PREVALENCE AND ASSOCIATED FACTORS OF DEPRESSION, ANXIETY, AND STRESS IN MEDICAL STUDENTS AT FACULTY OF MEDICINE, PRINCESS OF NARADHIWAS UNIVERSITY

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ABSTRACT
This research aims to study the prevalence of depression, anxiety, and stress in medical students, faculty of medicine, PNU and its association with some factors. A cross-sectional descriptive study was conducted among medical students in the faculty of medicine, PNU. The self-administered online questionnaires consisted of socio-demographic data, depression anxiety and stress scale (DASS-21). The data was analyzed by descriptive statistics, Pearson Chi-Square correlation coefficient and Odds ratio (OR) with 95% confidence interval (95%CI) with logistic regression analysis. A total of 74 students participated in the study with the mean age 21.5±1.2 years, most of them were female. Among the medical students the prevalence of depression, anxiety and stress were 32.5%, 33.8%, and 24.4% respectively. Factors associated with depression were age, academic year, residence, GPA, GPAX, and personal medicine. Factors associated with anxiety were GPA and GPAX. Factors associated with stress were age, academic year, residence, GPA and GPAX. In conclusion, One-third of medical students have experienced depression, anxiety, and stress. The study's findings show that medical students are the group with the highest level of anxiousness. The factors that contribute to mental health issues are numerous, so there should be increased surveillance as well as a prevention strategy that includes training psychologists to provide counseling, disseminating information to raise awareness of these issues, and finally, a strategy for close observation of high-risk groups. To find other contributing aspects to academic medical education, more research must be conducted.
Keywords: Mental Health, Medical Students, Depression, Anxiety, Stress

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INTRODUCTION

Stress is defined by the Department of Mental Health (2015) as a state of emotion or sensation when an individual has to confront with problems of discomfort, vengeance or coercion, and pressure, leading to distress, confusion, anger, or regret. For instance, stress keeps us awake and motivates us to achieve our goals. In the meantime, stress can have an impact on the mind and feelings of depression, hopeless, anxious, nervous, and restless, causing the inability to go through a hard time in life. (Stuart et al., 1998). Stuart et al. defines anxiety as uncomfortable, dreadful, unconfident in future situations, and fear of harm or damages following the anticipation of threats to a person's security. Depression is a characteristic of people who do not value themselves. They feel tired all the time, with little energy, more or less sleep than usual, introversion, isolation from society, and no inspiration. Chronic stress leads to anxiety and depression, which then affects daily life and eventually ends with suicidal thoughts. Medical schools have a crucial role in the production of medical graduates for expertise in each professional field to promote good health in society. However, medical education can be highly stressful for students and negatively impact their mental health. Medical students must deal with many stresses in medical schools, such as academic contexts, learning environments, personal life events, and psychological pressures with teachers and friends. The competition, exams, assessment, and even parents themselves may be involved with student's mental health (Blouin et al., 2014). When talking about stress, it doesn't mean only a negative impact. Academic stresses motivate students to have a better learning development. Many studies showed that stresses and excessive anxieties can ultimately interfere with learners' learning, as well as long- term impacts on patient care and service, interdisciplinary relationship, and communication with family members (Dahlin et al., 2005). There are lots of high- pressure situations in the medical school environment. To change the way of life from studying in high school to entering higher education, medical students must face with new situations, unfamiliar environments, challenges of study, no support from parents and family members, as well as adjustment with new friends (Pedrelli et al., 2015). The outbreak of COVID-19 epidemic situation has been an unprecedented pandemic severity of infectious diseases affecting the quality of life of people worldwide (Fegert et al., 2020). The Faculty of Medicine, Princess of Naradhiwas University (PNU), offers only one professional bachelor's degree program for Doctor of Medicine. Staring the academic year of 2007, Thai students specially from the quota of 3 southern border provinces, including the community medical group (CPIRD) and the inequality reduction group (Inclusive) are accepted to program admission in accordance with the guidelines for medical student admission. Also, those medical graduates need to have their self-improvement towards lifelong learning and the art of living in a multicultural society with happiness. The Faculty of Medicine, PNU, was organized in Narathiwat province amidst the violent situation of three southern border provinces, with persistent unrest and no tendency of improvement. In addition, there are a variety of traditions, cultures, and different local beliefs according to specific contexts, which can cause paranoia, stress, and anxiety for the routine life of students' learning. During the past academic year 2019-2020, students had problems with stress, anxiety, and depression. Due to those health problems and being below academic performance standards, two medical students dropped out before graduation. To prevent students from quitting before graduation, their mental problems should be recognized at an early stage. Thus, the researcher is interested in studying the prevalence and associated factors of depression, anxiety, and stress in medical students at the Faculty of Medicine, Princess of Naradhiwas University. The results of this research can be very helpful to support and promote learning among medical students towards the avoidance of their mental health problems through appropriate guidelines and actions.

