LUX MENSANA Volume 4, Nomor 3, 2025
Hal. 115-130

Review Article

MEDICAL STUDENT'S MENTAL HEALTH: COPING STRATEGIES THAT WORK (AND DON'T)

Amanda Widyadhana[1)], Maftuchah Rochmanti[2)]*
[1)] Medical Programme, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia
[2)] Department of Anatomy, Histology, and Pharmacology, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia
*Corresponding Author, E-mail: maftuchah-r@fk.unair.ac.id

ABSTRACT

Introduction. Stress, anxiety, and depression are common forms of mental health disorders faced by medical students worldwide. These disorders can lead to depression, anxiety, burnout as well as suicidal ideation and attempts. Coping strategies can help students face psychological distress, either through problem-focused coping, emotion-focused coping, or dysfunctional coping. This review aims to provide the prevalence of stress, anxiety, and depression in medical students, along with effective coping strategies to combat these mental health conditions. **Method.** This review utilized Google Scholar, PubMed, and Scopus to review articles in English and Indonesian. Various keywords were used, such as "Medical students", "Stress", "Anxiety", "Depression", "Coping", "Coping strategy", "*Mahasiswa kedokteran*", "*Stres*", "*Ansietas*", "*Kecemasan*", "*Depresi*", "*Koping*", and "*Strategi koping*." The initial search identified 394 articles, of which 34 met the inclusion criteria and were included in this review. **Result & Analysis.** Varying reports were found regarding the prevalence of stress, anxiety, and depression among medical students. Students who used problem-focused coping showed correlations with lower levels of stress, anxiety, and depression. Dysfunctional coping has a positive correlation with stress, anxiety, and depression. Some claim that emotion-focused coping is found to be correlated with lower levels of stress, anxiety, and depression. On the contrary, several studies found otherwise. Varying factors lead to stress, anxiety, and depression in medical students. **Discussion.** Different coping strategies yield different results in relation to stress, anxiety, and depression. This proves the need to encourage healthy coping strategies in medical students to combat mental health disorders.

Keywords: Anxiety, Coping, Depression, Medical students, Stress.

INTRODUCTION

Worldwide, stress is a common form of mental health disorder faced by medical students. Some studies show that more than half of medical student's experience stress (Cuttilan, 2016; Bamuhair, 2015; Steiner-Hofbauer, 2020), while other studies disagree (Mishra, 2021; Vijay, 2020; Mangaiarkkarasi, 2023; Rashmi, 2024; Rochmanti, 2023; Bassols, 2015). Stress is a mental tension caused by a difficult situation, feeling under pressure, feeling overwhelmed, or finding it hard to face a certain situation (WHO, 2021; UNICEF, 2022). In medical students, a multitude of factors play a role in the stress they face, namely studies, fear of failure, academic expectations, examinations, group activities, lack of time with family and friends, cultural differences, as well as interpersonal and intrapersonal relations (Kloping, 2021; Sharma, 2023; Al-Shahrani, 2023). Stress in medical students can lead to depression, anxiety, burnout, as well as suicidal ideation and attempts (Zhang, 2024).

Of 40.438 medical students worldwide, 33.8% experience anxiety (Quek, 2019). In Asia, 7.04% of medical students face anxiety (Cuttilan, 2016). Anxiety is an intense and excessive feeling of fear and worry, which can present itself as somatic symptoms of tension (WHO, 2025; American Psychological Association, 2018). Anxiety differs from fear as it focuses on a general future-oriented threat, whereas fear focuses on a specific present-

oriented threat (American Psychological Association, 2018). A lower grade point average (GPA) of medical students is seen to be correlated with higher anxiety levels, with students experiencing severe anxiety more prominently in 5th-year medical students (Fahmy, 2025).

WHO estimates that around 12 million productive days each year have been lost due to anxiety, as performance, learning, and overall productivity can be significantly affected (WHO, 2023; Beshr, 2024). Anxiety can interfere with concentration, goal-directed attention, working memory, and perceptual-motor function (Quek, 2019).

Depression is present in 27.2% of a total of 122.356 medical students (Rotenstein, 2016). Similarly, 27% of 162.450 medical students worldwide experience depression (Tam, 2018). Depression is a mental health disorder that affects all aspects of an individual's life (WHO, 2023). Depression can be caused by genetic, biological, environmental, as well as psychological factors. Stress is one of the risk factors for depression (National Institute of Mental Health, 2024; UNICEF, 2022). Depression can impact school performance, work productivity, as well as relationships with family, friends, and communities (WHO, 2023). Depression is found to lead to suicidal attempts, in which they have a higher tendency for suicidal ideation (UNICEF, 2022; Kemenkes, 2023).

Coping is one of the ways to deal with psychological distress, in which coping is thoughts and behaviors done consciously and voluntarily to face stressful situations (Algorani, 2023). Medical students show a varied preference for how they deal with stress, anxiety, and depression. Medical students were found to use problem-focused coping when dealing with stress, anxiety, and depression, which are generally seen as positive ways to deal with mental health disorders (Rochmanti et al., 2023; Satar et al., 2022; Shao, 2020; Bustamam, 2020; Hawsawi et al., 2025; Geum-ho, 2012). Some studies state that emotion-focused coping can reduce stress, anxiety, and depression levels in medical students (Bustamam, 2020; Satar et al., 2022; Teh, 2023; Ramadianto, 2022; Steiner-Hofbauer, 2020), while others claim that stress, anxiety, and depression increase with the use of emotion-focused coping (Mangaiarkkarasi, 2023; Vijay, 2020; Teh, 2023; Ramadianto, 2022; Rashmi, 2024). Dysfunctional coping is agreed to have negative effects on stress, anxiety, and depression levels of medical students (Mishra, 2021; Rahman, 2022; Teh, 2023; Ramadianto, 2022; Mangaiarkkarasi, 2023; Hawsawi et al., 2025).

Given the different results of the efficacy of coping strategies to handle stress, anxiety, and depression in medical students, this literature review aims to provide the prevalence of stress, anxiety, and depression in medical students, as well as what coping strategies are effective in tackling these mental health issues. The results of this literature review will serve as a basis of understanding to provide prevention and relief from stress, anxiety, and depression in medical students through the use of coping strategies.

METHOD AND ANALYSIS

This literature review utilized PubMed, Scopus, and Google Scholar as search engines to collect articles relevant to this review. Pubmed, Scopus, and Google Scholar were used as search engines due to its focus on health-related research, high-impact literature, and a wide array of databases, respectively.

This study reviewed articles in English and Indonesian. The keywords used involved "Medical students", “Stress,” “Anxiety,” “Depression,” “Coping,” “Coping strategy,” “Mahasiswa kedokteran,” “Stres,” “Ansietas,” “Kecemasan,” “Depresi,” “Koping,” and “Strategi koping.” Articles included were those published from 2010 to 2025.

