

Prevalence of Burnout Syndrome Among Medical Students

Andra Novitasari^{1*}, Nabiila Qushoyyi², Mega Pandu Arfiyanti³, Romadhoni³

¹Department of Community Medicine, Faculty of Medicine, University of Muhammadiyah Semarang, Semarang, Indonesia

²Undergraduate Program, Faculty of Medicine, University of Muhammadiyah Semarang, Semarang, Indonesia

³Department of Medical Education, Faculty of Medicine, University of Muhammadiyah Semarang, Semarang, Indonesia

Submitted: 24 April 2024, Final Revision: 19 October 2024, Accepted: 21 October 2024

ABSTRACT

Background: The mental health of medical students is a matter of concern due to the heavy study load that begins with the bachelor's degree program, progresses through the professional phase, and continues into the internship period. Approximately 49% of medical students in the USA and between 28%-61% in Australia experience burnout. Potential factors such as responsibilities for completing assignments, parental expectations, efforts to maintain grades, and academic competition can lead to burnout syndrome. If individuals are unable to adapt to and manage prolonged stress, it can result in maladaptive behavior.

Aims: The purpose of this research was to assess the prevalence and severity of burnout syndrome among medical students at the University of Muhammadiyah Semarang.

Methods: A descriptive analysis was conducted using primary data collected through the Maslach Burnout Syndrome Inventory. A total sampling technique was used with respondents from the medical professional study program during the 2022-2023 academic year. Those with psychiatric disorders, consuming sedatives, or absent during the study period were excluded.

Results: Out of 135 participants, the incidence of burnout syndrome showed that 77.0% experienced low emotional exhaustion, 11.9% moderate, and 11.1% high. Depersonalization cases were 80.7% low, 9.6% moderate, and 9.6% high. Personal accomplishment was reported as 37.0% low, 17.0% moderate, and 45.9% high.

Conclusion: The incidence of burnout syndrome among the respondents predominantly featured low emotional exhaustion and depersonalization, and high personal achievement.

Keywords: burnout syndrome, depersonalization, emotional exhaustion, medical student, personal accomplishment

PRACTICE POINTS

- The results are expected to serve as a reference for academic efforts to prevent burnout syndrome and to improve the quality of education for students.
- The findings are intended to contribute to the development of educational strategies and focus on mental health for students at the Faculty of Medicine. The educational institution ought to contemplate introducing early identification initiatives for burnout syndrome in medical students. Frequent screens and mental health evaluations may identify at-risk students and enable prompt interventions.
- High-risk populations, such as students enrolled in long-term courses or those in the clinical phase, should receive targeted interventions. Mentors or counselors should conduct routine check-ins and feedback sessions to provide the necessary support.

*corresponding author, contact: andra@unimus.ac.id

INTRODUCTION

The mental well-being of medical students is garnering increased attention due to the severe educational demands they encounter. Medical education, a rigorous course of study, is necessary to become a professional doctor competent in serving the community.¹ It involves structured curricula across pre-clinical and clinical stages, culminating in an internship, and imposes significant psychological stress on students. These stages span intensive study periods from undergraduate courses through professional training and internships. Factors such as the accumulation of academic responsibilities, high parental expectations, the pressure to maintain grades and intense peer competition are recognized as potential triggers for student fatigue and burnout.^{2,3} Additional factors that can influence burnout include student workload, personal characteristics such as resilience and coping mechanisms, and cultural perspectives that may affect how stress is perceived and managed.

