



Salud Mental: Desafíos y Estrategias de Afrontamiento entre Estudiantes Universitarios de Pregrado: Una Investigación Transversal

Mental Health Challenges and Coping Strategies Among Undergraduate Students: A Cross-Sectional Investigation

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Abstract

Mental health disorders are a leading cause of morbidity and mortality worldwide, with young adults in higher education being significantly affected and vulnerable. The educational environment is surrounded by stressors that can negatively impact students' mental well-being. Identifying these stressors is crucial for developing corrective measures to mitigate their effects. The current study explores factors affecting students' mental health and the various coping mechanisms employed by students. An instrument was developed and validated to gather information on factors responsible for students' mental health-related disorders and coping strategies. A chi-square test was used to investigate the factors that accounted for students' mental health problems coupled with various coping mechanisms, as well as the association between student characteristics and mental health problems. The study found a significant association between mental health disorders and gender ($p < 0.05$), with female students reporting higher exposure to mental health-related problems than their male counterparts. No statistically significant difference was observed between the age categories and the mental health status of the students. However, there was a statistically significant difference between age categories and factors influencing mental health disorders ($p < 0.001$), where late adolescents showed higher percentages of learning and personal problems, while young adults recorded higher percentages of financial and family problems and were more likely to be bullied by friends. The findings further revealed that mental health and coping mechanisms differed significantly across students according to their age categories ($p < 0.05$). Young adults are more likely to take medication and seek medical help for mental health problems than late adolescents. These insights can serve as a compass guiding educational institutions, policymakers, and mental health practitioners toward more targeted and efficacious strategies to address the pressing issue of mental health among college students.

Keywords

Undergraduate students, Mental health, Stressors, Learning challenges, Coping mechanism.

Resumen

Los trastornos de salud mental son una de las principales causas de morbilidad y mortalidad a nivel mundial, y los adultos jóvenes en la educación superior se encuentran entre los grupos más afectados y vulnerables. El entorno educativo está rodeado de diversos factores estresantes que pueden afectar negativamente el bienestar mental de los estudiantes. Identificar estos factores es fundamental para desarrollar medidas correctivas que permitan mitigar sus efectos. El presente estudio explora los factores que afectan la salud mental de los estudiantes y los diversos mecanismos de afrontamiento utilizados por ellos. Se desarrolló y validó un instrumento para recopilar información sobre los factores responsables de los trastornos relacionados con la salud mental de los estudiantes, así como las estrategias de afrontamiento utilizadas. Se empleó una prueba de chi-cuadrado para investigar los factores asociados con los problemas de salud mental de los estudiantes, junto con los diversos mecanismos de afrontamiento, así como la relación entre las características de los estudiantes y los problemas de salud mental. El estudio encontró una asociación significativa entre los trastornos de salud mental y el género ($p < 0.05$), donde las estudiantes reportaron una mayor exposición a problemas relacionados con la salud mental en comparación con sus compañeros varones. No se observó una diferencia estadísticamente significativa entre las categorías de edad y el estado de salud mental de los estudiantes. Sin embargo, se encontró una diferencia estadísticamente significativa entre las categorías de edad y los factores que influyen en los trastornos de salud mental ($p < 0.001$). Los adolescentes tardíos mostraron mayores porcentajes de problemas de aprendizaje y personales, mientras que los adultos jóvenes registraron mayores porcentajes de problemas financieros y familiares, y tenían más probabilidades de sufrir acoso por parte de sus compañeros. Los resultados también revelaron que la salud mental y los mecanismos de afrontamiento difieren significativamente entre los estudiantes según sus categorías de edad ($p < 0.05$). Los adultos jóvenes tienen más probabilidades de tomar medicamentos y buscar ayuda médica para los problemas de salud mental en comparación con los adolescentes tardíos. Estos hallazgos pueden servir como una guía para que las instituciones educativas, los responsables de políticas públicas y los

profesionales de la salud mental desarrollen estrategias más específicas y eficaces para abordar el urgente problema de la salud mental entre los estudiantes universitarios.

Palabras clave

Estudiantes universitarios de pregrado, salud mental, factores de estrés, desafíos de aprendizaje, mecanismos de afrontamiento.

