professional Program of the Faculty of Medicine and Veterinary Medicine.

3.2. Location and Time of Research

The research was conducted at the Faculty of Medicine and Veterinary Medicine, Nusa Cendana University in October 2023.

3.3. Population and Sample

The study population was all active students of the Professional Program of the Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, intake 2022–2023. The sampling technique used was simple random sampling. The sample size was determined using the Slovin formula with a 5% error rate, resulting in approximately 103–105 respondents.

3.4. Inclusion and Exclusion Criteria

Inclusion criteria included active students in the General Medicine and Veterinary Medicine Professional Programs who were willing to participate by signing an informed consent. Exclusion criteria included students suffering from certain medical conditions, particularly gastrointestinal disorders, and those taking medications that could affect nutritional status.

3.5. Research Variables

The independent variable in this study was depression status, while the dependent variable was nutritional status. Confounding variables taken into account included physical activity, socioeconomic factors, sleep patterns, and certain medical conditions.

3.6. Operational Definition and Measurement of Variables

Depression status was measured using the Patient Health Questionnaire-9 (PHQ-9). Respondents were categorized as depressed if their PHQ-9 score was >5. Nutritional status was measured using the Body Mass Index (BMI) based on weight and height measurements, with classifications as thin (BMI <18.5), normal (BMI 18.5–22.9), and obese (BMI >23). In addition, hemoglobin (Hb) was examined using the EasyTouch GCHb device to determine anemia status.

3.7. Data Collection Procedures

Data collection began with the distribution of an online questionnaire. Respondents who met the criteria were then contacted to explain the study and sign informed consent. BMI and Hb measurements were conducted directly at the study site.

3.8. Validity and Reliability Test

The instrument validity test was conducted using Pearson Product Moment correlation, while the questionnaire reliability test was conducted using the Cronbach's Alpha method to ensure the consistency of the measuring instrument.

3.9. Data analysis

Data were analyzed using SPSS software. Univariate analysis was used to describe the frequency and percentage distribution of each variable. Bivariate analysis was conducted to determine the relationship between depression status and nutritional status using the Chi-square test or Fisher's exact test, depending on the characteristics of the data.

4. Results and Discussion

Results

Respondent Characteristics

The distribution of respondent characteristics data in this study is shown in Table 1:

Table 1. Respondent Characteristicts.

Subject Characteristics	Frequency	Percentage (%)
Age		
23-24 Years	105	-
Education		
Medical Education	69	65.7
Veterinary Medicine	36	34.3
Residence		
Boarding house	66	62.9
House	39	37.1
Gender		
Man	58	55.2
Woman	47	44.8

In Table 1, the characteristics of the respondents include age, education, residence, gender, hemoglobin, nutritional status, and depression status. In terms of age characteristics, the respondents studied were 23 to 24 years old. In terms of education characteristics, they were divided into two, namely medical education at 65.7% (69/105) and veterinary medicine at 34.3% (36/105). In terms of residence characteristics, it is known that more respondents live in boarding houses with a percentage of 62.9% (66/105). Based on Table 1, it is known that the respondents were mostly male, this is in contrast to the reality in the field where there are more female students.

Nutritional Status Disorders and Depression Status

Univariate analysis aims to obtain the characteristics of the subjects studied, including nutritional status and depression status, with a distribution according to table 2.

Table 2. Frequency distribution of respondents' univariate test.

Subject Characteristics	Frequency (n)	Percentage (%)
Nutritional status		
Thin	38	36.1
Normal	44	41.9
Fat	23	21.9
Depression Status		
Not Depressed	33	31.4
Depression	72	68.5

Table 2 illustrates the characteristics of the study's responses, which consist of two main variables: nutritional status and depression status. Based on the data presented, three nutritional status categories were observed: thin, normal, and obese. The analysis shows that the majority of study respondents were in normal nutritional status, namely 41.9% (44%)./105)while the lowest nutritional status was in the obese category at 21.9% (23/105). Meanwhile, for depression status, the depression results were 68.5% (72%)./105). Thus, the results of Table 2 provide a useful overview of the distribution and proportion of nutritional status and depression status in the study respondents, which will be an important basis in further analysis related to the relationship between the two variables.

Tabel 3. Distribution of Occupations in Relation to Nutritional Status, Depression Status, and Hb Status.

	Pekerjaan		Jenis kelamin		Tempat Tinggal	
Variabel	Mahasiswa Profesi Pendidikan Dokter	Mahasiswa Profesi Kedokteran Hewan	Perempuan	Laki-Laki	Kos	Rumah
A. Status Gizi	n (%)					
Kurus	23(33,3%)	15(41,6%)	16(34%)	22(37,9%)	23(34,8%)	15(38,4%)
Normal	30(43,4%)	14(38,8%)	19(40,4%)	25(43,1%)	30(45,4%)	14(35,8%)
Gemuk	16(23,1%)	7(19,4%)	12(25,5%)	11(18,9%)	13(19,6%)	10(25,6%)
TOTAL	69	36	47	58	66	39
	105(100%)		105(100%)		105(100%)	
B. Status Depresi						
Tidak Depresi	21(28,9%)	12(33,3%)	15(31,9%)	18(31%)	22(33,3%)	11(28,2%)
Depresi	48(69,5%)	24(66,6%)	32(68%)	40(68,9%)	44(66,6%)	28(71,7%)
TOTAL	69	36	47	58	66	39
	105(100%)		105(100%)		105(100%)	
C. Status Hb						
Normal	27(39,1%)	14(38,8%)	19(40,4%)	22(37,9%)	26(39,3%)	15(38,4%)
Kurang	42(60,8%)	22(61,1%)	28(59,5%)	36(62%)	40(60,6%)	24(61,5%)
TOTAL	69	36	47	58	66	39
	105(100%)		105(100%)		105(100%)	