LITERATURE REVIEWS

The American Psychological Association's definition of "stress" is the physiological or psychological response to internal or external stressors. Stress involves changes affecting nearly every system of the body, influencing how people feel and behave. For example, it may be manifested by palpitations, sweating, dry mouth, shortness of breath, fidgeting, accelerated speech, augmentation of negative emotions (if already being experienced), and a longer duration of stress fatigue. Severe stress is manifested by the general adaptation syndrome. By causing these mind-body changes, stress contributes directly to psychological and physiological disorders and diseases and affects mental and physical health, reducing the quality of life. See also chronic stress. was first described in the context of psychology around 1940 by the Hungarian-born Canadian endocrinologist, Hans Selye (1956). In 1997, Pereira AMS (1997) grouped stress sources into four main areas: First is personal problems (homesickness, depression, suicide, shyness, family problems). Second is academic problems (lack of motivation, stress of reviews, withdrawal and drop-out, academic jobs, services, lectures, other students, ethnic problems). Third is financial and housekeeping problems (financial problems, accommodation). Forth is security problems (sexual assault, violence at student social events, bullying, drugs and alcohol). Academic factors as a source of stress: There are several variables in the academic curriculum that cause students to be overly stressed. In the day-to-day activities of learning processes, too many incidents take place that make students stressed. Examples include increased class workload, lower grades, many hours of studying, language difficulties, procrastination, examinations, missing lectures, and frustration due to misunderstandings. Performance increases with physiological or mental arousal (stress), but only up to a limit, according to what is known as "The Yerkes-Dodson law." Output decreases when the level of stress becomes too high.

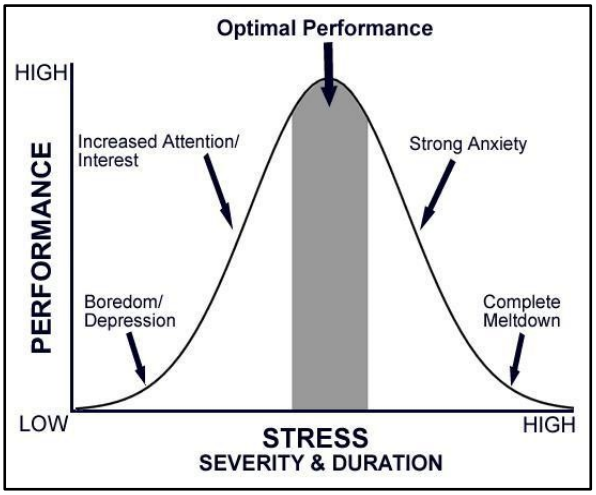

Figure 1 The Yerkes-Dodson Law: Relation between Stress and Performance

Anxiety is described by the American Psychological Association (APA, 2021) as "an emotion marked by feelings of tension, worried thoughts and physical changes such as increased blood pressure." Knowing the difference between normal feelings of anxiety and an anxiety disorder requiring medical treatment will help a person recognize and treat the problem. As described by the American Psychiatric Association (APA, 2021), depression (major depressive disorder) is a serious and severe medical condition that affects how you feel, how you think, and how you behave negatively. It is also, thankfully, treatable. Depression triggers feelings of disappointment in things you once enjoyed and/or a lack of interest. It can contribute to several physical and emotional issues and can reduce your ability to work at work and at home. The