The inclusion criteria for this study include articles that discuss the prevalence of stress, anxiety, and/or depression, and/or the correlation between stress, anxiety, and/or depression with coping strategies. Articles that were excluded were articles that did not meet the inclusion criteria.

The article selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). The systematic search across three databases initially identified 394 articles, supplemented by 23 additional articles obtained through manual reference screening (snowballing method), resulting

in 417 total articles. After removing 238 duplicate entries, 179 unique articles remained. Following title and abstract screening, 73 articles were excluded due to irrelevance to the research focus. Subsequently, 106 articles underwent full-text review. During the eligibility assessment phase, 23 articles were excluded due to inaccessible full texts, and 49 articles failed to fulfill the inclusion criteria (e.g., did not involve medical students, lacked discussion on coping strategies, or employed unclear methodologies). This rigorous selection process yielded 34 articles that met all inclusion criteria and were included in the final narrative synthesis. The detailed selection process is presented in Table 1.

Table 1 PRISMA-like sequence

Selection Process	Article amount	Description
Identification		
Articles found through database search (PubMed, Scopus, Google Scholar)	394	Using keywords: "Medical students", "Stress", "Anxiety", "Depression", "Coping", etc.
Additional articles through the manual search method (snowballing)	23	Relevant references from previous articles.
Total articles identified	417	
Screening		
Deleted duplicates	238	Duplicates between databases
Total articles after deleted duplicates	179	
Article filtered through title and abstract	73	Irrelevant to stress, anxiety, depression, or coping.
Article for full-text review	106	
Eligibility		
Inaccessible full-text	23	Full text cannot be accessed
Does not fulfill the inclusion criteria	49	Does not include medical students, does not discuss coping, unclear methods, etc.

Selection Process	Article amount	Description
Identification		
Articles found through database search (PubMed, Scopus, Google Scholar)	394	Using keywords: "Medical students", "Stress", "Anxiety", "Depression", "Coping", etc.
Additional articles through the manual search method (snowballing)	23	Relevant references from previous articles.
Total articles identified	417	
Screening		
Deleted duplicates	238	Duplicates between databases
Total articles after deleted duplicates	179	
Article filtered through title and abstract	73	Irrelevant to stress, anxiety, depression, or coping.
Article for full-text review	106	
Eligibility		
Inaccessible full-text	23	Full text cannot be accessed
Total number of relevant articles	34	
Articles included for the review	34	Used in the narrative synthesis.

Source: Author's Analysis

RESULT & DISCUSSION

This literature review identified considerable variation in reported prevalence rates of stress, anxiety, and depression among medical students across different populations. Medical students employed various coping strategies to manage these mental health disorders, with certain strategies demonstrating beneficial effects while others proved detrimental to their psychological wellbeing. The 34 articles included in this review are systematically presented in Table 2, which details the title, author(s), and journal publication for each study.

Table 2 34 Articles Included for Review

No.	Title	Author	Journal
1.	Stress, burnout and coping strategies in preclinical medical students	Jawad Fares, Hayat Al Tabosh, Zein Saadeddin, Christopher El Mouhayyar, Hussam Aridi	North American Journal of Medical Sciences
2.	Effective coping strategies utilised by medical students for mental health disorders during undergraduate medical education-a scoping review	Kamran Sattar, Muhammaf Saiful Bahri Yusoff, Wan Nor Arifin, Mohd Azhar Mohd Yasin, Mohd Zarawai Mat Nor	BMC Medical Education
3.	Study of Stress, Anxiety, Depression, Coping, and Associated Factors among Medical Students from Central India	Babar Vijay, Gedam Sachin Ratan, Manore Sharad, Dewangan Kedarnath, Gaikwad Prafulla, Patond Swapnil	Journal of Datta Meghe Institute of Medical Sciences University
4.	Stress and Coping Strategies among Medical Students in Dubai, United Arab Emirates, in 2020: A Cross-Sectional Study	Yas K. Boushehri, Lakshmanan Jeyaseelan, Meshal A. Sultan	Emirates medical journal
5.	The relationship between coping strategies, stress, and anxiety among King Saud University medical students	Mohammad A. Aljaffer, Ali A. Almazam, Faisal G. Alzahrani, Fahad M. Alsultan, Abdulaziz M. Alrasheed, Rayyan M. Almousa, Abdullah I. Alsuhaibani	Journal of Family Medicine and Primary Care
6.	The Relationship between Spirituality and Stress: A Study of Medical Students at Islamic Universities in Jakarta	Syahidah Rena	Jurnal pendidikan agama Islam
7.	Navigating the medical journey: Insights into medical students' psychological wellbeing, coping, and personality	Aisha Ali Hawsawi, Neil Nixon, Elena Nixon	PLOS ONE
8.	Predictors and coping strategies for stress, anxiety and depression among medical undergraduates and postgraduates in Puducherry	A. Mangaiarkkarasi, K. Akshita	International journal of basic and clinical pharmacology
9.	Stress, Anxiety and Depression in First-year Medical Undergraduates and Coping Strategies Employed during COVID-19-induced Online	Malhotra Rashmi, Naithani Manisha, Verma Anita, Bahurupi Yogesh, Bisht Kanchan, Singh Brijendra, Joshi Tanmay	Journal of Medical Evidence

No.	Title	Author	Journal
	Learning: A Cross-sectional Study from North India		
10.	STUDENT SUPPORT PROGRAM TO REDUCE STRESS, ANXIETY, AND DEPRESSION ON MEDICAL STUDENTS	Nurfitri Bustamam, Ria Maria Theresa, Sri Wahyuningsih	Jurnal Pendidikan Kedokteran Indonesia: The Indonesian Journal of Medical Education
11.	Mental Health Status, Coping Strategies During Covid-19 Pandemic Among Undergraduate Students of Healthcare Profession	Jayanti Mishra, Priyadarsini Samanta, Ansuman Panigrahi, Kulumiha Dash, Manas Ranjan Behera, Ramachandra Das	International Journal of Mental Health and Addiction
12.	The Relationship of Coping Strategies with Stress, Anxiety and Depression among Medical Students	Saeed ur Rahman, Hufsa Chandni Rizwan, Muhammad Ashar Waheed Khan, Saad Bashir Malik, Iftikhar Ahmed Minhas	Journal of Pakistan Psychiatric Society
13.	Dysfunctional Coping Strategies by Medical Students with Stress in the COVID-19 Pandemic	Maftuchah Rochmanti, Dewi Ratna Sari, Sakina, Atika, Tri Astuti Sugiyatmi	Springer Proceedings in Humanities and Social Sciences
14.	How to Cope with the Challenges of Medical Education? Stress, Depression, and Coping in Undergraduate Medical Students	Verena Steiner-Hofbauer, Anita Holzinger	Academic Psychiatry
15.	Mental Health and Coping Strategies among Medical Students	Lee Geum-ho, Go Yu-gyeong, Kang Kyung-hee, Lee Hye-gyeong, Kang Jae-gu, Heo Ye-ra	Korean Journal of Medical Education
16.	Prevalence of depression and anxiety and correlations between depression, anxiety, family functioning, social support and coping styles among Chinese medical students	Ruyue Shao, Ping He, Bin Ling, Li Tan, Lu Xu, Yanhua Hou, Liangsheng Kong, Yongqiang Yang	BMC Psychology
17.	Perception of Stress, Anxiety , Depression and Coping Strategies among Medical Students at Oman Medical College	Firdous Jahan, Muhammad A Siddiqui, Mohammed Mitwally, Noor Said Jasim Al Zubidi, Huda Said Jasim Al Zubidi	World Family Medicine Journal/Middle East Journal of Family Medicine
18.	Symptoms of depression and anxiety in Indonesian medical students: association with coping strategy and resilience	Adhitya Sigit Ramadianto, Irmia Kusumadewi , Feranindhya Agianandа, Natalia Widiasih Raharjanti	BMC Psychiatry
19.	Religious Coping, Religiosity, Depression and Anxiety among Medical Students in a Multi-Religious Setting	Benedict Francis, Jesjeet Singh Gill, Ng Yit Han, Chiara Francine Petrus, Fatin Liyana Azhar, Zuraida Ahmad Sabki, Mas Ayu Said, Koh Ong Hui, Ng Chong Guan, Ahmad Hatim	International Journal of Environmental Research and Public Health