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Introduction

Given that mental disorders rank among the primary causes of morbidity both globally and in Malaysia, there has been a recent surge in recognizing the significance of mental health (Gururaj et al., 2016; Ritchie and Roser, 2018). Mental illnesses are intricately linked to various non-communicable diseases, substance abuse, criminal activities, violence, self-harm, suicides, diminished productivity, and increased absenteeism (Boguszewicz et al., 2021). The association between mental illnesses and non-communicable diseases, substance abuse, crimes, violence, self-harm, suicide, loss of productivity, and absenteeism underscores the need for comprehensive interventions. However, the treatment gap for mental disorders remains alarmingly high, particularly in low-income and middle-income countries. To bridge this gap, it is essential to focus on improving access to treatment, while also implementing preventive and promotive measures to enhance the overall mental well-being of the population.

Although mental illness affects individuals across all age groups, it disproportionately affects young adults, as evidenced by the alarming statistics that suicide ranks as the second leading cause of death among those aged 15-29 globally (Batty et al., 2018; Stallman, 2010). The stressors faced by these students are multifaceted, encompassing factors such as limited leisure time, academic and examination pressures, heavy workloads, performance expectations, parental anticipations, strained relationships with faculty, financial instability, uncertain career prospects, and post-graduation unemployment fear (Kumar et al., 2009; Pöhlmann et al., 2005).

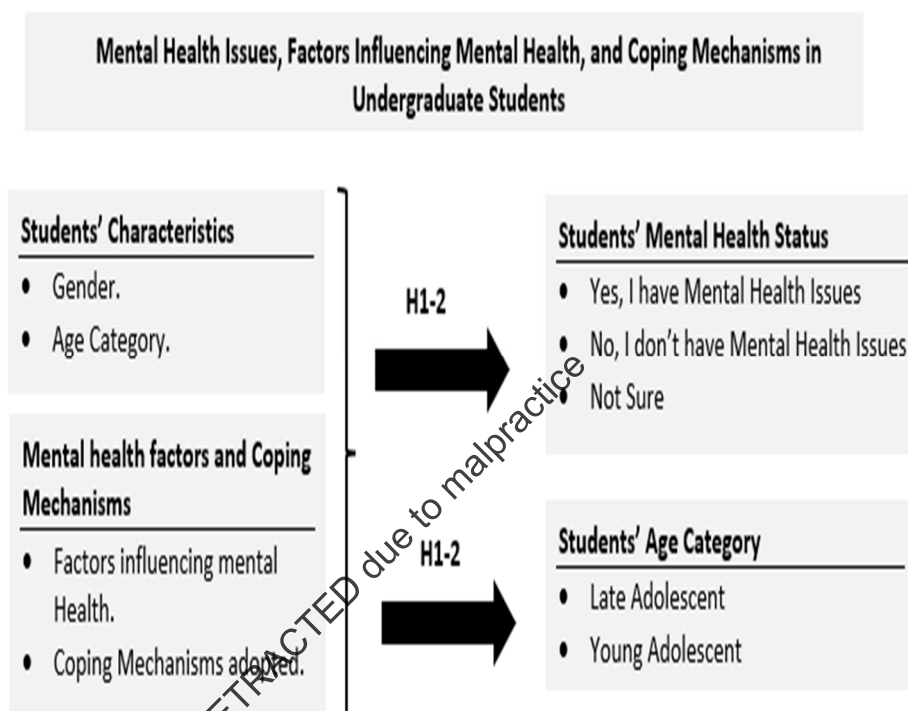
The impact of mental distress on students extends to both the personal and professional realms. Personally, it manifests as physical symptoms, emotional exhaustion, burnout, and even suicidal thoughts (Dyrbye et al., 2006; Kearns et al., 2015). Professionally, it detrimentally influences ethical conduct, professional behaviour, and empathy, consequently affecting the quality of patient care (Dyrbye et al., 2010). Students employ a range of strategies to cope with their mental stress. Positive coping mechanisms involve seeking support from teachers, parents, or peers; engaging in physical activities such as exercise; listening to music; and participating in spiritual practices (Ahmad et al., 2011; Muirhead and Locker, 2008; Sugiura et al., 2005). Conversely, negative coping methods include resorting to alcohol consumption, cigarette smoking, and problematic Internet use (Cuttilan et al., 2016). All these factors contribute significantly to economic and societal burdens (Kessler and Üstün, 2004). The treatment gap for mental disorders is staggering, with an estimated 76-85 percent of individuals with severe conditions not receiving adequate care. This treatment deficit is particularly pronounced in low- and middle-income countries, where the pervasive issues of stigma, discrimination, and neglect act as formidable barriers (WHO 2013). In this context, addressing the mental well-being of the population requires not only enhanced access to treatment but also proactive measures in prevention and promotion (Vignesh Kumar et al., 2013).

