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Depression, Anxiety, and Stress among Students of Sriwijaya University

Umrohtul Habibah¹, Rizma Adlia Syakurah², Diyaz Syauki Ikhsan³,
Eka Febri Zulissetiana⁴, Syarifah Aini⁵

Faculty of Medicine, Universitas Sriwijaya, Indonesia^{1,3,4,5}

Faculty of Public Health, Universitas Sriwijaya, Indonesia²

Umroh.habibah@gmail.com¹, rizma.syakurah@gmail.com², justdke@gmail.com³,
dr.eka_1902@yahoo.com⁴, drsyarifahaini@gmail.com⁵

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Abstract. *The prevalence of Major Depressive Disorder (MDD) among students was the highest (18.5%), followed by anxiety (16.7%). Psychosocial stressors and academic pressure on students require them to be able to adjust themselves in order to cope with the mental stress that occurs. The aims to descriptions of mental health, especially depression, anxiety, and stress in students. An analytic observational study with a cross sectional design used. As much 1564 students from 10 faculties filled out the DASS-42 questionnaire distributed via social media in January 2020–24 August 2020. The analyzed using chi square, Mann Whitney, and binary logistic regression with significance of 0.05. Students who have a risk to depression, anxiety, and stress are 46%, 74.2%, and 57.9%. There is a significant relationship between the incidence of depression with GPA, faculty, semester and place of residence ($p < 0.05$). Gender, faculty, and religion factors associated with the anxiety ($p < 0.05$). While the gender, place of residence and faculty associated with stress ($p < 0.05$). History of chronic illness and family history of mental disorders influenced the depression, anxiety disorders, and stress ($p < 0.001$). Mostly, Sriwijaya University students have an increase in depression, anxiety, and stress, especially during the Covid-19 pandemic. The gender, semester, marital status, history of chronic disease, and a history of mental disorders in the family affect the incidence of depression, anxiety, and stress. The mean GPA of students with a tendency to depression, anxiety, and stress was lower by ± 0.03 points. The university stakeholders needs to implement mental health interventions to maximize student potential.*

Keywords: *Mental disorders; college students; depression; anxiety; stress*

INTRODUCTION

Students are a vulnerable population group to mental health problems and disorders. They are categorized with a transitional phase from adolescence to young adulthood which is surely highlighted by distress and various adjustments. Packed class schedules, different educational systems, new environmental and social situations, and demands to be independent and adaptive often become stressors for students (Bruffaerts et al., 2018).

WHO through the World Mental Health Surveys International College Student Project found that major depressive disorder (MDD) had the highest prevalence rate of mental health

disorders in college students of 18.5% followed by anxiety with 16.7% (World Health Organization, 2019). Based on the 2018 Basic Health Research survey, depression took the first position with mental disorders as the highest in Indonesia ranging from 15 to 24 years, encompassing students as much as 6.2% (Data and Information Center of Ministry of Health of Indonesia, 2019).

Depression is a mood disorder that causes sufferers to experience sadness continuously and lasts for weeks or months (Directorate of Health Promotion and Community Empowerment, 2018). Depressed person shows low self-control, such as self-punishment and lack of self-esteem. Depression is an invisible disease because the sufferer is often unconscious of its presence (Sulistiyorini & Sabarisman, 2017). WHO estimates depression as the second cause of disability in life and is the biggest contributor to the burden of disease over the last three decades, thus WHO has set depression as one of the priorities to be treated (Sulistiyorini & Sabarisman, 2017; Indrayani & Wahudi, 2019).

While anxiety is a negative emotional state characterized by anxiety about unexpected dangers that lie in the future. Anxiety is also characterized by the condition of the heart beating fast, sweating, and oftentimes difficulty breathing (Annisa & Ifdil, 2016). As many as 18.1% of young adults in the United States are estimated to suffer from anxiety disorder (Kurniawan & Ngapiyem, 2020). Other mental health disorders can happen due to the inability to cope. Stress is an internal pressure as a result of a mismatch between the desired situation and expectations and a gap between the demands of the environment and the capability, hence it is potentially damaging and uncontrolled (Barseli et al., 2017; Kurniawan & Ngapiyem, 2020).

Mental health disorders such as depression, anxiety, and stress, also entail an impact on student academic achievement. Students with mental health disorders are reported to have lower GPAs than those with normal mental health (Goodman, 2017; Kernan & Wheat, 2008). Meanwhile, the low GPA affects the mental health of the student, thus both quality will decrease. Currently, most students frequently ignore the signs and symptoms of mental health disorders and consider these stressors to be normal and leave them untreated (Hernández-Torrano et al., 2020).