World Health Organization (WHO, 2004) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Mental health is more than just the absence of mental illnesses or disabilities, an important implication of this concept. The Depression Anxiety Stress Scales (Lovibond et al., 1995) may be more useful in distinguishing between anxiety and depression, as well as bodily arousal symptoms and generalized anxiety symptoms (e.g., tension or agitation). The DASS items can be reliably grouped into three scales according to factor analytic studies with nonclinical and clinical samples (Antony et al., 1998, Clara et al., 2001). The DASS is a self-report tool that does not require any specific expertise to administer. However, people with sufficient training in psychological science, including emotion, psychopathology, and evaluation, should interpret the DASS. When the DASS is given to people who have sought professional help or who are in a lot of pain, the results should be interpreted by a clinical psychologist or another adequately qualified health practitioner.

The life stress event theory is proposed for the study of stress, anxiety, depression, and quality of life.

The Stressful Live Events Theory: Holmes and Rahe (1967) as well as Holmes and Matsu (1973) stated that certain events in a person's life can affect their physical and emotional well-being." Their study attempted to identify specific life events that caused stress. According to this concept, stress appears to stem from an individual's past experiences which trigger coping behaviors and adaptive responses. Stress changes and reshapes life, with the negative pressure affects an individual's existence. So, this conceptual stress theory could be a tool for measuring a person's experiences of stress compared to a life event. Any changes in life in all cases, either good or bad, would cause stress. In the study, many people were asked to estimate their stress in life from various events such as life-change units or the amount of adaptation in those events, such as divorce, dismissal, retirement, loss of loved ones, pregnancy, etc. The SRRS tool was developed to measure stress at any given time. According to Kumarasway (2013), there are several factors affecting students' depression, such as higher academic obligations, adaptation to new environments, changes in family structure, and social life. Pereira (1997) grouped the sources of stress into four main areas: 1) personal problems (e.g. homesickness, depression, suicide, nervousness, family burdens), 2) academic problems (e.g. lack of motivation, stress from exams, withdrawal, academic workload, classmates, ethnic issues 3) financial and household problems (e.g. financial and housing burdens), and 4) security problems (e.g. sexual harassment, social violence, physical abuse, bullying, drugs, and alcohol). Every person experience different events in their lives. Such events can affect their physical, mental, and emotional health. From the review of literature and theories, there are several conceptual frameworks for designing this research, which aims to study the prevalence of depression, anxiety, and stress in medical students, Faculty of Medicine, Princess of Naradhiwas University. The research conceptual frameworks are grouped as follows:

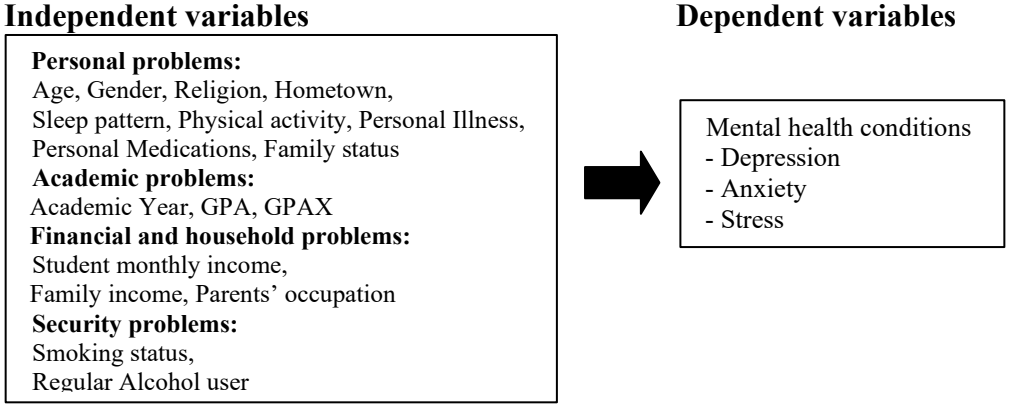

Figure 2 Conceptual frameworks of this research

RESEARCH METHODOLOGY

This study was a quantitative cross-sectional descriptive study, with simple random sampling. All participants were the 1st - 6th year medical students during the academic year of 2021. Data were collected between April - June 2022 after the study approval by the Siriraj Institutional Review Board and the Research Ethics Committee, Faculty of Medicine, PNU. The sample size was calculated by using n4Studies (Ngamjarus et al., 2016): The "n4Studies" comprised a number of functions for calculating sample size and power for various epidemiological research designs. Therefore, we needed to calculate from the n4Studies of sample size for this descriptive study towards the estimating of finite population proportion (Daniel et al.,1929); where the parameter value population (N) = 205 medical students (Rattanaporn C. et al., 2019) to determine the Mental Health Status in depression, anxiety, and stress, as well as describe the family status and functioning among undergraduate students in a university in the southern of Thailand. The sample calculation by finite population parameters included proportion (p) = 0.5, Error (d) = 0.05, Alpha (α) = 0.05 by using DASS-21 as an instrument. The calculation formula of n4Studies could be presented as follows:

$$n = \frac{Np(1-p)z^2_{1-\frac{\alpha}{2}}}{d^2(N-1) + p(1-p)z^2_{1-\frac{\alpha}{2}}}$$

Figure 3 The calculation formula for estimating of finite population proportion by n4Studies.

Where:
n = sample size required (number of samples, medical students, Faculty of medicine, PNU)
N = number of people in the population (number of populations, medical students of 205 persons)
Z= Z statistics for a level of confidence of 95% = 1.96
Estimated sample size (n) = 134
The questionnaire consisted of 3 parts as follows:
Part 1 - Filling in demographic data with anonymous online questionnaires.
Part 2 - Stress levels according to the Depression Anxiety Stress Scale (DASS-21), Thai version
Part 3 - Open questions and suggestions (any other comments)
The reason for choosing this instrument to measure DAS level was because of good evidence for its validity, reliability, and usability (Cronbach's alpha coefficient of depression, anxiety and stress of 0.81, 0.89, and 0.78, respectively), as shown in Table 1. DASS-21 was translated into Thai version by Sukanlaya S. et al. in 2013. Participants were not required to enter their ID numbers due to a cross-sectional study for the prevalence of depression, anxiety, and stress. As a result, the researcher was interested in exploring the prevalence of depression, anxiety, and stress in medical students at the Faculty of Medicine, PNU towards the provision of support and solutions to problems to promote students' learning in a timely manner and avoid unfavorable impacts. The frequency, percentage, mean, median, and standard deviation were used to describe general statistics and associated components. The Chi-square test and multiple logistic regression with the forward selection method were applied to assess the relationship between related factors and depression, anxiety, and stress. All data were computerized using SPSS version 22.0. The statistically significant difference was less than 0.05.

RESEARCH RESULTS

The participants of this study were first to sixth year medical students from the Faculty of Medicine, PNU in the 2021 academic year. In this study, 74 out of 134 medical students estimated sample size. The response rate was 55.2%. Table 1 shows the distribution of the

study's participants who were the subject of the study. The total number was 74 students with the mean age of 21.5 ± 1.2 years. They were divided into three age groups: the first age group (18 - 20) years with a percentage of 43.2%, the second age group (21 - 23) years with a percentage of 29% and the last age group (23 above) years with a percentage of 13%. The male students were represented by 35.1% where the female students were represented by 64.9%. Muslim students were represented by 50.0%. The percentage of GPA and GPAX with above than 3.50 were represented by over 60% of students. The percentage of sleep time 4 - 6 hours per day represented by 70.3%.

Table 1 shows the distribution of the study's participants who were the subject of the study.