Past studies, including research by Ishak et al., reveal that a substantial number of medical students in the USA (49%) and Australia (28-61%) experience burnout, indicating its prevalence during medical training. Extensive studies in the USA suggest that nearly half of all medical students may encounter burnout at some point in their educational careers.⁴ A 2021 study in Indonesia identified a statistically significant link between healthcare workers' workloads and their risk of burnout. Specifically, healthcare professionals with high workloads are 2.5 times more likely to experience burnout than those with less demanding workloads.⁵

Burnout is prevalent among healthcare professionals and can also impact students whose daily activities are psychologically taxing.⁶ This condition, known as burnout syndrome, results from continuous stress and repeated episodes of extreme fatigue.^{7,8} Persistent pressure can lead to burnout, characterized by a loss of motivation, a decline in academic performance, and possibly resulting in withdrawal from social settings or relationship issues.⁹

The symptoms of burnout extend beyond academic life, potentially leading to psychiatric disorders

and suicidal ideation. Burnout manifests in three primary dimensions: emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment.⁶ Emotional exhaustion manifests in the form of feelings and the sensation of being exhausted by the psychological efforts made at work. It is also described in terms of weariness, tiredness, fatigue, and weakening. The subjects who manifest that type of feeling show difficulties in adapting to the work environment since they lack sufficient emotional energy to cope with work tasks. Depersonalization is the interpersonal component of burnout and is defined as a response of detachment, indifference, and unconcern towards the work being performed, and/or the people who receive it. That translates into negative or inappropriate attitudes and behaviors, irritability, loss of idealism, and interpersonal avoidance usually towards service users, patients, and/or clients. Personal accomplishment is reflected in a negative professional self-evaluation and doubts about the ability to perform the job effectively, as well as a greater tendency to evaluate results negatively. It also translates into a decrease in productivity and capabilities, low morale, as well as lower coping skills. These aspects not only affect students' academic performance but also their professional and personal lives. Contributing factors to burnout are categorized into internal elements, such as students' personality traits and age, and external influences like the competitive educational environment and curriculum demands.^{8,10,11,12}

The challenges posed by mental health, especially burnout syndrome among medical students at the University of Muhammadiyah Semarang, are increasingly significant due to the demanding nature of medical education. Personal and professional characteristics are closely linked to susceptibility to burnout, underscoring the need for a thorough examination within this university.¹³

This study specifically chose students in the professional program to focus on those most immersed in clinical activities and facing the highest levels of responsibility and stress. Including students at various levels from the beginning to the end of their clerkship might have provided a broader

perspective, but the chosen cohort is likely to reflect the peak period of burnout risk. This decision allows for a more focused assessment of the impacts of clinical demands on burnout incidence. This study aims to provide a descriptive analysis of burnout syndrome among these students, highlighting the prevalence of this condition and exploring the specific dimensions of burnout syndrome among medical students. The findings are intended to inform strategies to mitigate this growing issue within the medical education community.

METHODS

This research was conducted at the Faculty of Medicine, University of Muhammadiyah Semarang in August 2023. The study involved 135 professional programs of medical students from the 2022-2023 academic year, who met the specified inclusion and exclusion criteria. Inclusion required students who were willing and completed the questionnaire fully, while exclusions applied to students with psychiatric disorders, those on medications such as sedatives, and students absent due to leave or illness during the study period. The sampling technique employed was total sampling, which involves selecting every available subject to get a comprehensive view of burnout syndrome in these students. Out of the total research population, 100% of the students participated in the study.

Data were primarily collected using the Maslach Burnout Syndrome Inventory (MBI) questionnaire and identity forms. The MBI was chosen as the measurement tool for evaluating burnout due to its comprehensive approach to assessing the three critical dimensions of burnout. It comprises 22 questions, assessing emotional exhaustion (9 questions), depersonalization (5 questions), and personal accomplishment (8 questions). Emotional Exhaustion refers to feelings of being emotionally overextended and exhausted by one's work. The MBI assesses this with nine items using a Likert scale ranging from 0 (never) to 6 (every day). The questions in this dimension are phrased negatively to identify the extent of the emotional drain experienced by respondents. Depersonalization represents a negative, detached response to various

aspects of the job, often manifesting as cynicism. It is measured with five items on the same 0 to 6 Likert scale, with all questions also negatively worded to capture a sense of impersonal feeling towards the job. Personal Accomplishment involves feelings of ineffectiveness and the lack of achievement and competence in one's work. This dimension uses eight items rated on the same Likert scale but in contrast to the other dimensions, the questions here are phrased positively to evaluate the respondent's self-efficacy and personal success.^{14,15} In specific validation studies conducted by Mindaniati I, a Pearson correlation greater than 0.361 confirmed validity, and a Cronbach's Alpha value greater than 0.88 confirmed the reliability of the questionnaire, deeming it both valid and reliable for assessing burnout.⁵