Sriwijaya University is a university comprising departments, study programs, or faculties in the field of health and other fields. The results of the initial screening conducted by researchers from the Faculty of Psychology, Sriwijaya University found as many as 40.1% of students experienced symptoms of high psychological distress, such as depression, anxiety, and somatic complaints (Mardhiyah et al., 2019). Besides, Sriwijaya University is also one of the universities that conduct online lectures amid the Covid-19 pandemic. This may lead to rather burdensome academic stress, namely 27% (Lubis et al., 2021).

Psychosocial stressors on students require them to be able to adapt in order to cope with the mental stress that occurs. However, not everyone can adjust and overcome these pressures, causing mental health problems (Data and Information Center of Ministry of Health of Indonesia, 2019). If this can be detected early, then precaution can help students to overcome mental health disorders sooner, thereby increasing their productivity and achievement. In addition, to support the healthy campus program of the Ministry of Health of Indonesia, which is a movement for healthy living in a higher education setting, early detection of health problems, including students' mental health, is important. It is also expected to solve health problems comprehensively, involving controlling the Covid-19 pandemic in Indonesia.

Previous studies have discussed depression, anxiety, and stress in college students (Astutik et al., 2020). However, some variables have not been discussed; the influence of medical history and family history on depression, anxiety, and stress symptoms in all major students and involvement of all generations. Furthermore, the factors that contribute to mental health disorders in Sriwijaya

University students had not been identified in previous studies. This research was also carried out during the Covid-19 pandemic where many campus activities in Indonesia were diverted through online media. Therefore, this study aims to analyze mental disorders in students to understand the idea of number of mental health problems, especially depression, anxiety, and stress that often arise in this phase. These results can be used as the basis for interventions related to mental health that will be carried out by the university.

Mental health, similar to other health aspects, can be affected by various factors (Ayuningtyas et al., 2018). Previous studies have stated that there is a relationship between respondent characteristics and depression, anxiety, and stress disorders (Astutik et al., 2020; Hamaideh et al., 2021). Therefore, the hypothesis in this study is that there is a relationship between respondent characteristics and the occurrence of depression, anxiety, and stress in Sriwijaya University students.

METHOD

This study is an analytic observational study with a cross-sectional design. The population in this study involved all active students of Sriwijaya University. The research sample was carried out using a convenience sampling technique, the respondents comprised 1564 students from 10 faculties who filled out online questionnaires distributed through social media Line, Whatsapp, Instagram, and Twitter. Data collection was conducted from January 2020 to August 24, 2020.

This study employed the DASS-42 questionnaire, a self-assessment instrument, consisting of 42 questions designed to measure three negative emotional states related to depression, anxiety, and stress. The DASS-42 questionnaire was issued by the Psychology Foundation Australia and has been translated into Indonesian by Damanik (Damanik, 2006). The validity and reliability tests of the questionnaire were administered on 60 students of Sriwijaya University taken from every faculty in December 2019 using Corrected Item-Total Correlation analysis and obtained a validity value of 0.406-0.785 and a reliability value of 0.96, hence it was declared valid and reliable. Respondents were given a score of 0-3 for each answer to the question on the questionnaire. The answer scores were then summed and categorized as 'depressed' (>9) and not depressed, 'anxiety' (>7) and 'no anxiety', and 'stressed' (<14) and 'not stressed'. The independent variables were grouped based on the characteristics of the respondents in the field.

The data were analyzed using the IBM SPSS Statistics 24 program. The data were calculated operating the Mann-Whitney and Chi-Square statistical hypothesis analysis techniques with a significance value of p and an alpha significance of 0.05. The Mann-Whitney test is used to analyze the means difference between two populations that come from the same population and are not normally distributed. While the Chi-Square test is used since the data is categorical and the sample is large. This analysis technique is to determine the relationship between socio-demographic factors and mental status. Binary logistic regression test was performed to investigate the most influential variables on the occurrence of depression, anxiety, and stress.

RESULTS AND DISCUSSION

From 1564 respondents, it is known that the average age of the respondents was 19.83 (± 1.35) years. The majority of respondents were female ($n=1165$, 74.5%), students of the Faculty of Public Health Sciences ($n=247$, 15.8%), third semester ($n=600$, 38.4%), Muslim ($n=1451$, 92.8%), living in a boarding house ($n=765$, 48.9%) and unmarried ($n=1557$, 99.5%). From 1564 respondents, it is known that the average GPA value was 3.350 (± 0.561) with the vast majority

of the respondents never suffered from chronic diseases (n=1457, 93.1%) and had no history of mental disorders in the family (n=1417, 90.6%).