In Table 3, at the nutritional status level, there are more medical education students in the normal category, namely 28.5% (30)./105) compared to veterinary medicine as much as 13.3% (14/105). Based on depression status, it is more often experienced by men as much as 38% (40%)/105) compared to women 30.4% (32/105) and those who live in boarding houses are 41.9% (44/105) compared to those who live at home 26.6% (28/105). At the Hb status level, more medical students had normal Hb status 25.7% (27/105) compared to veterinary students 13.3% (14/105).

The Relationship between Depression Status and Nutritional Status

Table 4. Bivariate Test Results Between Depression Status and Characteristics.

CHARACTERISTICS	DEPRESSION STATUS	
	Not Depressed (n)	Depression (n)
Age		
23-24	33	72
Gender		
Man	18	40
Woman	15	32
Residence		
Boarding house	22	44
House	11	28
Education		
Medical Education	21	48
Veterinary Medicine	12	24

Bivariate analysis aims to determine the effect of clinical data, such as depression status, on nutritional status. The analysis was conducted using a chi-square test with a 95% confidence level ($\alpha \leq 0.05$). The following are the results of the bivariate test.

The data shows that general factors, gender, residence, and education level influence depression status. Among the 23-24 age group, males, individuals living in boarding houses, and medical students experienced higher rates of depression. The results of the bivariate analysis between depression status and nutritional status are shown in Table 5.

Table 5. Bivariate Test Results Between Depression Status and Nutritional Status.

	Not Depressed	Depression	p
Nutritional status			0.047*
Thin	8	30	
Normal	21	23	
Fat	4	19	
Hb Status			0.057*
Normal	12	29	
Low	21	43	

*Chi square test, significant if $p < 0.05$

Table 5 shows the results of the statistical test with a p-value of 0.047, this indicates a significant influence of the depression status experienced on the nutritional status of professional education students.

Discussion

Depression is a type of mental disorder triggered by psychosocial stressors. These stressors can trigger mental disorders depending on various factors, including the potential of the stressor, maturity level, education, physical condition, personality type, sociocultural environment, and individual circumstances. Even though a person may be exposed to significant stressors, the effects of stress in the form of psychological disorders may not appear. This can be due to the presence of stress-coping resources, such as support from family, friends, society, and the individual's community environment.

Most respondents had normal nutritional status, around 40%, while approximately 39% were malnourished and 21% were obese. Malnutrition in adolescents can be caused by restrictive diets (which prevent them from getting a balanced and nutritious diet), poor eating habits, and stress disorders such as depression and anxiety. This can impact immune function, making them more susceptible to disease. The subjects in the study were in poor health because they were about to enter the more demanding clinical clerkship phase, which requires a strong immune system. Excessive nutrition (either overweight or obesity) is also detrimental. Excess nutrition can make adolescents lazy and less active, and this condition can persist into adulthood and old age. Overnutrition is a risk factor for several degenerative and metabolic diseases.

Research shows a significant relationship between depression and nutritional status [2]. Across all categories of depression, the majority of respondents experienced severe depression (38%). The results showed that respondents with severe depression tended to experience a decline in nutritional status (18%) and an increase in nutritional status (13%). This suggests that the depression experienced by study respondents can lead to a tendency to neglect eating patterns, leading to increased or decreased eating. However, on the other hand, respondents with mild depression had normal nutritional status, with a prevalence of 22.8%. This suggests that depression experienced by respondents can lead to a lack of appetite, resulting in significant changes in nutritional status.

Depression can cause disturbances in eating patterns, either in the form of a decreased or increased appetite. In certain situations, such as stress or a high workload, an increase in energy, fat, carbohydrate, and protein intake can occur, characterized by differences in average energy intake. Food intake is a factor that directly and linearly influences a person's nutritional status. Food consumption has an impact on a person's nutritional status. When someone is depressed, they tend to forget to fulfill their basic needs, such as food, personal hygiene, and rest. If food intake is low and persists for a sufficient period of time, a person will experience nutritional deficiencies, which can lead to a decline in nutritional status [5].

The results of this study differ from those of previous studies which found no statistically significant relationship between psychosocial stress and nutritional status. This may be due to factors other than depression, energy intake, and protein intake that influence the respondents' nutritional status, such as gastrointestinal disorders and infectious diseases.

This study cannot clearly determine the cause and effect factors, as the variables were measured at approximately the same time. However, the results suggest that depression is a risk factor for both overnutrition and malnutrition, with both conditions, overnutrition and undernutrition, having negative impacts on health and quality of life.