Characteristics	Number (%)
Age groups N=74	
18 – 20 years	32 (43.2)
21 – 23 years	29 (39.2)
23+ years	13 (17.6)
Mean age ± SD	21.5±1.2
Gender	
Male	26 (35.1)
Female	48 (64.9)
Academic Years	
First	17 (23.0)
Second	10 (13.5)
Third	4 (5.4)
Fourth	10 (13.5)
Fifth	17 (23.0)
Sixth	16 (21.6)
Religion	
Islam	37 (50.0)
Bhudist	34 (45.9)
Christ	1 (1.4)
Others	2 (2.7)
Domicile	
Narathiwats	26 (35.1)
Pattani	17 (23.0)
Yala	23 (31.1)
Songkla	8 (10.8)
GPA	
≤2.50	3 (4.1)
2.51 – 3.00	6 (8.1)
3.01 – 3.24	8 (10.8)
3.25 – 3.49	7 (9.5)
≥3.50	50 (67.6)
GPAX	
≤2.50	1 (1.4)
2.51 – 3.00	7 (9.5)
3.01 – 3.24	8 (10.8)
3.25 – 3.49	13 (17.6)
≥3.50	45 (60.8)
Sleep time	
<4 hr/day	2 (2.7)
4 – 6 hr/day	52 (70.3)
7 – 9 hr/day	19 (25.7)
10 – 12 hr/day	1 (1.4)

Characteristics	Number (%)
Exercise (Day/weeks)	
No exercise	29 (39.2)
1 day	18 (24.3)
2 – 3 days	21 (28.4)
4 – 5 days	4 (5.4)
Everyday	2 (2.7)
Congenital disease	
No	62 (83.8)
Have	12 (16.2)
Personal medicine	
No	69 (93.2)
Have	5 (6.8)
Family status	
Married, together	53 (71.6)
Married, separate	1 (1.4)
Divorce	13 (17.6)
Widow	-
Father/Mother decease	7 (9.5)
Student income (baht/month)	
<3,000 baht	6 (8.1)
3,001 – 5,000 baht	30 (40.5)
5,001 – 7,000 baht	15 (20.3)
7,001 -10,000 baht	18 (24.3)
>10,001 baht	5 (6.8)
Family income (baht/month)	
<15,000 baht	3 (4.1)
15,001 – 20,000 baht	12 (16.2)
20,001 – 25,000 baht	8 (10.8)
25,001 – 30,000 baht	6 (8.1)
>30,001 baht	45 (60.8)
Family occupation	
Gov.officer	40 (54.1)
Private employees	10 (13.5)
Trade/personal business	16 (21.6)
Farmer	2 (2.7)
Freelance	2 (2.7)
Housekeeper	2 (2.7)
Other	2 (2.7)
Smoking	
No	72 (97.3)
Smoke	2 (2.7)
Alcohol consumption	
No	69 (93.2)
1 – 3 day/weeks	5 (6.8)
>5 day/weeks	-
Everyday	-

Table 2 shows the prevalence of depression among study participants was over 30% (the percent of mild and moderate 24.4%, severe and very severe 8.1%). The prevalence of anxiety among students was near 34% (mild and moderate 23%, severe and very severe 10.8%). Stress was detected in 24% (mild and moderate 18.9%, severe and very severe 5.5%).

Table 2 Prevalence of psychological mood disorders.

Level		**Depression N (%)**	**Anxiety N (%)**	**Stress N (%)**
1.	Normal	50 (67.6)	49 (66.2)	56 (75.7)
2.	Mild	11 (14.9)	9 (12.2)	12 (16.2)
3.	Moderate	7 (9.5)	8 (10.8)	2 (2.7)
4.	Severe	4 (5.4)	2 (2.7)	3 (4.1)
5.	Very severe	2 (2.7)	6 (8.1)	1 (1.4)
Total		74 (100.0)	74 (100.0)	74 (100.0)

In conclusion, the prevalence of Depression and Anxiety in medical students at the faculty of Medicine, PNU were over 30% (except stress were 24% of medical students), one-third of medical students as my research hypothesis.

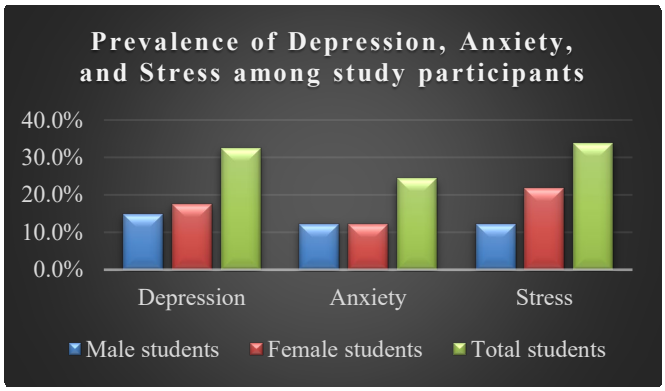

Figure 4 Prevalence of Depression, Anxiety, and Stress among study participants.