Table 1.
 Socio-demographic Characteristics and Health History of Respondents N = 1564

Socio-demographic Characteristics		Total of respondents (n=1564)	Depression		Anxiety		Stress	
			Yes (n=729)	<i>p</i>	Yes (n=1160)	<i>p</i>	Yes (n=906)	<i>p</i>
Age, Mean±SD		19.83±1.35	19.90±1.29	0.043	19.80±1.31	0.226	19.86±1.346	0.167
GPA±SD		3.35±0.561	3.33±0.547	0.030	3.339±0.583	0.903	3.332±0.571	0.078
Gender	Male	399	176	0.245	260	0.000	208	0.007
	Female	1165	553		900		698	
Faculty	Economics (FE)	116	51	0.005	83	0.013	64	0.010
	Engineering (FT)	78	39		57		49	
	Law (FH)	65	30		51		38	
	Medicine (FK)	201	107		133		134	
	Agriculture (FP)	111	48		78		61	
	Teacher Training and Education (FKIP)	232	99		174		119	
	Social and Political Sciences (FISIP)	154	90		132		102	
	Mathematics and Natural Sciences (FMIPA)	218	96		161		116	
	Computer Science (FASILKOM)	140	74		106		90	
	Public Health (FKM)	247	95		185		133	
Semester	Semester 1	27	11	0.019	23	0.592	17	0.013
	Semester 3	600	258		441		329	
	Semester 5	419	185		310		227	
	Semester 7	370	194		280		235	
	Semester 9	123	67		90		83	
	Semester 11	25	14		16		15	
Religion	Islam	1451	686	0.375	1091	0.003	849	0.101
	Protestant	70	29		47		37	
	Catholic	16	6		12		11	
	Hinduism	6	2		2		1	
	Buddhism	16	4		6		6	
	Confucian	1	0		0		0	
	Others	4	2		2		2	

Socio-demographic Characteristics		Total of respondents (n=1564)	Depression		Anxiety		Stress	
			Yes (n=729)	<i>p</i>	Yes (n=1160)	<i>p</i>	Yes (n=906)	<i>p</i>
Place of Residence	Living with biological parents	635	301	0.042	481	0.320	368	0.012
	Living with relatives	115	65		87		81	
	Boarding house	765	340		557		433	
	Social Housing / Unsri Apartments	38	15		25		16	
	Private house/ rent	11	8		10		8	
Marital Status	Unmarried	1557	728	0.130	1157	0.078	904	0.117
	Married	7	1		3		2	
History of Chronic Disease	No	1457	662	0.001	1063	0.000	822	0.000
	Yes	107	67		97		64	
Family history of mental disorders	No	1417	631	0.000	1028	0.000	800	0.000
	Yes	147	98		132		106	

From table 1, it can be determined that the mental status of students based on the DASS-42 questionnaire shows that of 1564 respondents, 729 (46%) appeared to be more likely to experience depression, anxiety with 1160 (74.2%) respondents and stress totaling 906 (57.9%) respondent. The results of the analysis showed that there was a significant relationship between the occurrence of depression with age, GPA, faculty, semester, and place of residence (p -value <0.05). Several factors were significantly related to the anxiety events including gender, faculty, and religion (p -value <0.05). Meanwhile, the factors that were significantly related to stress were gender, faculty, semester, and place of residence (p -value <0.05). History of chronic diseases and family history of mental disorders were very significantly associated with depression, anxiety, and stress (p -value = 0.000).

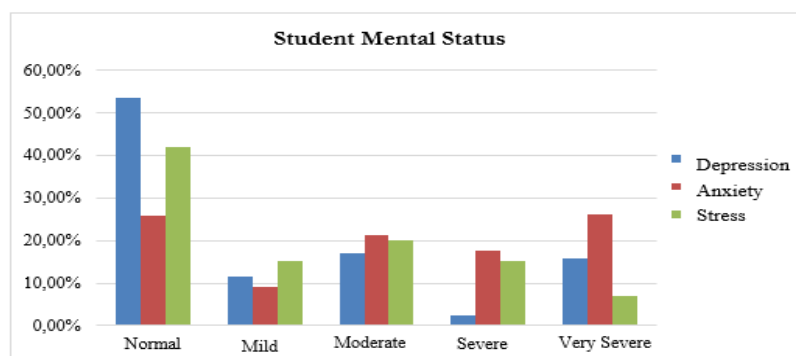


Figure 1.
 Percentage of Student Mental Status (n=1,564)

Figure 1 shows the percentage of students' mental status. A total of 729 students experienced

depression with various degrees of severity, comprising mild (n=179, 11.4%), moderate (n=264, 16.9%), severe (n=38, 2.4%), and very severe (n=248, 15.9%). Of the 1160 students experiencing anxiety, they consisted of mild (n=144, 9.2%), moderate (n=334, 21.4%), severe (n=276, 17.6%), and very severe (n=406, 26%). Meanwhile, 906 students suffering from stress encompassed mild (n=240, 15.3%), moderate (n=315, 20.1%), severe (n=240, 15.3%), and very severe (n=111, 7.1%). It can be observed from Table 2, the results of logistic regression analysis using the backward LR method obtained four independent variables with the most influence on the occurrence of depression. Students with a family history of mental disorders were 2.33 times more likely to experience depression than those without family history of mental disorders. Students with a history of chronic illness were 1.79 times more likely to experience depression than those without history of chronic illness. Early semester students were 0.93 times more prone to experience depression than those who were not and married students were 0.17 times more vulnerable to depression

Table 2.