No.	Title	Author	Journal
		Sulaiman	
20.	Psychological Resilience and Coping Strategies with Anxiety among Malaysian Medical Students during the COVID-19 Pandemic	Bentham Liang Sen Teh, Jin Kiat Ang, Eugene Boon Yau Koh, Nicholas Tze Ping Pang	International Journal of Environmental Research and Public Health
21.	Anxiety and Coping Strategies Among Medical Students During COVID-19 Pandemic: A Cross-sectional Study	Kranti Tekulapally, C Ruth Esther, Taruni Reddy	JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH
22.	Coping skills, depression, and anxiety in medical students	Sergio Baldassin, Mônica Levit Zilbermann, Tania Correa de Toledo Ferraz Alves, Anderson Sousa Martins-da-Silva, João Maurício Castaldelli-Maia, Luiz Antonio Nogueira-Martins	medRxiv (Cold Spring Harbor Laboratory)
23.	View of The Correlation Between the Level of Depression and Religious Coping Among Medical Students Class of 2020 Universitas Airlangga	Muhammaf Al-Farouq Yufiro Akbar, Azimatul Karimah, Imam Susilo, Purwo Sri Rejeki	Jurnal Psikiatri Surabaya
24.	Frequency of Functional Depression and Coping Strategies in Medical Students and Doctors	Abdum Muneeb, Fatima Farrukh, Binish Nawaz, Nathasha Billia, Sunnel, Syeda Eman Fatima, Mehrab Farooq, Muhammad Iqbal Asif, Neeta Maheshwary, Arjumand Ahmed, Muhammad Athar	Pakistan BioMedical Journal
25.	Intersection of anxiety and negative coping among Asian American medical students.	Michelle B. Moore, David Yang, Amanda M. Raines, Rahn Kennedy Bailey, Waania Beg	Frontiers in Psychology
26.	Stress, anxiety, and depression among medical students in a multiethnic setting	Bibi Kulsoom, Nasir Ali Afsar	Neuropsychiatric Disease and Treatment
27.	Prevalence of psychological stress, depression and anxiety among medical students in Egypt.	Mohammed Fawzy, Sherifa A. Hamed	Psychiatry Research
28.	Depression, Anxiety, and Stress among Medical Students in the Faculty of Medicine Universitas Airlangga Year Batch	Tasca Rizkina Maulida, Azimatul Karimah, Pudji Lestari, Maftuchah Rochmanti	Indian Journal of Public Health Research & Development
29.	Prevalence of anxiety, depression and suicidal behaviors among Brazilian undergraduate students: A systematic review and meta-analysis	Lauro Miranda Demenech, Adriano Trassantes Oliveira, Lucas Neiva-Silva, Samuel C. Dumith	Journal of Affective Disorders
30.	Prevalence of Anxiety and Depression	Fábio de Oliveira Tabalipa, Mariana	Revista Brasileira de Educação Médica

No.	Title	Author	Journal
	among Medical Students	Fuganti de Souza, Gláucia Pfützenreuter, Vinícus Carriero Lima, Eliane Traebert, Jefferson Trabert	
31.	Stress, anxiety & depression among medical undergraduate students & their socio-demographic correlates	Shawaz Iqbal, Sandhya Gupta, Venkatarao Epari	Indian Journal of Medical Research
32.	View of Depression and suicidal ideation among medical students	Ikeoluwapo Kendra Bolakale-Rufai	Journal of Global Medicine
33.	Evaluation of Health-Related Quality of Life and Mental Health in 729 Medical Students in Indonesia During the COVID-19 Pandemic	David Nugraha, Sovia Salamah, Kevin Luke, Zefo Kiyosi Wibowo, Andro Pramana Witarto, Caesariska Deswima, Nabila Ananda Kloping, Bendix Samarta Witarto, Adila Taufik Syamlan, Abyan Irzaldy, Maftuchah Rochmanti, Dewi Ratna Sari, Sakina Sakina, Firas Farisi Alkaff	Medical Science Monitor
34.	Differences in Coping Strategies Across Ages and Genders: A Systematic Review	Ximeng Lin	Lecture Notes in Education Psychology and Public Media

Source: Author's Analysis

The prevalence of medical students experiencing stress varied from 20.9% to 62% (Fares et al., 2016). Stress was considered the most commonly identified mental health disorder among medical students, with 55% of reviewed articles reporting its occurrence (Sattar et al., 2022). In India, 37.27% of students experienced stress (Vijay et al., 2020). These findings demonstrate that stress represents a prevalent mental health concern confronting medical student populations.

There are varying reported levels of stress that medical students experience. A study done in Dubai showcased that a majority (51.7%) of medical students experienced moderate levels of stress (Boushehri, 2023). Other studies claim that most students experience moderate-to-high levels of stress (Aljaffer, 2025; Rena, 2023; Hawsawi et al., 2025). In contrast, mild-to-moderate levels of stress were reported to be the most common level of stress among medical students (Mangaiarkkarasi, 2023; Rashmi, 2024; Bustamam, 2020). Some state that mild levels of stress are what the majority of students are facing (Mishra, 2021; Rahman, 2022).