To ensure that respondents did not have psychiatric disorders, the exclusion criteria involved a preliminary screening based on medical history and current medication use. Those with known psychiatric disorders or those consuming sedatives were excluded to prevent confounding effects that these conditions and medications could have on burnout assessment. The exclusion of psychiatric disorders and sedatives was necessary as these factors could independently influence burnout levels, potentially skewing the results and conclusions of the study.

Respondents completed the questionnaire in a supervised classroom setting to ensure consistency and minimize distractions. It took approximately 20-30 minutes for respondents to complete the questionnaire.

Data processing involves several steps including editing, coding, data entry, processing, and cleaning, followed by statistical analysis to describe each variable in terms of frequency distributions and percentages. Respondents completed the questionnaire following a standardized procedure. Instructions were provided, and the questionnaire was administered in a quiet environment. Responses were scored according to the MBI manual, with scores categorized into low, moderate, and high levels of burnout. The study was approved by the ethical committee of the Faculty of Medicine, University of Muhammadiyah Semarang, confirming compliance with WHO ethical standards from 2011. The ethical

clearance was issued on August 26, 2022, under the number 055/EC/KEPK-FK/UNIMUS/2022.

RESULTS AND DISCUSSION

This study examined burnout syndrome among medical students at Universitas Muhammadiyah Semarang in great detail. The study's main objective was to assess the frequency and intensity of burnout by looking at several demographic variables, including age, gender, living situation, marital status, length of undergraduate education, and stages of clinical rotation. To shed light on how these variables affect the many aspects of burnout, such as emotional weariness, depersonalization, and personal achievement, the data were collected and analysed. The distribution of burnout dimensions across these variables and the specific characteristics of the study population are shown in the following tables.

Table 1 presents the frequency distribution of the research sample based on respondent characteristics. Regarding gender, the majority of respondents are female, totaling 88 respondents (65.2%). The age

range of respondents is primarily in the late adolescent category (17-25 years), with 129 respondents (95.6%), a minimum age of 21, a maximum of 30, and an average age of 23.25 ± 1.391 SD. Most respondents are unmarried, with 133 respondents (98.5%). Of the respondents, 109 (80.7%) reside in dormitories, 22 (16.3%) live with parents, and 4 (3.0%) live with relatives while pursuing their professional medical education. A total of 116 respondents (85.9%) completed their undergraduate studies on time, within less than 8 semesters. During the study, 55 respondents (40.7%) were undergoing major clinical rotations, while 80 respondents (59.3%) were in minor clinical rotations.

Table 2 displays the frequency distribution of the research sample based on the dimensions of burnout syndrome. A significant majority of students (77.0%) reported low levels of emotional exhaustion, indicating that most students are managing their emotional stress well. However, the presence of 11.9% with moderate and 11.1% with high emotional exhaustion highlights a significant subset struggling with high levels of stress and fatigue.

Table 1. Student Characteristics, n=135

Variables	N	%	Min	Max	Mean + SD
Gender					
Male	47	34.8			
Female	88	65.2			
Age			21	30	23.25 + 1.391
Late adolescent (17-25 yo)	129	95.6			
Early adulthood (26-35 yo)	6	4.4			
Living arrangement					
Dormitory	109	80.7			
Live with parents	22	16.3			
Live with relatives	4	3.0			
Marital status					
Unmarried	133	98.5			
Married	2	1.5			
Duration of undergraduate studies			7	16	7.66 + 1.334
< 8 semesters	116	85.9			
> 8 semesters	19	14.1			
Clinical rotation					
Major (10 weeks)	55	40.7			
Minor (4 weeks)	80	59.3			

Most students (80.7%) exhibited low depersonalization, suggesting positive attitudes toward their studies and interactions. The 9.6% with moderate and 9.6% with high depersonalization indicate that a notable minority feel detached and cynical, which could affect their academic and professional engagement. Nearly half of the students (46.0%) reported high personal accomplishment, reflecting a strong sense of achievement and efficacy. Conversely, 37.0% felt low personal accomplishment, which can undermine motivation and self-esteem.