Studying mental health among undergraduate students is imperative for several reasons. First, there is a global rise in mental health concerns, and universities are not exempt from this trend. Investigating the prevalence and identifying the risk factors among undergraduates is crucial for developing targeted interventions. Moreover, the unique stressors inherent in academic settings, such as academic pressures and social adjustments, make understanding mental health essential in this context. This research provides insights into the challenges students face during this critical transitional phase from adolescence to adulthood. Additionally, mental well-being has a direct correlation with academic performance, emphasising the need to explore this relationship for better educational outcomes.

Furthermore, the study of mental health among undergraduate students is vital in Malaysia and other nations. Cultural nuances, social factors, and unique stressors play a role in shaping mental health. Conducting research specific to Malaysia can shed light on how cultural contexts influence perceptions of mental health, stigma, and coping mechanisms. This localised understanding is crucial for tailoring support services. Additionally, identifying high-risk groups and implementing targeted interventions is only possible through focused studies on this demographic group. Ultimately, such research contributes not only to individual well-being, but also to public health by informing policymakers on strategies to promote mental well-being among future leaders and contributors to society. Therefore, in line with

these elements, the following research questions and hypotheses were formulated to guide the study, as shown in Figure 1.

Figure 1. Conceptual framework of the study.



Research Questions

RQ1: Is there an association between students' gender and their mental health status?

RQ2: Is there an association between students' age categories and their mental health status?

RQ3: Are there differences in the factors influencing students' mental health with respect to their age categories?

RQ4: Do coping mechanisms differ across students according to their age categories?

Hypotheses

H1: There is a significant association between students' gender and their mental health status.

H2: There is a significant association between students' age categories and their mental health status.

H3: There are significant differences in the factors influencing students' mental health with respect to their age.

H4: Coping mechanisms differ significantly across students according to their age categories.

Materials and Methods

Before the commencement of this study, students were informed about the purpose of the study, and a verbal agreement was obtained through a briefing at the beginning of the data collection via their various course coordinators. Approval to carry out the study was obtained from the departmental ethics committee of Universiti Malaysia Terengganu (UMT/PPAL/500-32 JILID; 10 October 2022), and all students consented to the study. It is worth highlighting that the study was carried out anonymously as such no personal information of the student was disclosed. The following steps were performed to address the research aims:

Participants

In the current study, a descriptive cross-sectional survey design with a stratified sampling approach was employed to ensure representation from different academic levels, genders, and fields of study. The final sample size, determined through Gpower analysis, comprised 1394 undergraduate students (409 males and 985 females) within the age range of 18 to 25 years, who voluntarily participated in the study.

Students aged 18 – 19 years were categorised as late adolescents, while those within the range of 20 - 25 were termed young adults (Ahmad et al., 2001). A random sample technique was used to gather students from years one to six, undertaking various courses across six public universities in Malaysia.

Inclusion and Exclusion Criteria in the Study

The inclusion criteria for participation in this study were defined to ensure a relevant and representative sample of undergraduate students. Participants were required to be actively enrolled as full-time undergraduate students in Malaysian public universities at the time of data collection. Only individuals within the age range of 18 to 25 years were considered, in order to reflect the characteristics of traditional undergraduate populations. The study encompassed students from Year 1 through Year 6 across various academic disciplines, allowing for the inclusion of diverse educational experiences. In addition, participation was strictly voluntary, and only those who provided informed consent were included. To preserve the integrity and reliability of the dataset, responses containing substantial missing information or inconsistencies were excluded from the analysis.

Conversely, several exclusion criteria were established to refine the study sample. Students enrolled in postgraduate or part-time programmes were not considered eligible for participation. Furthermore, individuals with previously diagnosed mental health disorders requiring clinical intervention were excluded, as the study aimed to focus on general undergraduate experiences rather than clinical populations. Participants who chose to withdraw their consent at any stage of the study were also excluded from the final analysis to ensure adherence to ethical research standards.