The prevalence of anxiety in medical students remains unclear, as the numbers reach above half of these students (Manggaiarkkarasi, 2023; Rashmi, 2024; Vijay, 2020) or nearing the half-mark (Ramadianto, 2022; Shao, 2020; Mishra, 2021). Some studies report that medical students had minimal to mild levels of anxiety (Tekulapally, 2022; Shao, 2020; Francis, 2019; Bustamam, 2020). Alternatively, other studies suggest that medical students typically suffer from moderate to higher levels of anxiety (Aljaffer, 2025; Baldassin, 2023; Rahman, 2022; Mangaiarkkarasi, 2023; Rashmi, 2024; Hawsawi et al., 2025; Vijay, 2020).

The reported rates of depression among medical students show a broad range, underscoring a high frequency of mental health symptoms in this population. At the lower end, some studies found that less than 50% of students reported depressive symptoms (Mishra, 2021; Akbar, 2024; Mangaiarkkarasi, 2023). However, many studies report much higher figures, with one finding that more than half of these medical students suffer from depression (Muneeb, 2025; Vijay, 2020; Jahan, 2016; Satar et al., 2022). The severity

of depression symptoms also varies, several studies found that most depressed students experienced mild to moderate levels (Bustamam, 2020; Geum-ho, 2021; Rahman, 2022; Rashmi, 2024; Akbar, 2024), while other researchers found that some medical students presented with borderline to high levels of depression (Hawsawi et al., 2025; Steiner-Hofbauer, 2020; Vijay, 2020).

Research shows that female medical students tend to experience stress more than male medical students. Rochmanti showcased that 39.4% of medical students experienced stress, in which more female students experienced stress than male students (Rochmanti, 2023). A study done in Vienna showcased that generally, the stress scores of medical students reached 47.5, with a significant finding of women experiencing more stress than men (Steiner-Hofbauer, 2020).

Research done by Rochmanti found a higher prevalence of stress in students who were currently in their third semester (Rochmanti, 2023). A significant correlation between the first and second year of study and high stress levels was found (Boushehri, 2023). In contrast, third-year medical students from a medical school in Korea were under the most stress compared to students in other academic years (Geum-ho, 2012).

Levels of stress in medical students vary, from mild to severe. Different sources present different outcomes on which severity these students face the most. Tjhin found that psychological, academic, and social factors play a detrimental role in stress (Tjhin, 2025). Female students were found to have a significant correlation with stress in medical students (Maulida, 2020; Iqbal, 2015). Self-assessment perception was strongly associated with high scores of stress in medical students (Iqbal, 2015). Smoking was found to predict higher levels of stress. When asked, students believed that the learning curriculum & schedule were the primary cause of their stress (Kulsoom, 2015). Living in university housing/facility showcased higher stress scores in medical students (Fawzy, 2017).

Literature points to different years in which medical students experience the most stress. Pre-clinical year students had higher stress scores compared to their clinical year counterparts. Students with lower academic achievements also presented with higher stress scores (Fawzy, 2017). Some studies yield results that support that medical students in their first and second years experience the most stress (Rochmanti, 2022; Boushehri, 2023). Another study revealed that students in their third year experience the most stress (Geum-ho, 2021)

Students in their first and second year studies were found to be due to the high school to university transition that these students have to adapt to (Rochmanti, 2023). Third-year students tend to experience more stress due to the teaching and learning-related stressors they face (Al-Shahrani, 2023). In contrast, another study found that third-year medical students experience less stress as they've managed to cope with their stressors (Abdulghani, 2011).

Females were found to have a significant correlation with anxiety in medical students (Maulida, 2020). It is found that more women are affected by anxiety than men in the general population (WHO, 2025). The hormonal changes due to the menstrual cycle also lead to periods of vulnerability to anxiety (Li, 2017). Female medical students are found to be more susceptible to anxiety due to the fewer learning opportunities and recreational activities offered for them (Ebrahim, 2024).

Higher prevalence of anxiety was associated with students in the early to middle years of their course (Demenech, 2020; Fawzy, 2017). Interestingly, a study found that younger age has a significantly negative correlation with anxiety (Fawzy, 2017). It is presumed that as students progress in their senior years of medical school, they learn to develop better self-care and coping, which could account for a lower number of anxiety (Quek, 2019). Similarly, due to a new challenging study environment and not having developed coping mechanisms, first-year medical students tend to have higher rates of anxiety (Alshehri, 2023). Somers found that anxiety disorders increase from ages 18 to 64 years old (Somers, 2006). Over time, younger people tend to have higher rates of anxiety, which could be due to the change of age and population structures (Remes, 2016).

Anxiety was found to have associations with a lack of psychological support and being currently in or having a history of psychological treatment.

Depression itself was a strong factor associated with anxiety (Demenech, 2020). Students whose parents were not physicians and students who felt parental pressure had a higher prevalence of anxiety (Tabalipa, 2015). Students' perception of self-assessment in academics yielded a strong association with higher scores of anxiety (Iqbal, 2015).

Long hours of lectures, financial burdens, and insufficient sleep were found to be risk factors of depression in medical students (Bolakale-Rufai, 2023). The perception of self-assessment in academics was strongly associated with higher scores of depression (Iqbal, 2015).

Female medical students were found to be more susceptible to depression than their male counterparts (Bolakale-Rufai, 2023; Demenech, 2020; Tabalipa, 2015; Nugraha, 2023). Women are found to be more open with their emotions and seek help, while male students find it harder to do so (Qiu, 2022), which could lead to a skewed report on depression levels in male students. Along with that, estrogen and progesterone were found to increase the risk of depression in women, making them biologically more susceptible than their male counterparts (Kundakovic, 2022).

Higher rates of depression were predominantly reported among students in the final years of their course (Demenech, 2020). Mirza found that third-year medical students have higher rates of depression due to inadequate learning and teaching, their worries about abilities in the future (Mirza, 2021). On the other hand, Ramadianto found that first-year medical students had higher rates of depression (Ramadianto, 2022). This is suspected due to the disproportionate theoretical learning over practical learning that these students face (Moutinho, 2017). The adaptation from high school to university, as well as the lack of understanding regarding the academic scene, leads to depression as well (Fawzy, 2017).

A lack of access to psychological support, as well as currently being in or having a history of psychological treatment, was linked to depression. Dissatisfaction with the course and a lack of participation in social and leisure activities were key factors associated with depression (Demenech, 2020). Students whose parents were physicians had a 29% higher prevalence of depression compared to students whose parents were not physicians. Students who reported being always or often pushed by their parents had a 19% higher prevalence of depression. Students who expressed concern for their professional future had a 15% higher prevalence of depression (Tabalipa, 2015).

Students with a lower Grade Point Average (GPA) had higher depression levels, previous COVID-19 disease severity (moderate-to-severe infection was a strong predictor of stress), comorbidities, previous learning experience, and history of family isolation due to COVID-19 were found to be detrimental to depression (Nugraha, 2023).