Table 3 presents the frequency distribution of research sample characteristics based on the dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment. Both men and women predominantly exhibit low levels of emotional exhaustion; however, the proportion is slightly higher among men. Conversely, women show higher percentages at moderate and high levels of emotional exhaustion compared to their male counterparts. This trend is consistent across all gender analyses, where

women tend to report greater emotional exhaustion. Similarly, while both genders predominantly exhibit low levels of depersonalization, men have higher percentages at moderate and high levels of this dimension, suggesting they are more likely to detach or become cynical under stress.^{16,17}

Table 2. MBI dimensions, n=135

Dimension	N	%
Emotional Exhaustion		
Low (<17)	104	77.0
Moderate (18-29)	16	11.9
High (>30)	15	11.1
Depersonalization		
Low (<5)	109	80.7
Moderate (6-11)	13	9.6
High (>12)	13	9.6
Personal Accomplishment		
Low (>40)	50	37.0
Moderate (34-39)	23	17.0
High (<33)	62	46.0

Table 3. Students' Characteristics and MBI, n=273

Variables	Emotional Exhaustion						Depersonalization						Personal Accomplishment						N	%
	Low		Moderate		High		Low		Moderate		High		Low		Moderate		High			
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
Gender																				
Male	39	83.0	2	4.3	6	12.8	36	76.6	6	12.8	5	10.6	17	36.2	11	23.4	19	40.4	47	100.0
Female	65	73.9	14	15.9	9	10.2	73	83.0	7	8.0	8	9.1	33	37.5	12	13.6	43	48.9	88	100.0
Age																				
Late adolescent (17-25 yo)	99	76.7	15	11.6	15	11.6	104	80.6	12	9.3	13	10.1	48	37.2	20	15.5	61	47.3	129	100.0
Early adulthood (26-35 yo)	5	83.3	1	16.7	0	0.0	5	83.3	1	16.7	0	0.0	2	33.3	3	50.0	1	16.7	6	100.0
Living arrangement																				
Dormitory	83	76.1	12	11.0	14	12.8	88	80.7	9	8.3	12	11.0	40	36.7	20	18.3	49	45.0	109	100.0
Live with parents	17	77.3	4	18.2	1	4.5	18	81.8	3	13.6	1	4.5	9	40.9	2	9.1	11	50.0	22	100.0
Live with relatives	4	100.0	0	0.0	0	0.0	3	75.0	1	25.0	0	0.0	1	25.0	1	25.0	2	50.0	4	100.0
Marital status																				
Unmarried	102	76.7	16	12.0	15	0.0	2	80.5	13	9.8	13	9.8	49	36.8	22	16.5	62	46.6	133	100.0
Married	2	100.0	0	0.0	0	12.1	94	100.0	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	2	100.0
Duration of undergraduate studies																				
< 8 semesters	90	77.6	12	10.3	14	5.3	15	81.0	11	9.5	11	9.5	40	34.5	19	16.4	57	49.1	116	100.0
> 8 semesters	14	73.7	4	21.1	1			78.9	2	10.5	2	10.5	10	52.6	4	21.1	5	26.3	19	100.0
Clinical phase																				
Major (10 weeks)	43	78.2	7	12.7	5	12.5	63	83.6	4	7.3	5	9.1	23	41.8	10	18.2	22	40.0	55	100.0
Minor (4 weeks)	61	76.3	9	11.3	10			78.8	9	11.3	8	10.0	27	33.8	13	16.3	40	50.0	80	100.0