The Most Influential Variables on the Occurrence of Depression Using the Logistics Regression Method

Variable	Beta	P-value	Exp (B)
Semester	-0.073	0.003	0.930
Marital Status	-1.772	0.110	0.170
History of chronic disease	0.587	0.005	1.799
Family history of mental disorder	0.846	0.000	2.330

From Table 3, four independent variables had the most impact on students' anxiety. Students with a history of chronic illness were 3.16 times more prone to experiencing anxiety than those without it. Students with a history of mental disorders in the family were 2.98 times more likely to experience anxiety. Female was 0.57 times more vulnerable to anxiety than male, and married students were 0.23 times more likely to suffer from anxiety than those who were not.

Table 3.

The Most Influential Variables on Anxiety with the Logistics Regression Method

Variable	Beta	P-value	Exp (B)
Gender	-0.554	0.000	0.575
Marital Status	-1.452	0.072	0.234
History of chronic disease	1.150	0.001	3.160
Family history of mental disorder	1.090	0.000	2.974

There are four independent variables with the most effect on stress in students based on Table 4. Students with a history of chronic pain were 3.52 times more prone to stress than those without it. Students with a history of mental disorders in the family were at risk of anxiety disorders 1.76 times higher. Females were 0.57 times more prone to anxiety disorders than men, and married students were 0.23 times more open to anxiety disorders than those who were not. Early semester students were 0.94 times more at risk of experiencing stress.

From the research, it can be interpreted that the occurrence of depression, anxiety, and stress at Sriwijaya University is two to four times higher than the world student depression and anxiety rate of 18.5% and 16.7% and the rate of mental disorders in Indonesia is 6.2% (World Health Organization, 2019; Data Center and Information from the Ministry of Health of Indonesia, 2019). The depression, anxiety, and stress rates at Sriwijaya University are higher than studies related to

depression, anxiety, and stress in students in Malaysia, namely depression (37.2%), anxiety (63%), and stress by 23.7% (Shamsuddin et al., 2013).

Table 4.
The Most Influential Variables on Stress with the Logistics Regression Method

Variable	Beta	P-value	Exp (B)
Gender	-0.266	0.025	0.766
History of chronic disease	0.925	0.000	2.522
Family history of mental disorder	0.569	0.004	1.766
Semester	-0.066	0.008	0.937

Students of freshmen are more susceptible to mental disorders since they go through two transition phases; the developmental transition from adolescents to young adults and the academic transition from high school to college which displays a different learning system (Cheung et al., 2020; Beiter et al., 2015; Prasetyo et al., 2019). In general, stress is a natural stage experienced by every individual but it can develop into a pathological condition if the individual cannot adapt well. There are two common stressors in students. The first is academic stressors, namely academic pressure to meet class requirements, abundant learning materials, and time management. The second is non-academic stressors such as feeling dissatisfied with self-appearance, discontent with life, and low self-esteem towards others (Beiter et al., 2015).

Apart from the transition period and academic pressure, in this study, the Covid-19 pandemic was also suspected to have contributed to an increase in depression, anxiety, and stress disorders in students since the lectures were conducted online. This result is in line with previous research that there was a decline in the mental health condition of students during the pandemic (Savage et al., 2020; Grubic et al., 2020; C Wang et al., 2020). This condition can lead to decreased learning motivation, increased pressure for independent study, neglect of daily routines, and a higher potential for dropout (Grubic et al., 2020). In addition, those with pre-prevailing mental health conditions may be more susceptible to negative emotional responses in the context of Covid-19, resulting in relapse or aggravating of existing mental illness (Yao et al., 2020).

Online learning in the Covid-19 pandemic hampers students to do various assignments. In addition to the loaded individual assignments, students also have difficulty working on group assignments, due to the insufficient environment, obstacles to the internet network, and feeling tired of studying online (Deliviana et al., 2021). Students also begin to endure anxiety about academic delays, the economic impact of the pandemic, and the effect on daily life (Grubic et al., 2020)(Natalia & Syakurah, 2021a).