Medical students show a varied preference for how they deal with stress. The majority of students were found to use problem-focused coping strategies (Rochmanti, 2023), which are generally seen as positive ways to deal with mental health disorders (Satar et al., 2022). Self-distraction, humor, and planning were the most commonly used coping strategies by medical students (Boushehri, 2023). Rather than using emotion-focused coping strategies (such as the normal students), students who suffer from stress tend to use dysfunctional coping as an alternative to problem-focused coping (Rochmanti, 2023).

Problem-focused coping and emotion-focused coping are seen to be correlated with a reduced level of stress in medical students (Rena, 2016; Steiner-Hofbauer, 2020; Satar et al., 2022; Hawsawi et al., 2025). Active coping was significantly associated with reducing stress scores (Steiner-Hofbauer, 2020), while positive reframing was identified as a negative predictor for stress (Rahman, 2022). Furthermore, students reported beneficial results from lifestyle choices such as physical exercise and music-related activities (Fares, 2016), and the use of spirituality was found to decrease academic stress (Rena, 2016).

Other studies have found that avoidant/dysfunctional coping and emotion-focused coping are significantly correlated with stress (Mangaiarkkarasi, 2023; Hawsawi et al., 2025; Vijay, 2020). Passive coping and emotional expression were used more by students with high levels of stress compared to those with lower levels of stress (Geum-ho, 2012). Self-blame and

substance abuse were found to be positive predictors for stress (Rahman, 2022). Faith was found to increase stress scores of medical students (Steiner-Hofbauer, 2020). Self-distraction and behavioral disengagement were significantly associated with stress in both female and male medical students (Mishra, 2021).

Most research states that emotion-focused coping and avoidant/dysfunctional coping are correlated with anxiety (Teh, 2023; Tekulapally, 2022; Mangaiarkkarasi, 2023; Rashmi, 2024; Hawsawi et al., 2025; Vijay, 2020). Teh states that students who use emotion-focused and dysfunctional coping were found to have higher anxiety (Teh, 2023).

Studies show that with an increase in negative coping used, the more symptoms of anxiety in medical students (Shao, 2020; Moore, 2022). Dysfunctional coping is found to be significantly correlated with anxiety, specifically with the usage of self-blame, behavioral disengagement, self-distraction, substance use, and denial (Ramadianto, 2022). Negative religious coping is found to be correlated with symptoms of anxiety (Francis, 2019). In male students, denial and behavioral disengagement were found to be significantly associated with anxiety. On the other hand, substance use, behavioral disengagement, and self-blame were found to be associated with anxiety in female students (Mishra, 2021). Venting, humor, and self-blame were found to have a significant correlation with anxiety (Rashmi, 2024).

In contrast, other studies have claimed that emotion-focused coping has a negative correlation with anxiety, indicating that the more the students use these strategies, the lower their anxiety levels will be (Satar et al., 2022; Bustamam, 2020). A significant negative correlation was found between anxiety and positive coping (Shao, 2020). Most students had lower levels of anxiety after being trained to use problem-focused coping and emotion-focused coping, though some students had an increased level of anxiety (Bustamam, 2020).

Problem-focused coping is found to have a negative correlation with depression (Hawsawi et al. 2025; Bustamam, 2020; Geum-ho, 2012). Depression is found to be significantly associated with active coping in male medical students (Mishra, 2021). Emotion-focused coping, such as positive reframing, was found to significantly predict a decrease in depression levels (Rahman, 2022). Bustamam found that medical students who were trained to use problem-focused and emotion-focused coping had lower levels of depression and became normal (Bustamam, 2020). Depression with emotion-oriented and task-oriented coping strategies was found to have a significant association (Vijay, 2020). Positive thinking was significantly associated with reducing levels of depression in medical students (Steiner-Hofbauer, 2020). A study done at Universitas Airlangga showcased a significant negative correlation, indicating that the higher the level of religious coping, the lower the level of depression a medical student will have (Akbar, 2024).

However, other studies disagree and claim that emotion-focused coping contributes to depression. An increase in depression levels was found to be significantly associated with emotion-focused and avoidant coping (Mangaiarkkarasi, 2023). Depression was found to be correlated with venting, humor, and self-blame (Rashmi, 2024). Students with high levels of depression tend to use passive coping and emotional expression as opposed to problem-solving coping (Geum-ho, 2012).

Dysfunctional coping is found to be correlated with depression. A significant positive predictive relationship was found between depression with denial, self-blame, and substance abuse (Rahman, 2022). Mangaiarkkarasi claims that avoidant coping is significantly associated with increasing depression levels (Mangaiarkkarasi, 2023). Avoidant coping has a positive correlation with depression (Hawsawi et al., 2025). Self-blame and behavioral disengagement showed the strongest correlations with depressive symptoms (Ramadianto, 2022).

Emotion-focused coping is found to yield inconsistent results regarding its efficacy in dealing with stress, anxiety, and depression in medical students. Emotion-focused coping strategies are strategies that are utilized during uncontrollable situations through emotions, self-preoccupation, and fantasizing reactions (Lin, 2023; Salam, 2019). Emotion-focused coping is deemed

as less effective as it doesn't change the situation causing stress (Salam, 2019).

CONCLUSION

This research found that medical students suffer from stress, anxiety, and depression due to varying factors. Despite this, students have managed to utilize coping strategies. Problem-focused coping strategies have been proven to provide relief from these disorders, while dysfunctional coping was found to worsen the situation. Emotion-focused coping yielded different effects, which further highlights the need to equip medical students with knowledge and skills in order to cope healthily.

REFERENCES

A. Mangaiarkkarasi and K. Akshita (2023). Predictors and coping strategies for stress, anxiety and depression among medical undergraduates and postgraduates in Puducherry. *International journal of basic and clinical pharmacology*, 12(4), pp.538–544. doi:https://doi.org/10.18203/2319-2003.ijbcp20231888.

Abdulghani, H.M., AlKanhal, A.A., Mahmoud, E.S., Ponnamperuma, G.G. and Alfaris, E.A. (2011). Stress and Its Effects on Medical Students: A Cross-sectional Study at a College of Medicine in Saudi Arabia. *Journal of Health, Population and Nutrition*, 29(5). doi:https://doi.org/10.3329/jhpn.v29i5.8906.

Afsar, N. and Kulsoom, B. (2015). Stress, anxiety, and depression among medical students in a multiethnic setting. *Neuropsychiatric Disease and Treatment*, p.1713. doi:https://doi.org/10.2147/ndt.s83577.

Akbar, M.A.-F.Y., Karimah, A., Susilo, I. and Rejeki, P.S. (2020). *View of The Correlation Between the Level of Depression and Religious Coping Among Medical Students Class of 2020 Universitas Airlangga*. [online] Unair.ac.id. Available at: https://e-journal.unair.ac.id/JPS/article/view/46284/28484 [Accessed 11 Nov. 2025].