From figure 4 and Table 3 shows the prevalence of depression among study participants over 30% with increasing prevalence among females compared to males (p value = 0.035); the percent of depression represented 17.6%, in females (mild and moderate 16.2%, severe and very severe 1.4%) and 14.9% in males (mild and moderate 8.1%, severe and very severe 6.8%). The anxiety and stress level among the two genders did not differ significantly. (p>0.05)

Table 3 Psychological disorders and weight measurements of student by sex.

	Male students No (%)	**Female students No (%)**	**Total No (%)**	**Chi-square test**	**p value**
Depression					
Normal	15 (20.3)	35 (47.3)	50 (67.6)	6.720	0.035*
Mild & moderate	6 (8.1)	12 (16.2)	18 (24.3)		
Severe & very severe	5 (6.8)	1 (1.4)	6 (8.1)		
Anxiety					
Normal	17 (23.0)	32 (43.2)	49 (66.2)	0.024	0.988
Mild & moderate	6 (8.1)	11 (14.9)	17 (23.0)		
Severe & very severe	3 (4.1)	5 (6.8)	8 (10.8)		
Stress					
Normal	17 (23.0)	39 (52.7)	56 (75.7)	3.717	0.156
Mild & moderate	6 (8.1)	8 (10.8)	14 (18.9)		
Severe & very severe	3 (4.1)	1 (1.4)	4 (5.4)		

* $p < 0.05$; significant different between group

For Table 4 shows the risk factors by Odds ratio (OR), 95%CI, Chi-square (X^2) of Depression, anxiety, and stress among medical students and p value less than or equal to 0.05 was considered statistically significant between group.

Age: the OR of depression and stress scores were significantly higher among 18 - 20 years, both this factor was p value <0.001 with no association between anxiety and age.

Academic years: the OR of depression and stress score were significantly higher in pre-clinical years than Clinical years, *p* value 0.004 and <0.001 respectively with no association between anxiety and academic year.
Residence: the OR of depression and stress score were significantly higher in Narathiwat provinces, p value 0.048 and 0.004 respectively with no association between residence and anxiety.
GPA: the OR of depression, anxiety, and stress score were significantly higher among GPA ≥3.50 than GPA<3.50, *p* value <0.001, 0.002, and 0.002 respectively.
GPAX: the OR of depression, anxiety, and stress score were significantly higher among GPA ≥3.50 than GPA<3.50, *p* value <0.001, 0.014, and <0.001 respectively.
Personal medicine: the OR score was a significant association between the medical students who had experience the personal medicine and depression, anxiety, and stress, overall *p* value <0.001.
Student income: the OR stress score was significantly higher in students who had the monthly income ≤ 5,000 bath than the monthly income ≥5,000 bath, *p* value 0.027.
Smoking status: the OR of stress score were significant in student who had experience of smoking, *p* value 0.026.

Table 4 Factor associated with depression, anxiety, and stress among medical students by logistic regression analysis.

		Depression				Anxiety				Stress			
		OR	95% CI	X^2	p-value	OR	95% CI	X^2	p-value	OR	95% CI	X^2	p-value
Age	18 - 20	2.72	1.42 - 5.23	11.06	<0.001**	1.12	0.65 - 1.92	0.17	0.680	4.05	1.84 - 8.92	17.34	<0.001**
	>21	0.62	0.46 - 0.83			0.94	0.71 - 1.24			0.55	0.41 - 0.74		
Academic	Pre-clinic	2.35	1.26 - 4.39	8.46	0.004*	0.99	0.58 - 1.71	0.00	0.997	3.35	1.61 - 6.97	14.03	<0.001**
	Clinic	0.66	0.49 - 0.88			1.00	0.75 - 1.32			0.58	0.44 - 0.78		
Religion	Islam	1.20	0.80 - 1.79	0.80	0.370	0.80	0.53 - 1.19	1.15	0.282	0.98	0.66 - 1.46	.005	0.942
	Non-Islam	0.84	0.57 - 1.22			1.23	0.84 - 1.80			1.01	0.69 - 1.47		
Residence	Narathiwats	1.88	0.98 - 3.62	3.92	0.048*	1.41	0.76 - 2.63	1.23	0.266	2.75	1.30 - 5.85	8.48	0.004*
	Others	0.77	0.60 - 1.00			0.86	0.67 - 1.11			0.69	0.54 - 0.88		