The female students in the study were found to experiences more mental disorders such as depression, anxiety, and stress. Several studies, such as Mahmoud et al., 2012 and Bayram et al., 2008, reported that female students were more likely to experience stress and anxiety disorders (Mahmoud et al., 2012; Blanco et al., 2008). As for the frequency of depression, research by Liu et al., (2019); Sun et al., (2017); Tung et al., (2018) discovered a higher prevalence rate among female students. It can happen due to at least two biological and environmental factors. The first is the biological factor – the American College of Obstetricians and Gynecologists found that 20% to 40% of women of reproductive age were susceptible to mood disorders such as irritability, stress, anxiety, and emotional instability in the period before menstruation (Kornstein et al., 1995). Women are more prone to stress and pain, making mental disorders more likely to occur. Second, there are views of femininity and masculinity. Women tend to be described as femininity

that is characterized by caring, gentle, and sensitivity to others. While masculinity is described as individualism and assertiveness. As a result of this concept, women are more likely to experience 'internalized' disorders such as depression and anxiety, while men are 'externalized' such as drug and alcohol abuse (Gao et al., 2020; Thériault & Perreault, 2019; Van Droogenbroeck et al., 2018).

The average GPA of students suffering from depression, anxiety, and stress in this study was lower than the average GPA of students overall. Depression, anxiety, and stress were reported to reduce the percentage of student attendance, enthusiasm in submitting assignments, and loss of interest in socialization (Mehr & Daltry, 2016; Ibrahim et al., 2013). Research conducted by Murphy JM et al., 2015 in Chile and Grøtan K. et al., 2019 in Norway unveiled students who had poor mental health (depression, anxiety disorders, or stress) had relatively lower grades and academic achievement compared to those who had not (Murphy et al., 2015; Grøtan, K., Sund & Bjerkeset, 2019).

History of chronic illness and family history of mental disorders presented a significant relationship with all dependent variables (depression, anxiety, and stress). A history of chronic disease may cause changes in daily activities, especially in chronic diseases that result in disability. Research by Siboni et al., 2019 suggests several attributes that may lead to mental disorders in someone with a chronic disease including, a long treatment period, high treatment cost, limitation in daily activities, and fear of death (Siboni et al., 2019). Family history of mental disorders is an important factor in the emergence of mental disorders of depression, anxiety, and stress. The most plausible reason is that those with a family history of mental disorders inherit genes that may prompt psychiatric disorders and manifest once they are under stressful situations (Cheung et al., 2020; Rasic et al., 2014).

Medical students have lower mental health averages than other faculties. It may be due to the high workload, many exams, and competitive setting in the medical environment which precipitates mental health disorders among medical students (Moir et al., 2018; Jafari et al., 2012; Zeng et al., 2019). It is reported that there is a relationship between anxiety and depression with feelings of self-dissatisfaction, exam schedules that are deemed too burdensome, and pressure to pass exams (Rehmani et al., 2018; Alvi et al., 2010). Asian family culture tends to encourage physicians as a profession which then provokes medical students to feel compelled to meet family expectations regarding academic achievement in the faculty of medicine. Depression, anxiety, and stress among medical students are also often overlooked and untreated. Medical students rarely seek professional help, mainly because of diffidence and taboo perception on mental health (Menon et al., 2015; Kumar et al., 2019; Natalia & Syakurah, 2021b).

Age had no significant effect on mental health in this study because the age range of the respondents was not too significant, varying from 17 to 25 years (Data and Information Center of the Ministry of Health of Indonesia, 2019). In fact, the prevalence of depression, anxiety, and stress intensify along with age. Mental health problems in college students are more common in freshmen and sophomores (Beiter et al., 2015). Several features related to this are an adaptation to the new learning system in lectures, living separated far away from their parents, and having to adjust to the new environment and people. These factors will eventually become distressed if students are unable to cope. Moreover, female students appear to experience more mental health problems because females tend to have lower self-esteem than males, but this conclusion requires further research (Moksnes & Espnes, 2013).

This study is limited to in which data collection was carried out using convenience sampling to avoid transmission of Covid-19, thus allowing for bias. Data collection during the Covid-19 pandemic also allowed for higher rates of depression, anxiety, and stress. In a study conducted

during the early phase of the Covid-19 outbreak in China, more than half of the respondents rated psychological disorders as moderate to severe, and about one-third reported moderate to severe anxiety (Cuiyan Wang et al., 2020). While a systematic review study found an increase in the occurrence of depression, stress, anxiety disorders, and fear during the pandemic (Brooks et al., 2020).