Al-shahrani, M., Alasmri, B.S., Al-shahrani, R., Almoalwi, N., Qahtani, A. and Siddiqui, A.F. (2023). The Prevalence and Associated Factors of Academic Stress among Medical Students of King Khalid University: An Analytical Cross-Sectional Study. *Healthcare*, 11(14), pp.2029–2029. doi:https://doi.org/10.3390/healthcare11142029.

Algorani, E.B. and Gupta, V. (2023). *Coping mechanisms*. [online] PubMed. Available at: https://www.ncbi.nlm.nih.gov/books/NBK559031/.

Aljaffer, M.A., Almazam, A.A., Alzahrani, F.G., Alsultan, F.M., Alrasheed, A.M., Almousa, R.M. and Alsuhaibani, A.I. (2025). The relationship between coping strategies, stress, and anxiety among King Saud University medical students. *Journal of Family Medicine and Primary Care*, [online] 14(4), pp.1169–1173. doi:https://doi.org/10.4103/jfmpc.jfmpc_1820_23.

Alshehri, A., Alshehri, B., Alghadir, O., Basamh, A., Alzeer, M., Alshehri, M. and Nasr, S. (2023). The prevalence of depressive and anxiety symptoms among first-year and fifth-year medical students during the COVID-19 pandemic: a cross-sectional study. *BMC Medical Education*, 23(1). doi:https://doi.org/10.1186/s12909-023-04387-x.

American Psychological Association (2018). *APA Dictionary of Psychology*. [online] dictionary.apa.org. Available at: https://dictionary.apa.org/anxiety?_gl=1.

Baldassin, S., Mônica Levit Zilbermann, Correa, T., Martins-da-Silva, A.S., João Maurício Castaldelli-Maia and Luiz Antonio Nogueira-Martins (2023). Coping skills, depression, and anxiety in medical students. *medRxiv (Cold Spring Harbor Laboratory)*. doi:https://doi.org/10.1101/2023.09.24.23295999.

Bamuhair, S.S., Al Farhan, A.I., Althubaiti, A., Agha, S., Rahman, S. ur and Ibrahim, N.O. (2015). Sources of Stress and Coping Strategies among Undergraduate Medical Students

Enrolled in a Problem-Based Learning Curriculum. *Journal of Biomedical Education*, [online] 2015, pp.1–8. doi:https://doi.org/10.1155/2015/575139.

Bassols, A.M.S., Carneiro, B.B., Guimarães, G.C., Okabayashi, L.M.S., Carvalho, F.G., Da Silva, A.B., Cortes, G.N., Rohde, L.A.P. and Eizirik, C.L. (2015). Stress and coping in a sample of medical students in Brazil. *Archives of Clinical Psychiatry (São Paulo)*, [online] 42, pp.1–5. doi:https://doi.org/10.1590/0101-60830000000038.

Bolakale-Rufai, I.K. (2025). *View of Depression and suicidal ideation among medical students*. [online] Globalmedicine.co.uk. Available at: https://globalmedicine.co.uk/index.php/jogm/article/view/87/323.

Boushehri, Y.K., Jeyaseelan, L. and Sultan, M.A. (2023). Stress and Coping Strategies among Medical Students in Dubai, United Arab Emirates, in 2020: A Cross-Sectional Study. *Emirates medical journal*, 05. doi:https://doi.org/10.2174/0102506882271181231121105845.

Bustamam, N., Theresa, R.M. and Wahyuningsih, S. (2020). STUDENT SUPPORT PROGRAM TO REDUCE STRESS, ANXIETY, AND DEPRESSION ON MEDICAL STUDENTS. *Jurnal Pendidikan Kedokteran Indonesia: The Indonesian Journal of Medical Education*, [online] 9(2), pp.170–181. Available at: https://jurnal.ugm.ac.id/jpki/article/view/51245/28265 [Accessed 11 Nov. 2025].

Cuttilan, A.N., Sayampanathan, A.A. and Ho, R.C.-M. (2016). Mental health issues amongst medical students in Asia: a systematic review [2000-2015]. *Annals of translational medicine*, [online] 4(4), p.72. doi:https://doi.org/10.3978/j.issn.2305-5839.2016.02.07.

Demenech, L.M., Oliveira, A.T., Neiva-Silva, L. and Dumith, S.C. (2021). Prevalence of anxiety, depression and suicidal behaviors among Brazilian undergraduate students: A systematic review and meta-analysis. *Journal of Affective Disorders*, 282, pp.147–159. doi:https://doi.org/10.1016/j.jad.2020.12.108.

Ebrahim, O.S., Sayed, H.A., Rabei, S. and Hegazy, N. (2024). Perceived stress and anxiety among medical students at Helwan University: A cross-sectional study. *Journal of Public Health Research*, 13(1). doi:https://doi.org/10.1177/22799036241227891.

Fahmy, E.K., Alsel, B.A., Alanazi, N.I.H., Ied A., A.A., Ghayyadh Alruwaili, N.L., Kareem S., A.F., Alfehaid, M.F. and Esmaeel, S.E. (2025). Academic Anxiety among Medical Students in College of Medicine at Northern Border University. *Journal of Pioneering Medical Sciences*, 14(1), pp.1–7. doi:https://doi.org/10.47310/jpms2025140101.

Fares, J., Al Tabosh, H., Saadeddin, Z., El Mouhayyar, C. and Aridi, H. (2016). Stress, burnout and coping strategies in preclinical medical students. *North American Journal of Medical Sciences*, 8(2), p.75. doi:https://doi.org/10.4103/1947-2714.177299.

Fawzy, M. and Hamed, S.A. (2017). Prevalence of psychological stress, depression and anxiety among medical students in Egypt. *Psychiatry Research*, 255, pp.186–194. doi:https://doi.org/10.1016/j.psychres.2017.05.027.

Francis, B., Gill, J., Yit Han, N., Petrus, C., Azhar, F., Ahmad Sabki, Z., Said, M., Ong Hui, K., Chong Guan, N. and Sulaiman, A. (2019). Religious Coping, Religiosity, Depression and Anxiety among Medical Students in a Multi-Religious Setting. *International Journal of Environmental Research and Public Health*, 16(2), p.259. doi:https://doi.org/10.3390/ijerph16020259.

Hawsawi, A.A., Nixon, N. and Nixon, E. (2025). Navigating the medical journey: Insights into medical students' psychological wellbeing, coping, and personality. *PLOS ONE*, 20(2), p.e0318399. doi:https://doi.org/10.1371/journal.pone.0318399.

Iqbal, S., Venkatarao, E. and Gupta, S. (2015). Stress, anxiety & depression among medical undergraduate students & their socio-demographic correlates. *Indian Journal of Medical Research*, 141(3), p.354. doi:https://doi.org/10.4103/0971-5916.156571.