In their qualitative review, Maslach et al. (2001) observed that women generally score higher on emotional exhaustion, while men score higher on depersonalization. This aligns with gender role theory, which suggests that societal norms encourage women to express their emotions more freely, potentially leading to higher reported rates of emotional exhaustion. Conversely, men may suppress their emotional responses, leading to higher incidences of depersonalization as a coping mechanism. These behaviors are often perceived differently; expressive behaviors are associated with psychological distress, whereas suppressive behaviors are linked to strength and psychological adjustment.¹⁸

Additionally, the data indicate that both genders show high levels of personal accomplishment, though a greater percentage of women report low personal accomplishment. This observation is supported by some studies that found that female staff may experience reduced personal accomplishment compared to their male counterparts, potentially due to factors such as double workload (e.g., professional duties alongside domestic responsibilities like childcare and housework) and workplace inequality.¹⁷

Studies have also noted that while burnout is experienced differently by genders—women being more emotionally exhausted and men more depersonalized—both sexes employ different coping strategies. Women reportedly utilize broader social networks to manage stress and burnout, which can provide them with greater emotional support and resilience.¹⁷

In the study, the majority of individuals in early adulthood experience low levels of emotional exhaustion. However, among those reporting moderate to high levels of emotional exhaustion, a larger proportion are late adolescents. This trend is similarly observed in the dimension of depersonalization, where late adolescents again show higher percentages at moderate to high levels compared to their early adult counterparts.

Regarding personal accomplishment, late adolescents more frequently report high levels of personal accomplishment. In contrast, those in early adulthood are more likely to report moderate to low levels of personal accomplishment.

These patterns may be explained by the different life stages and developmental tasks faced by each group. Early adults might have more stable life structures and developed coping mechanisms that contribute to lower emotional exhaustion and depersonalization. Meanwhile, late adolescents are also characterized by heightened emotional intensity and volatility due to ongoing psychological and neurobiological development, making them more susceptible to emotional exhaustion, especially under stress.^{19,20}

Late adolescents reporting higher levels of personal accomplishment might be experiencing positive feedback and achievements in educational settings, which are more immediately rewarding and affirming. In contrast, early adults, navigating the complexities of longer-term career and life goals, may face realities that temper their perceptions of accomplishment. The challenges of establishing oneself in a career or other adult roles can lead to feelings of stagnation or moderate accomplishment, particularly if their expectations are not met as quickly or as fully as hoped.^{21,22}

The study reported that Students who reside in dormitories, with family, or with relatives consistently report lower levels of emotional exhaustion and depersonalization, coupled with higher levels of personal accomplishment. Students living in dormitories, with family, or relatives generally have more structured and stable living environments. Stability in one's living situation can significantly reduce daily stressors associated with unstable or uncertain living conditions, such as those faced by students who may live alone or in less supportive environments. Living with parents or relatives, or even in the communal setting of a dormitory, provides a network of social support which is crucial in managing stress. The presence of supportive relationships helps buffer against the psychological impact of academic pressures, which can manifest as emotional exhaustion or depersonalization. It can also enhance personal accomplishment. These students may feel more integrated into their educational environment or supported in their personal lives, which can foster a greater sense of achievement.^{23,24}

Both unmarried and married respondents consistently report low levels of emotional exhaustion,

with a notable finding that all married respondents experience low emotional exhaustion. This suggests that marital support might play a significant role in mitigating stress, with the potential added support from partners in the married group, providing a buffer against the pressures that lead to exhaustion.