		Depression				Anxiety				Stress			
		OR	95% CI	X^2	p-value	OR	95% CI	X^2	p-value	OR	95% CI	X^2	p-value
GPA	<3.50	0.33	0.18 - 0.59	18.12	<0.001**	0.47	0.28 - 0.78	9.32	0.002*	0.46	0.28 - 0.76	9.94	0.002*
	≥3.50	2.08	1.42 - 3.04			1.67	1.17 - 2.37			1.72	1.19 - 2.48		
GPA X	<3.50	0.41	0.26 - 0.66	16.25	<0.001**	0.59	0.39 - 0.91	6.01	0.014*	0.48	0.31 - 0.75	11.71	<0.001**
	≥3.50	2.24	1.44 - 3.47			1.60	1.08 - 2.38			1.99	1.28 - 3.08		
Sleep	≤ 6 hr/day	0.89	0.70 - 1.13	0.82	0.362	1.17	0.91 - 1.50	1.64	0.200	1.04	0.81 - 1.33	0.11	0.736
	>6 hr/day	1.33	0.71 - 2.50			0.66	0.35 - 1.25			0.89	0.48 - 1.66		
Exercise	No	1.05	0.62 - 1.78	0.03	0.844	1.66	0.95 - 2.92	3.42	0.064	1.48	0.84 - 2.59	2.02	0.155
	1 day/weeks	0.97	0.73 - 1.29			0.76	0.57 - 1.02			0.81	0.61 - 1.07		
Personal health	No	1.05	0.89 - 1.25	0.45	0.502	0.96	0.81 - 1.13	0.17	0.676	1.03	0.87 - 1.22	0.14	0.703
	Have	0.73	0.29 - 1.82			1.21	0.48 - 3.01			0.83	0.34 - 2.06		
Personal medicine	No	1.29	1.10 - 1.51	11.40	<0.001**	1.29	1.10 - 1.51	11.40	<0.001**	1.31	1.11 - 1.56	13.06	<0.001**
	Have	0.07	0.01 - 0.58			0.07	0.01 - 0.58			0.07	0.00 - 0.51		
Family relationship	Married,together	1.17	0.91 - 1.52	1.60	0.205	1.05	0.81 - 1.36	0.16	0.683	1.11	0.85 - 1.43	0.64	0.424
	Other status	0.68	0.37 - 1.24			0.88	0.49 - 1.59			0.78	0.43 - 1.41		
Family	Gov.Officer	1.08	0.76 - 1.55	0.22	0.639	1.01	0.71 - 1.44	0.005	0.942	0.90	0.63 - 1.28	0.33	0.566

		Depression				Anxiety				Stress			
		OR	95% CI	X^2	p-value	OR	95% CI	X^2	p-value	OR	95% CI	X^2	p-value
occupation	Others	0.90	0.59 - 1.37			0.98	0.64 - 1.50			1.13	0.73 - 1.74		
Family income	≤30,000bath/month	0.77	0.47 - 1.25	1.09	0.296	1.04	0.64 - 1.69	0.02	0.866	1.25	0.76 - 2.07	0.83	0.361
	>30,000bath/month	1.17	0.86 - 1.61			0.97	0.71 - 1.32			0.86	0.63 - 1.17		
Student income	≤ 5,000bath/month	1.17	0.75 - 1.83	0.53	0.463	0.90	0.58 - 1.39	0.21	0.646	1.67	1.03 - 2.72	4.87	0.027*
	>5,000bath/month	0.88	0.62 - 1.23			1.08	0.77 - 1.52			0.68	0.48 - 0.96		
Smoking status	No	1.00	0.92 - 1.08	0.004	0.953	1.00	0.92 - 1.08	0.004	0.953	1.09	1.00 - 1.19	4.95	0.026*
	Yes	0.94	0.13 - 6.44			0.94	0.13 - 6.44						
Alcohol drink	No	1.06	0.96 - 1.19	1.57	0.210	0.94	0.85 - 1.04	1.19	0.273	1.03	0.92 - 1.15	0.40	0.526
	1 - 3 day/week	0.37	0.07 - 1.85			2.35	0.47 - 11.60			0.62	0.14 - 2.67		