Kementerian Kesehatan (2023). *Apakah yang dimaksud Stres itu?* [online] Direktorat P2PTM. Available at: https://p2ptm.kemkes.go.id/infographic-p2ptm/stress/apakah-yang-dimaksud-stres-itu.

Kloping, N.A., Citraningtyas, T., Lili, R., Farrell, S.M. and Molodynski, A. (2021). Mental health and wellbeing of Indonesian medical students: A regional comparison study. *International Journal of Social Psychiatry*, p.002076402110577. doi:https://doi.org/10.1177/00207640211057732.

Kundakovic, M. and Rocks, D. (2022). Sex hormone fluctuation and increased female risk for depression and anxiety disorders: From clinical evidence to molecular mechanisms. *Frontiers in Neuroendocrinology*, [online] 66(66), p.101010. doi:https://doi.org/10.1016/j.yfrne.2022.101010.

Lee, K., Ko, Y., Kang, K., Lee, H., Kang, J. and Hur, Y. (2012). Mental Health and Coping Strategies among Medical Students. *Korean Journal of Medical Education*, 24(1), pp.55–63. doi:https://doi.org/10.3946/kjme.2012.24.1.55.

Lin, X. (2023). Differences in Coping Strategies Across Ages and Genders: A Systematic Review. *Lecture Notes in Education Psychology and Public Media*, [online] 16, pp.305–312. doi:https://doi.org/10.54254/2753-7048/16/20231190.

Maftuchah Rochmanti, Dewi Ratna Sari, None Sakina, None Atika and Tri Astuti Sugiyatmi (2023). Dysfunctional Coping Strategies by Medical Students with Stress in the COVID-19 Pandemic. *Springer Proceedings in Humanities and Social Sciences*, pp.87–98. doi:https://doi.org/10.1007/978-981-99-4573-3_9.

Mishra, J., Samanta, P., Panigrahi, A., Dash, K., Behera, M.R. and Das, R. (2021). Mental Health Status, Coping Strategies During Covid-19 Pandemic Among Undergraduate Students of Healthcare Profession. *International Journal of Mental Health and Addiction*. doi:https://doi.org/10.1007/s11469-021-00611-1.

Moore, M.B., Yang, D., Raines, A.M., Bailey, R.K. and Beg, W. (2022). Intersection of anxiety and negative coping among Asian American medical students. *Frontiers in Psychology*, [online] 13. doi:https://doi.org/10.3389/fpsyg.2022.929227.

Moutinho, I.L.D., Maddalena, N. de C.P., Roland, R.K., Lucchetti, A.L.G., Tibiriçá, S.H.C., Ezequiel, O. da S., Lucchetti, G., Moutinho, I.L.D., Maddalena, N. de C.P., Roland, R.K., Lucchetti, A.L.G., Tibiriçá, S.H.C., Ezequiel, O. da S. and Lucchetti, G. (2017). Depression, stress and anxiety in medical students: A cross-sectional comparison between students from different semesters. *Revista da Associação Médica Brasileira*, [online] 63(1), pp.21–28. doi:https://doi.org/10.1590/1806-9282.63.01.21.

Muneeb, A., Farrukh, F., Nawaz, B., Billia, N., Suneel, Fatima, S.E., Farooq, M., Asif, M.I., Maheshwary, N., Ahmed, A. and Athar, M. (2025). Frequency of Functional Depression and Coping Strategies in Medical Students and Doctors. *Pakistan BioMedical Journal*, pp.31–36. doi:https://doi.org/10.54393/pbmj.v8i2.1133.

National Institute Of Mental Health (2024). *Depression*. [online] National Institute of Mental Health. Available at: https://www.nimh.nih.gov/health/topics/depression.

Nugraha, D., Salamah, S., Luke, K., Wibowo, Z.K., Witarto, A.P., Deswima, C., Kloping, N.A., Witarto, B.S., Syamlan, A.T., Irzaldy, A., Rochmanti, M., Sari, D.R., Sakina, S. and Alkaff, F.F. (2023). Evaluation of Health-Related Quality of Life and Mental Health in 729 Medical

Students in Indonesia During the COVID-19 Pandemic. *Medical Science Monitor*, 29. doi:https://doi.org/10.12659/msm.938892.

Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., Shamseer, L., Tetzlaff, J.M., Akl, E.A., Brennan, S.E., Chou, R., Glanville, J., Grimshaw, J.M., Hróbjartsson, A., Lalu, M.M., Li, T., Loder, E.W., Mayo-Wilson, E., McDonald, S., McGuinness, L.A., Stewart, L.A., Thomas, J., Tricco, A.C., Welch, V.A., Whiting, P. and Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, 372, n71. https://doi.org/10.1136/bmj.n71

Qiu, L., Feng, Y., Luo, J., Zhang, Y. and Yang, Q. (2022). Predictors of personal depression stigma in medical students in China: differences in male and female groups. *Medical Education Online*, 27(1). doi:https://doi.org/10.1080/10872981.2022.2093427.

Quek, T.T.-C., Tam, W.W.-S., Tran, B.X., Zhang, M., Zhang, Z., Ho, C.S.-H. and Ho, R.C.-M. (2019). The Global Prevalence of Anxiety Among Medical Students: A Meta-Analysis. *International Journal of Environmental Research and Public Health*, [online] 16(15), p.2735. doi:https://doi.org/10.3390/ijerph16152735.

Rahman, S. ur, Rizwan, H.C., Khan, M.A.W., Malik, S.B. and Minhas, I.A. (2022). The Relationship of Coping Strategies with Stress, Anxiety and Depression among Medical Students | Journal of Pakistan Psychiatric Society. *jpps.pk*. [online] Available at: https://jpps.pk/index.php/journal/article/view/134.

Ramadianto, A.S., Kusumadewi, I., Agiananda, F. and Raharjanti, N.W. (2022). Symptoms of depression and anxiety in Indonesian medical students: association with coping strategy and resilience. *BMC Psychiatry*, 22(1). doi:https://doi.org/10.1186/s12888-022-03745-1.

Rashmi, M., Naithani, M., Verma, A., Bahurupi, Y., Bisht, K., Singh, B. and Joshi, T. (2024). *Stress, Anxiety and Depression in First-year Medical Undergraduates and Coping Strategies Employed during COVID-19-induced Online Learning: A Cross-sectional Study from North India*. [online] Lww.com. Available at: https://journals.lww.com/jome/fulltext/2024/05040/stress.

Reddy, C.R.E. and Tekulapally, K. (2022). Anxiety and Coping Strategies Among Medical Students During COVID-19 Pandemic: A Cross-sectional Study. *JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH*. doi:https://doi.org/10.7860/jcdr/2022/50677.15981.

Remes, O., Brayne, C., van der Linde, R. and Lafortune, L. (2016). A systematic review of reviews on the prevalence of anxiety disorders in adult populations. *Brain and Behavior*, [online] 6(7). doi:https://doi.org/10.1002/brb3.497.