Similarly, both groups show low levels of depersonalization, indicating effective coping mechanisms across marital statuses. Remarkably, all married respondent also reports low levels of depersonalization, possibly reflecting the emotional and social support gained from a marital relationship which helps maintain a positive and engaged attitude towards work and life challenges.^{22,25}

When examining personal accomplishment, a distinction emerges between the two groups. Unmarried individuals predominantly report high personal accomplishment, perhaps reflecting a focus on career and personal development often seen in those without marital responsibilities. Their focus may be more directed toward achieving personal or professional goals. In contrast, married respondents display a split in experiencing personal accomplishment, with an equal distribution between low and moderate levels. This could indicate that married individuals balance multiple roles and responsibilities, which might distribute their focus and affect their perception of personal achievements.²²

Students who complete their undergraduate studies in 8 semesters or fewer consistently exhibit low levels of emotional exhaustion. However, those who take longer than 8 semesters to graduate show a higher propensity for moderate to high emotional exhaustion. This suggests that extended study durations might correlate with increased stress, possibly due to prolonged academic pressures, increased academic workload, financial pressures from extended schooling, or the psychological burden of not meeting traditional timelines. This can lead to higher instances of moderate to high emotional exhaustion.

This pattern is similarly observed in the depersonalization dimension, where students with longer study periods also tend to report higher levels of depersonalization. Prolonged exposure to

the academic environment and its inherent stressors could potentially lead to feelings of cynicism or detachment from one's studies or career aspirations.²⁶

In terms of personal accomplishment, there is a notable contrast between the two groups. Students who graduate within 8 semesters often report high personal accomplishment, likely feeling a sense of achievement and efficacy from completing their studies efficiently. Conversely, those whose education extends beyond 8 semesters predominantly report low personal accomplishment. This could be attributed to the challenges and potential setbacks experienced during their extended academic journey, which may impact their self-evaluation and overall satisfaction with their academic achievements.²⁷

Medical students undergoing both the major clinical phase (lasting 10 weeks) and the minor clinical phase (lasting 4 weeks) report lower levels of emotional exhaustion and depersonalization. Both clinical rotations likely provide structured learning environments with supportive supervisory relationships, which can help mitigate stress. These phases are typically well-organized, with clear objectives and feedback mechanisms, helping students manage their expectations and stress levels, thus reducing emotional exhaustion and depersonalization.

The major clinical phase, being longer and potentially more demanding, might involve more challenging responsibilities and a broader scope of experiences. Students in this phase may feel overwhelmed by the complexity and volume of tasks they need to manage. The intensity and extended duration can lead to a perception of lower personal accomplishment due to the high expectations and critical nature of the tasks, which might not always be immediately rewarding.

In contrast, the minor clinical phase is shorter and might focus on more specific or limited tasks, allowing students to achieve set goals within a shorter timeframe. This can lead to a greater sense of achievement as students can see the results of their efforts more directly and rapidly. The brevity of the phase may also make the goals seem more attainable and the feedback more immediate, which enhances feelings of accomplishment.^{22,28}

This study comprehensively assessed burnout syndrome among medical students at Universitas Muhammadiyah Semarang, revealing significant associations with emotional exhaustion, depersonalization, and personal accomplishment. Emotional Exhaustion subcomponent is critical as it directly impacts students' ability to cope with academic demands and maintain their motivation and mental health. Identifying high-risk groups can help in designing targeted interventions to reduce emotional exhaustion. Low levels of depersonalization are positive, indicating that most students remain engaged with their work. However, those with higher depersonalization need support to re-engage and develop a positive outlook toward their studies and professional interactions. Ensuring high levels of personal accomplishment is vital for students' self-efficacy and overall satisfaction with their academic and professional progress. Programs that recognize and reward achievements can help boost this dimension.

CONCLUSIONS

The study provides valuable insights into the prevalence and dimensions of burnout syndrome among medical students at Universitas Muhammadiyah Semarang. The majority of students, irrespective of their gender, age, living arrangements, marital status, duration of undergraduate study, or clinical phase, reported low levels of emotional exhaustion and depersonalization.