CONCLUSION

Based on the results of this study, there was an increase in depression, anxiety, and stress in Sriwijaya University students, especially amid the Covid-19 pandemic. Several factors affecting mental health disorders are gender, semester, marital status, history of chronic illness, and family history of mental disorders. These features show extended action needed for awareness, education, and intervention in the university context. Further, these factors can be used as indicators of periodic screening related to mental health from the university so that it can monitor, intervene, and manage to improve students' mental health.

REFERENCES

- Alvi, T., Assad, F., Ramzan, M., & Khan, F. A. (2010). Depression, anxiety and their associated factors among medical students. *J Coll Physicians Surg Pak*, 20(2), 122–126.
- Annisa, D. F., & Ifdil, I. (2016). Konsep kecemasan (anxiety) pada lanjut usia (lansia). *Konselor*, 5(2), 93–99. <https://doi.org/10.24036/02016526480-0-00>
- Astutik, E., Sebayang, S. K., Puspikawati, S. I., Tama, T. D., & Sintha, D. M. (2020). Depression, anxiety, and stress among students in newly established remote university campus in Indonesia. *Malaysian Journal of Medicine and Health Sciences*, 16(15), 270–277.
- Ayuningtyas, D., Misnaniarti, & Rayhani, M. (2018). Analisis situasi kesehatan mental pada masyarakat di Indonesia dan strategi penanggulangannya. *Jurnal Ilmu Kesehatan Masyarakat*, 9(1), 1–10.
- Barseli, M., Ifdil, I., & Nikmarijal, N. (2017). Konsep stres akademik siswa. *Jurnal Konseling dan Pendidikan*, 5(3), 143–148. <https://doi.org/https://doi.org/10.29210/119800>
- Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders*, 173, 90–96. <https://doi.org/10.1016/j.jad.2014.10.054>
- Blanco, C., Okuda, M., Wright, C., Hasin, D. S., Grant, B. F., Liu, S.-M., & Olfson, M. (2008). Mental health of college students and their non-college-attending peers. *Archives of General Psychiatry*, 65(12), 1429–1437. <https://doi.org/10.1001/archpsyc.65.12.1429>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912–920. <https://doi.org/10.1016/S0140->

6736(20)30460-8

- Bruffaerts, R., Mortier, P., Kiekens, G., Auerbach, R. P., Cuijpers, P., Demyttenaere, K., Green, J. G., Nock, M. K., & Kessler, R. C. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders, 225*, 97–103. <https://doi.org/10.1016/j.jad.2017.07.044>
- Cheung, D. K., Tam, D. K. Y., Tsang, M. H., Zhang, D. L. W., & Lit, D. S. W. (2020). Depression, anxiety and stress in different subgroups of first-year university students from 4-year cohort data. *Journal of Affective Disorders, 274*, 305–314. <https://doi.org/10.1016/j.jad.2020.05.041>
- Deliviana, E., Erni, M. H., Hilery, P. M., & Naomi, N. M. (2021). Pengelolaan kesehatan mental mahasiswa bagi optimalisasi pembelajaran online di masa pandemi Covid-19. *Jurnal Selaras : Kajian Bimbingan dan Konseling serta Psikologi Pendidikan, 3*(2), 129–138.
- Direktorat Promosi Kesehatan dan Pemberdayaan Masyarakat. (2018). Pengertian kesehatan mental. *Kementerian Kesehatan RI*. Retrieved from <https://promkes.kemkes.go.id/pengertian-kesehatan-mental>
- Gao, W., Ping, S., & Liu, X. (2020). Gender differences in depression, anxiety, and stress among college students: A longitudinal study from China. *Journal of Affective Disorders, 263*, 292–300. <https://doi.org/10.1016/j.jad.2019.11.121>
- Goodman, L. (2017). Mental health on university campuses and the needs of students they seek to serve. *Building Healthy Academic Communities Journal, 1*(2), 31–44. <https://doi.org/10.18061/bhac.v1i2.6056>
- Grøtan, K., Sund, E. R., & Bjerkeset, O. (2019). Mental health, academic self-efficacy and study progress among college students—The shot study, Norway. *Frontiers in psychology, 10*(45), 1–11. <https://doi.org/10.3389/fpsyg.2019.00045>
- Grubic, N., Badovinac, S., & Johri, A. M. (2020). Student mental health in the midst of the Covid-19 pandemic: A call for further research and immediate solutions. *International Journal of Social Psychiatry, 66*(5), 517–518. <https://doi.org/10.1177/0020764020925108>
- Hamaideh, S. H., Al-Modallal, H., Tanash, M., & Hamdan-Mansour, A. (2021). Depression, anxiety and stress among undergraduate students during Covid-19 outbreak and “home-quarantine.” *Nursing Open, 1*–9. <https://doi.org/10.1002/nop2.918>
- Hernández-Torrano, D., Ibrayeva, L., Sparks, J., Lim, N., Clementi, A., Almukhambetova, A., Nurtayev, Y., & Muratkyzy, A. (2020). Mental health and well-being of university students: A bibliometric mapping of the literature. *Frontiers in Psychology, 11*, 1–16. <https://doi.org/10.3389/fpsyg.2020.01226>
- Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research, 47*(3), 391–400. <https://doi.org/10.1016/j.jpsychires.2012.11.015>
- Indrayani, Y. A., & Wahudi, T. (2019). Situasi kesehatan jiwa di Indonesia. Pusat data dan informasi Kementerian Kesehatan RI (Winne Widi). *Pusat Data dan Informasi KEMENKES*