Rena, S. (2023). The Relationship between Spirituality and Stress: A Study of Medical Students at Islamic Universities in Jakarta. *Jurnal pendidikan agama Islam*, 20(2), pp.181–194. doi:https://doi.org/10.14421/jpai.v20i2.7833.

Rizkina Maulida, T., Karimah, A., Lestari, P. and Rochmanti, M. (2020). 223 Depression, Anxiety, and Stress among Medical Students in the Faculty of Medicine Universitas Airlangga Year Batch. [online] 11(12). Available at: https://repository.unair.ac.id/111382/1/Depression%2C%20Anxiety%2C%20and%20Stress%20among%20Medical%20Students%20in%20the%20Faculty%20of%20Medicine%20Universitas%20Airlangga%20Year%20Batch%202016%2C%202017%2C%20and%202018.pdf.

Rotenstein, L.S., Ramos, M.A., Torre, M., Segal, J.B., Peluso, M.J., Guille, C., Sen, S. and Mata, D.A. (2016). Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students. *JAMA*,

316(21), p.2214. doi:https://doi.org/10.1001/jama.2016.17324.

Salam, A., Harith, A.A.A., Abdullah, N., Shan, C.P., Rahman, A.B.A. and Mahadevan, R. (2019). Coping Strategies among First and Third Year Medical Students in a Malaysian Public University. *Journal of Medicine*, [online] 20(1), pp.5–11. doi:https://doi.org/10.3329/jom.v20i1.38813.

Sattar, K., Yusoff, M.S.B., Arifin, W.N., Yasin, M.A.M. and Nor, M.Z.M. (2022). Effective coping strategies utilised by medical students for mental health disorders during undergraduate medical education-a scoping review. *BMC Medical Education*, [online] 22(1). doi:https://doi.org/10.1186/s12909-022-03185-1.

Shao, R., He, P., Ling, B., Tan, L., Xu, L., Hou, Y., Kong, L. and Yang, Y. (2020). Prevalence of depression and anxiety and correlations between depression, anxiety, family functioning, social support and coping styles among Chinese medical students. *BMC Psychology*, 8(1), p.38. doi:https://doi.org/10.1186/s40359-020-00402-8.

Sharma, D.A., Gupta, D.N., Samanta, D.P.P., Krishna, A., Mittal, A., Soni, A. and Goyal, A. (2024). EXPLORING STRESS FACTORS AMONG MEDICAL UNDERGRADUATE STUDENTS: A SURVEY ON ACADEMIC, ENVIRONMENTAL, PERSONAL, AND PSYCHOLOGICAL STRESS FACTORS IN STUDY POPULATION OF A TERTIARY CARE ACADEMIC INSTITUTION. *Zenodo*, [online] pp.451–456. Available at: https://zenodo.org/records/10477347.

Siddiqui, M.A., Jahan, F. and Mitwally, M. (2016). Perception of Stress, Anxiety , Depression and Coping Strategies among Medical Students at Oman Medical College. *World Family Medicine Journal/Middle East Journal of Family Medicine*, [online] 14(7), pp.16–23. doi:https://doi.org/10.5742/mewfm.2016.92856.

Somers, J.M., Goldner, E.M., Waraich, P. and Hsu, L. (2006). Prevalence and Incidence Studies of Anxiety Disorders: A Systematic Review of the Literature. *The Canadian Journal of Psychiatry*, 51(2), pp.100–113. doi:https://doi.org/10.1177/070674370605100206.

Steiner-Hofbauer, V. and Holzinger, A. (2020). How to Cope with the Challenges of Medical Education? Stress, Depression, and Coping in Undergraduate Medical Students. *Academic Psychiatry*, 44(4), pp.380–387. doi:https://doi.org/10.1007/s40596-020-01193-1.

Tabalipa, F. de O., Souza, M.F. de, Pfützenreuter, G., Lima, V.C., Traebert, E. and Traebert, J. (2015). Prevalence of Anxiety and Depression among Medical Students. *Revista Brasileira de Educação Médica*, [online] 39(3), pp.388–394. doi:https://doi.org/10.1590/1981-52712015v39n3e02662014.

Tam, W., Lo, K. and Pacheco, J. (2018). Prevalence of depressive symptoms among medical students: overview of systematic reviews. *Medical Education*, 53(4), pp.345–354. doi:https://doi.org/10.1111/medu.13770.

Teh, B.L.S., Ang, J.K., Koh, E.B.Y. and Pang, N.T.P. (2023). Psychological Resilience and Coping Strategies with Anxiety among Malaysian Medical Students during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 20(3), p.1894. doi:https://doi.org/10.3390/ijerph20031894.

Thijn, P., Sicat, A.S., Padua, S.A., Sutrisman, H. and Ramadhona, R. (2025). The Wellbeing of Medical Students: A Comprehensive Review of Psychological, Academic, and Social Determinants. *TOFEDU The Future of Education Journal*, [online] 4(5), pp.1441–1451. doi:https://doi.org/10.61445/tofedu.v4i5.557.

UNICEF (2022). *Apa itu stres? | UNICEF Indonesia*. [online] www.unicef.org.

Available at: https://www.unicef.org/indonesia/id/kesehatan-mental/artikel/stres.

Vijay, B., Sachin Ratan, G., Sahad, M., Kedarnath, D., Prafulla, G. and Swapnil, P. (2020). *Study of Stress, Anxiety, Depression, Coping, and Associated Factors among Medical Students from Central India*. [online] Lww.com. Available at: https://journals.lww.com/dmms/fulltext/2020/15030/study_of_stress.

World Health Organization (2021). *Stress*. [online] www.who.int. Available at: https://www.who.int//news-room/questions-and-answers/item/stress/?gad_source=1&gclid=Cj0KCQjwwYSwBhDcARIsAOyL0fgZU0DUGupUmPcZCebDO1PKu3SSKYdSiAbb73SBUbBrlveix4tzN7IaAiQsEALw_wcB.

World Health Organization (2023). *Depressive disorder (depression)*. [online] www.who.int. Available at: https://www.who.int/news-room/fact-sheets/detail/depression/?gad_source=1&gclid=CjwKCAjwi_exBhA8EiwA_kU1Ms53T2PNdncHV4oalc2KFCyCVuT1sA7wwUnnvu2c_OnEluBayjEZlBoC00kQAvD_BwE.

World Health Organization (2025). *Anxiety disorders*. [online] World Health Organization. Available at: https://www.who.int/news-room/fact-sheets/detail/anxiety-disorders.

Zhang, J., Li, X., Tang, Z., Xiang, S., Tang, Y., Hu, W., Tan, C. and Wang, X. (2024). Effects of stress on sleep quality: multiple mediating effects of rumination and social anxiety. *Psicologia: Reflexão e Crítica*, 37(1). doi:https://doi.org/10.1186/s41155-024-00294-2