Personal accomplishments varied significantly. High levels of personal accomplishment were reported across both genders, the late adolescent age group, all living arrangements, unmarried respondents, students who completed their degrees within the typical timeframe (≤ 8 semesters), and those in the minor clinical phase. Both married respondents reported low and moderate levels of personal accomplishment. Low personal accomplishment was also observed among students with prolonged study durations during their undergraduate studies and those in major clinical rotations. The findings highlight the need for tailored strategies to address emotional exhaustion, depersonalization, and personal accomplishment

RECOMMENDATIONS

Future research should consider longitudinal designs to track changes in burnout levels over time among medical students. This approach could help identify critical periods where interventions are most needed and assess the long-term efficacy of existing support measures.

Incorporating qualitative methods, such as interviews or focus groups, could provide deeper insights into the personal experiences and perceptions of burnout among medical students. Understanding the subjective aspects of burnout can inform more tailored and sensitive interventions.

Comparing burnout levels between different faculties within the university or between medical schools in different regions or countries could provide insights into environmental and educational factors that influence burnout. This can also highlight effective practices from various settings that could be adopted elsewhere.

COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

AUTHORS' CONTRIBUTION

Andra Novitasari – developing a research proposal, collecting data, data analysis, and publication of the manuscript.

Nabiila Qushoyyi – developing a research proposal, collecting data, data analysis, and publication of the manuscript.

Mega Pandu Arfiyanti – data analysis and publication manuscript.

Romadhoni - data analysis and publication manuscript.

REFERENCES

1. Majelis Kehormatan Etik Kedokteran Indonesia. Kode Etik Kedokteran dan Pedoman Pelaksanaan Kode Etik Kedokteran Indonesia. Kode Etik Kedokt. 2004; (29): 1024-1028.
2. Ahmad D. Penerapan Kode Etik Kedokteran Indonesia. Published online 2012.

3. Khatami RA. Hubungan stres terhadap burnout pada mahasiswa preklinik fakultas kedokteran uin syarif hidayatullah Jakarta tahun ajaran 2018/2019. Published online 2018: 1-82.
4. Ishak W, Nikraves R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *Clin Teach*. 2013; 10(4): 242-245. doi: 10.1111/TCT.12014
5. Mindaniati I. Gambaran Terjadinya Burnout Syndrome pada Mahasiswa Profesi Fakultas Kedokteran Gigi Universitas Islam Sultan Agung Semarang. *Fak Kedokt Gigi Univ Islam Sultan Agung Semarang*. Published online 2020.
6. Monira M. ElKholy ETES, Abdelrahman. Prevalence and Predictors of Burnout Syndrome among Medical Students of Cairo University. *The Egyptian Journal of Community Medicine*.
7. Mazurkiewicz R, Korenstein D, Fallar R, Ripp J. The prevalence and correlations of medical student burnout in the pre-clinical years: A cross-sectional study. *Psychol Heal Med*. 2012; 17(2): 188-195. doi: 10.1080/13548506.2011.597770
8. Astuti DA, Hernaya A, Nabila A, Kusumaningtiar DA. Faktor-Faktor Yang Mempengaruhi Burnout Pada Tenaga Kesehatan Instalasi Pelayanan Radiologi Dan Kedokteran Nuklir Rsupn Cipto Mangunkusumo Tahun 2021. *J Kesehat Masy*. 2022; 10(1): 108-114. doi: 10.14710/jkm.v10i1.32004
9. Frajerman A, Morvan Y, Krebs MO, Gorwood P, Chaumette B. Burnout in medical students before residency: A systematic review and meta-analysis. *Eur Psychiatry*. 2019; 55: 36-42. doi: 10.1016/j.eurpsy.2018.08.006
10. Shanafelt TD, Dyrbye LN, West CP, Sinsky CA. Potential Impact of Burnout on the US Physician Workforce. *Mayo Clin Proc*. 2016; 91(11): 1667-1668. doi: 10.1016/j.mayocp.2016.08.016
11. Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F. Psychological stress and burnout in medical students: a five-year prospective longitudinal study. *JRSocMed*. 1998; 91(5): 237. doi: 10.1177/014107689809100502
12. Dianti NA, Findyartini A. Hubungan Tipe Motivasi terhadap Kejadian Burnout pada Mahasiswa Fakultas Kedokteran Universitas Indonesia pada Masa Transisi dari Pendidikan Preklinik ke Klinik Tahun 2018 The Relationship between Type of Motivation and Burnout in Medical Student during T. 2019; 7(2). doi: 10.23886/ejki.7.10771.Abstrak
13. Chunming WM, Harrison R, MacIntyre R, Travaglia J, Balasooriya C. Burnout in medical students: A systematic review of experiences in Chinese medical schools. *BMC Med Educ*. 2017; 17(1): 1-11. doi: 10.1186/s12909-017-1064-3
14. Brady KJS, Ni P, Sheldrick RC, et al. Describing the emotional exhaustion, depersonalization, and low personal accomplishment symptoms associated with Maslach Burnout Inventory subscale scores in US physicians: an item response theory analysis. *J Patient-Reported Outcomes*. 2020; 4(1). doi: 10.1186/s41687-020-00204-x
15. Elkholy MM, El-sayed ET, Sedrak AS, Raouf NA. Prevalence and Predictors of Burnout Syndrome among Medical Students of Cairo University. *Egypt J Community Med*. 2019; 37(3): 83-92. doi: 10.21608/ejcm.2019.43375
16. Castellanos J. Gender Differences within Academic Burnout. *Adult High Educ Alliance Annu Meet Adult High Educ Alliance (42nd, Orlando, FL, Mar 8-9, 2018)*. Published online 2018: 27-32.
17. Adekola B. Gender differences in the experience of work burnout among university staff. *African J Bus Manag*. 2010; 4(6): 886-889.
18. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001; 52(February): 397-422. doi: 10.1146/annurev.psych.52.1.397
19. Wilkinson RB, Walford WA, Espnes GA. Coping styles and psychological health in adolescents and young adults: A comparison of moderator and main effects models. *Aust J Psychol*. 2000; 52(3): 155-162. doi: 10.1080/00049530008255383