5. Conclusion

Based on the research conducted, it can be concluded that: (1) There is a significant relationship between depression and nutritional status. (2) The level of macro nutritional status of students in the General Medicine Professional Study Program is divided into 3, namely students with thin nutritional status as many as 21.9%, normal as many as 28.5%, and obese as many as 15.2%. (3) The macro nutritional status of students in the Veterinary Medicine Professional Study Program is divided into 3, namely students with nutritional status classified as thin as many as 14.2%, classified as normal as many as 13.3%, and classified as obese as many as 6.6%. (4) There are levels of micro-nutritional status of students in the General Medicine Professional Study Program, namely normal at 25.7% and deficient at 40%. (5) There are levels of micro-nutritional status of students in the Veterinary Medicine Professional Study Program, namely normal at 13.3% and deficient at 20.9%. (6) As many as 45.7% of students in the General Medicine Professional Study Program experienced depression, while 20% of students did not experience depression. (7) As many as 22.8% of students in the Veterinary Medicine Professional Study Program experienced depression, while 11.4% of students did not experience depression.

References

Allen, L., & Dwivedi, Y. (2020). MicroRNA mediators of early life stress vulnerability to depression and suicidal behavior. *Molecular Psychiatry, 25*(2), 308–320. https://doi.org/10.1038/s41380-019-0597-8

Anggraini, S. A., Indria, D. M., & Gilang, A. (2022). Analisis hubungan tingkat stres dan pola tidur terhadap status gizi usia 20–39 tahun di Kota Malang. *Jurnal Bio Komplementer Medicine, 9*(1).

Carolin, B. T., Saputri, A. R., & Silawati, V. (2020). Analisis faktor yang mempengaruhi status gizi balita (12–59 bulan) di Puskesmas Sukadiri Kabupaten Tangerang Tahun 2018. *Jurnal Ilmu dan Budaya, 41*, 7835–7846.

DI, A. (2014). Hubungan depresi dengan status gizi. *Medula Unila, 2*(2), 39–46.

Hanur, B. S., Syah, M. A., & Dzulfiqar, F. A. A. (2023). Pendampingan kesehatan mental keluarga dalam upaya pencegahan depresi dan bunuh diri pada ibu muda di wilayah Kecamatan Papar. https://doi.org/10.61231/jp2m.v1i3.123

Indarti, Y., & Huroniyah, F. (2021). Kaitan antara depresi dan status gizi pada lansia di UPT Pelayanan Sosial Tresna Werdha Jember. *Fenomena, 20*(2), 115–128. https://doi.org/10.35719/fenomena.v20i2.48

Kementerian Kesehatan Republik Indonesia. (2018). *Hasil riset kesehatan dasar tahun 2018*. Kementerian Kesehatan RI.

Muslimahayati, M., & Rahmy, H. A. (2021). Depresi dan kecemasan remaja ditinjau dari perspektif kesehatan dan Islam. *DEMOS: Jurnal Demografi, Etnografi, dan Transformasi Sosial, 1*(1), 35–44. https://doi.org/10.30631/demos.v1i1.1017

Planchez, B., Surget, A., & Belzung, C. (2019). Animal models of major depression: Drawbacks and challenges. *Journal of Neural Transmission, 126*(11), 1383–1408. https://doi.org/10.1007/s00702-019-02084-y

Rao, T. S., Asha, M., Ramesh, B., & Rao, K. J. (2008). Understanding nutrition, depression and mental illnesses. *Indian Journal of Psychiatry, 50*(2), 77. https://doi.org/10.4103/0019-5545.42391

Riziana, K. F. (2022). Hubungan tingkat gejala depresi dengan ide bunuh diri pada remaja sekolah menengah atas. https://doi.org/10.22437/joms.v3i1.27181

Sitoayu, L., Aminatyas, I., Angkasa, D., Gifari, N., & Wahyuni, Y. (2021). Hubungan konsumsi makanan cepat saji, tingkat stres, dan kualitas tidur terhadap status gizi pada remaja putra SMA DKI Jakarta. *Indonesian Journal of Human Nutrition, 8*(1), 55–64. https://doi.org/10.21776/ub.ijhn.2021.008.01.6

Sofia, R., & Gusti, Y. (2017). Hubungan depresi dengan status gizi lansia di Panti Sosial Tresna Werdha Belai Kasih Bireuen. *Jurnal Ilmiah Sains, Teknologi, Ekonomi, Sosial dan Budaya, 1*(1), 54–55.

Wijayanti, A., Margawati, A., & H. S. W. (2019). Hubungan stres, perilaku makan, dan asupan zat gizi dengan status gizi pada mahasiswa tingkat akhir. *Jurnal Nutrition College, 8*(1), 1–8. https://doi.org/10.14710/jnc.v8i1.23807

Zaini, M. (2020). Hubungan stres psikososial dengan status gizi pada mahasiswa kesehatan di Kabupaten Jember. *Jurnal Kesehatan, 8*(1), 9. https://doi.org/10.46815/jkanwvol8.v8i1.38