- RI. Retrieved from <https://pusdatin.kemkes.go.id/article/view/20031100001/situasi-kesehatan-jiwa-di-indonesia.html>
- Jafari, N., Loghmani, A., & Montazeri, A. . (2012). Mental health of medical students in different levels of training. *International journal of preventive medicine*, 3, 107–112.
- Kernan, W. D., & Wheat, M. E. (2008). Nursing students' perceptions of the academic impact of various health issues. *Nurse educator*, 33(5), 215–219. <https://doi.org/doi: 10.1097/01.NNE.0000312224.05579.b2>
- Kornstein, S. G., Yonkers, K. A., Schatzberg, A. F., Manber, R., & Burke, L. (1995). Premenstrual exacerbation of depression. *Women's Health Issues*, 4(5), 237–238.
- Kumar, B., Shah, M. A. A., Kumari, R., Kumar, A., Kumar, J., & Tahir, A. (2019). Depression, anxiety, and stress among final-year medical students. *Cureus*, 11(3), 1-8. <https://doi.org/10.7759/cureus.4257>
- Kurniawan, E. A. P. B., & Ngapiyem, R. (2020). Screening gangguan mental emosional : Depresi, ansietas, stress menuju sehat jiwa pada mahasiswa keperawatan semester I di salah satu sekolah tinggi ilmu kesehatan Yogyakarta 2020 proses transisi dari sekolah menengah atas mengalami stres karena perubahan. *Jurnal Kesehatan*, 7(2), 64–74. <https://doi.org/https://doi.org/10.35913/jk.v7i2.165>
- Liu, X., Ping, S., & Gao, W. (2019). Changes in undergraduate students' psychological well-being as they experience university life. *International Journal of Environmental Research and Public Health*, 16(16), 1–14. <https://doi.org/10.3390/ijerph16162864>
- Lubis, H., Ramadhani, A., & Rasyid, M. (2021). Stres akademik mahasiswa dalam melaksanakan kuliah daring selama masa pandemi Covid-19. *Psikostudia : Jurnal Psikologi*, 10(1), 31. <https://doi.org/10.30872/psikostudia.v10i1.5454>
- Mahmoud, J. S. R., Staten, R. T., Hall, L. A., & Lennie, T. A. (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction, and coping styles. *Issues in mental health nursing*, 33(3), 149–156.
- Mardhiyah, S. A., Iswani, R. D., & Juniary, A. (2019). Inisiasi mental health awareness melalui screening dan promosi kesehatan mental pada mahasiswa Universitas Sriwijaya. *Jurnal Pengabdian Sriwijaya*, 7(4), 906–914.
- Mehr, K. E., & Daltry, R. (2016). Examining mental health differences between transfer and nontransfer university students seeking counseling services. *Journal of College Student Psychotherapy*, 30(2), 146–155. <https://doi.org/10.1080/87568225.2016.1140996>
- Menon, V., Sarkar, S., & Kumar, S. (2015). Barriers to healthcare seeking among medical students: A cross sectional study from South India. *Postgraduate Medical Journal*, 91(1079), 477–482. <https://doi.org/10.1136/postgradmedj-2015-133233>
- Moir, F., Yelder, J., Sanson, J., & Chen, Y. (2018). Depression in medical students: Current insights. *Advances in Medical Education and Practice*, 9, 323–333. <https://doi.org/10.2147/AMEP.S137384>