20. Mohideen M, Studies M. Exploring Coping Strategies for Stress Management Among Adolescent Students : A Revised Investigation. 2023; 1(5): 74-82.
21. Williams K, Lisi AM de. Coping Strategies in Adolescents. 2000; 20(4): 537-549.
22. Bafei SEC, Chen J, Qian Y, et al. The Association between Burnout, Social Support, and Psychological Capital among Primary Care Providers in Togo: A Cross-Sectional Study. *Med.* 2023; 59(1). doi: 10.3390/medicina59010175
23. Hassan M, Fang S, Malik AA, Lak TA, Rizwan M. Impact of perceived social support and psychological capital on university students' academic success: testing the role of academic adjustment as a moderator. *BMC Psychol.* 2023; 11(1): 1-11. doi: 10.1186/s40359-023-01385-y
24. Worsley JD, Harrison P, Corcoran R. The role of accommodation environments in student mental health and wellbeing. *BMC Public Health.* 2021; 21(1): 1-15. doi: 10.1186/s12889-021-10602-5
25. Gelaw YM, Hanoch K, Adini B. Burnout and resilience at work among health professionals serving in tertiary hospitals, in Ethiopia. *Front Public Heal.* 2023; 11(June). doi: 10.3389/fpubh.2023.1118450
26. Sumarni T, Mediawati AS, Yulianita H. Academic Burnout Among Undergraduates Nursing Students. *J Nurs Care.* 2022; 4(3): 255-264. doi: 10.24198/jnc.v4i3.34400
27. Almeneessier AS, Azer SA. Exploring the relationship between burnout and emotional intelligence among academics and clinicians at King Saud University. *BMC Med Educ.* 2023; 23(1): 1-11. doi: 10.1186/s12909-023-04604-7
28. Shadid A, Shadid AM, Shadid A, et al. Stress, Burnout, and Associated Risk Factors in Medical Students. *Cureus.* 2020; (January). doi: 10.7759/cureus.6633