* $p < 0.05$; significant different between group
** $p < 0.001$; significant difference between groups

DISCUSSION & CONCLUSION

The goal of the current study was to detect various psychiatric problems and associated factors among PNU medical students. According to the study's findings, 24% mostly mild level 16.2% of medical students reported experiencing stress on a regular basis. Studies of a similar nature from different nations revealed a wide range of rates; studies in Southern university of Thailand and reported prevalence stress rates of 35.5% (extremely severe 1.8%) (Rattanaporn C. et al., 2019). Comparing to the similar instrument of DASS-21 in other languages, this result is similar to DAS scores in medical students in Malaysia (moderate to extremely severe were 3.6%) (Yusoff et al., 2013) and in Pokhara Metropolitan Nepal (24.1% of stress in undergraduates' students (Paudel et al., 2020). In contrast, this result is lower in medical students in Korea (above a severe level of stress was 43.2%) (Nahm et al., 2021), and Ethiopia (prevalence rates of stress was 40.4%, extremely severe was 2.3%) (Melaku et al., 2021). The research findings illustrate the tension that college students experience. This is during a time when there are many changes in life, giving them the chance to experience stress. Different study methods, curriculums, and atmosphere at various colleges might result in varying degrees

of stress. For Medical students has been severe and extremely severe level of stress caused poor management and adaptation. Advice and close attention should be given to this group.
In our study the prevalence of depression was detected among 32.4% of medical students (Table 4.2) Similar studies conducted in Clinical Medical Students of a Faculty of Medicine in Northeast Thailand (Sriarpa A., 2021); 38.2% of undergraduate's students, and in Brazil; 34.6% of medical students (Moutinho et al., 2017). In medical college, Karachi at Pakistan (prevalence rates of depression was 71.1) (Azim et al., 2019). Explained using several study periods. There is a larger trend of depression as a result of the existing socioeconomic environment. For instance, the overall number of de-pressive patients in Thailand is increasing yearly. This is true because every individual may react to stimuli that induce depression differently. People who are really depressed may respond and manage the factor badly. These people should be referred to a psychiatrist. According to the study's findings, 33.8% of medical students reported experiencing anxiety. Other studies conducted in Brazilian Medical Students (Moutinho et al., 2017); the prevalence of anxiety was 37.2% and in medical student, South Africa (Zyl et al., 2017), 26.5% of medical students. Different levels of anxiety in different contexts. It's challenging to explain university education from the course material. Competition for students is fierce. Future employment and education are influenced by academic performance. Setting high goals might exacerbate anxiety in people who already experience it severely. Compared to individuals who were less nervous, they were more concerned about the outcome. Each study revealed a various degree of the prevalence of mental health issues. This variety has been attributed to cultural variations, variations in the healthcare system, variations in the population, and variations in the study's methodology.
The result indicated the prevalence of depression and anxiety in medical students at faculty of medicine, PNU were over 30% (except stress were 24% of medical students), one-third of medical students have experienced depression, anxiety, and stress. The study's findings show that medical students are the group with the highest level of anxiousness. The results revealed significant associations of stress were age, residence, personal medicine, academic performance (GPA, GPAX), students' income and smoking status. The current study showed significant associations of depression were age, gender, residence, personal medicine, and academic performance (GPA, GPAX). Our result showed a significant association of anxiety in academic performance (GPAX). The factors that contribute to mental health issues are numerous, so there should be increased surveillance as well as a prevention strategy that includes training psychologists to provide counseling, disseminating information to raise awareness of these issues, and finally, a strategy for close observation of high-risk groups. To find other contributing aspects to academic medical education, more research must be conducted.

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