- Moksnes, U. K., & Espnes, G. A. (2013). Self-esteem and life satisfaction in adolescents-gender and age as potential moderators. *Quality of Life Research*, 22(10), 2921–2928. <https://doi.org/10.1007/s11136-013-0427-4>
- Murphy, J. M., Guzmán, J., McCarthy, A. E., Squicciarini, A. M., George, M., Canenguez, K. M., Dunn, E. C., Baer, L., Simonsohn, A., Smoller, J. W., & Jellinek, M. S. (2015). Mental health predicts better academic outcomes: A longitudinal study of elementary school students in Chile. *Child Psychiatry and Human Development*, 46(2), 245–256. <https://doi.org/10.1007/s10578-014-0464-4>
- Natalia, D., & Syakurah, R. A. (2021a). Medical crisis during pandemic: career preferences change in medical student. *International Journal of Evaluation and Research in Education (IJERE)*, 10(4), 1255–1261. <https://doi.org/http://doi.org/10.11591/ijere.v10i4.21897>
- Natalia, D., & Syakurah, R. A. (2021b). Mental health state in medical students during Covid-19 pandemic. *Journal of Education and Health Promotion*, 10(1), 1-6. https://doi.org/10.4103/jehp.jehp_1296_20
- Prasetyo, C. E., Rahman, T. A., & Triwahyuni, A. (2019). Gangguan mental emosional dan kesepian pada mahasiswa baru. *Mediapsi*, 5(2), 97–107. <https://doi.org/10.21776/ub.mps.2019.005.02.4>
- Pusat Data dan Informasi Kementerian Kesehatan RI. (2019). Situasi kesehatan jiwa di Indonesia. *InfoDATIN*. Retrieved from <https://pusdatin.kemkes.go.id/article/view/20031100001/situasi-kesehatan-jiwa-di-indonesia.html>
- Rasic, D., Hajek, T., Alda, M., & Uher, R. (2014). Risk of mental illness in offspring of parents with Schizophrenia, bipolar disorder, and major depressive disorder : A meta-analysis of family high-risk studies. *Schizophrenia Bulletin*, 40(1), 28–38. <https://doi.org/10.1093/schbul/sbt114>
- Rehmani, N., Khan, Q. ul A., & Fatima, S. S. (2018). Stress, anxiety and depression in students of a private medical school in Karachi, Pakistan. *Pakistan Journal of Medical Sciences*, 34(3), 696–701. <https://doi.org/10.12669/pjms.343.14664>
- Savage, M. J., James, R., Magistro, D., Donaldson, J., Healy, L. C., Nevill, M., & Hennis, P. J. (2020). Mental health and movement behaviour during the Covid-19 pandemic in UK university students: Prospective cohort study. *Mental Health and Physical Activity*, 19, 1-6. <https://doi.org/10.1016/j.mhpa.2020.100357>
- Siboni, F. S., Alimoradi, Z., Atashi, V., Alipour, M., & Khatooni, M. (2019). Quality of life in different chronic diseases and its related factors. *International journal of preventive medicine*, 10(65), 1-8. https://doi.org/10.4103/ijpvm.IJPVM_429_17
- Sulistiyorini, W., & Sabarisman, M. (2017). Depresi: Suatu tinjauan psikologis. *Sosio Informa*, 3(02), 153–164. <https://doi.org/https://doi.org/10.33007/inf.v3i2.939>
- Sun, X. jun, Niu, G. feng, You, Z. qi, Zhou, Z. kui, & Tang, Y. (2017). Gender, negative life events and coping on different stages of depression severity: A cross-sectional study among Chinese university students. *Journal of Affective Disorders*, 209, 177–181. <https://doi.org/10.1016/j.j>

jad.2016.11.025

- Thériault, R. K., & Perreault, M. L. (2019). Hormonal regulation of circuit function: Sex, systems and depression. *Biology of Sex Differences*, 10(1), 1–14. <https://doi.org/10.1186/s13293-019-0226-x>
- Tung, Y. J., Lo, K. K. H., Ho, R. C. M., & Tam, W. S. W. (2018). Prevalence of depression among nursing students: A systematic review and meta-analysis. *Nurse Education Today*, 63, 119–129. <https://doi.org/10.1016/j.nedt.2018.01.009>
- Van Droogenbroeck, F., Spruyt, B., & Keppens, G. (2018). Gender differences in mental health problems among adolescents and the role of social support: Results from the Belgian health interview surveys 2008 and 2013. *BMC Psychiatry*, 18(1), 1–9. <https://doi.org/10.1186/s12888-018-1591-4>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus disease (Covid-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, 17(5), 1-25. <https://doi.org/doi: 10.3390/ijerph17051729>
- World Health Organization. (2020). Adolescent mental health. *WHO*. <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
- Yao, H., Chen, J. H., & Xu, Y. F. (2020). Patients with mental health disorders in the Covid-19 epidemic. *The Lancet Psychiatry*, 7(4), 21. [https://doi.org/10.1016/s2215-0366\(20\)30090-0](https://doi.org/10.1016/s2215-0366(20)30090-0)
- Zeng, W., Chen, R., Wang, X., Zhang, Q., & Deng, W. (2019). Prevalence of mental health problems among medical students in China: A meta-analysis. *Medicine (United States)*, 98(18) 1-10. <https://doi.org/10.1097/MD.00000000000015337>