Instruments for data collection

In the current study, a survey instrument was developed to gather information on the mental health status of students, exposure to mental health disorders, factors perceived as responsible for their mental health problems, and several coping mechanisms employed by students. To comprehensively capture the educational and personal factors influencing mental health, a structured and validated instrument was used. The instrument incorporates established scales and items from existing psychometric tools related to mental health, academic challenges, financial situations, and personal circumstances. The content validity of the instrument was assessed by experts in the field to ensure its relevance to the Malaysian higher education context. Participants were asked to self-report their mental health status using standardised scales to provide nuanced insights into the prevalence and severity of mental health issues. On average, the instrument takes 20 minutes for students to fill up. To assess the test-retest reliability of the questionnaire instrument, 30 % of the respondents (418 students) were selected to complete the survey for the second time 14 days after their initial responses were received (Maliki et al., 2017; Sabo et al., 2022). Cronbach's alpha and the intraclass correlation coefficient (ICC) were excellent with 0.95 and 0.92 values respectively, demonstrating the test-retest reliability and internal consistency of the instrument.

Statistical Analysis

In this study, we used the Chi-square test for goodness of fit analysis to explore the relationship between students' age category (i.e. late adolescents or young adults) and their exposure to mental health problems. Similarly, the mental status of the students, coupled with the different factors influencing it with respect to gender, was examined. We also examined the mental health status of the students and their association with different assistance-seeking coping mechanisms. The Chi-square test is a robust tool for analysing categorical data and is well-suited for this type of analysis. However, it is important to note that the test only works with counted and classified datasets and not with continuous or parametric numeric data. Therefore, the data used in the analysis must be in the form of frequencies (counts) rather than percentages or relative frequencies (Hassan et al., 2023; Musa et al., 2022). Moreover, Cramer's V analysis was employed to ascertain the degree of association between the study variables.

Results

Table 1 shows the distribution of mental health status with regard to students' gender. There was a statistically significant difference between genders in mental health status, as demonstrated by the Chi-square and Cramer's V analysis ($p < 0.05$). It can be seen from the table that 21 percent of male students reported exposure to mental health issues, while 19.7 percent of female students experienced the same issue. Similarly, a total of 60.4 percent of the male students reported no mental problem in comparison with the female who recorded a total percent of 54.5. It was also observed that a total percent of 25.5 percent of the females were unsure of their exposure to mental health problems, while 18.6 percent of the same cases were observed in the male category. Overall, it was revealed that 20.1 percent of the students had experienced mental health-related problems, while 23.7 percent were unsure, with a total of 56.2 percent declaring they had not experienced mental health problems.

Table 1. Association of gender and student statuses of mental health.

Gender	Status of Mental Health Problem			Total (%)
	Yes (%)	No (%)	Not sure (%)	
Male	21.0	60.4	18.6	100
Female	19.7	54.5	25.8	100
Overall Total (%)	20.1	56.2	23.7	100

$$\chi^2(2) = 8.365; p = 0.015, \text{Cramer's } V = 0.077; P = 0.015$$

Figure 1 shows a graphical illustration of the frequencies of mental health status across male and female. The figure shows that female students reported a higher frequency of mental health problems in 194 cases, compared to 86 male students. Similarly, it is indicated from the figure that female students are more likely to be doubtful in the state of their mental health, with a total of 254 cases in comparison with male students with 76 cases. On the other hand, a total number of 537 female students were free from mental health problems compared to 247 male students.

Figure 2. Frequencies of Mental health status across students' genders.



Table 2 reveals the distribution of the students' mental health status with respect to their age categories. No statistically significant difference was observed between the age categories and mental health status of the students, as reflected in the Chi-square and Cramer's V analysis ($p > 0.05$). It can be seen from the table that 20.1 percent of the students confirmed their exposure to mental health-related problems,

while 56.2 reported no such issues and 23.7 percent of the students were unsure of their mental health state.

Table 2. Age categories and students' mental health exposure.

Age Category	Status of Mental Health Problem			Total (%)
	Yes (%)	No (%)	Not sure (%)	
Late Adolescents	41.1	33.8	37.6	100
Young Adults	58.9	66.2	62.4	100
Overall Total (%)	20.1	56.2	23.7	100

$$\chi^2(2) = 5.103; p = 0.078, \text{Cramer's } V = 0.061; P = 0.078$$

Figure 3. Frequency of mental health status based on students' age categories.

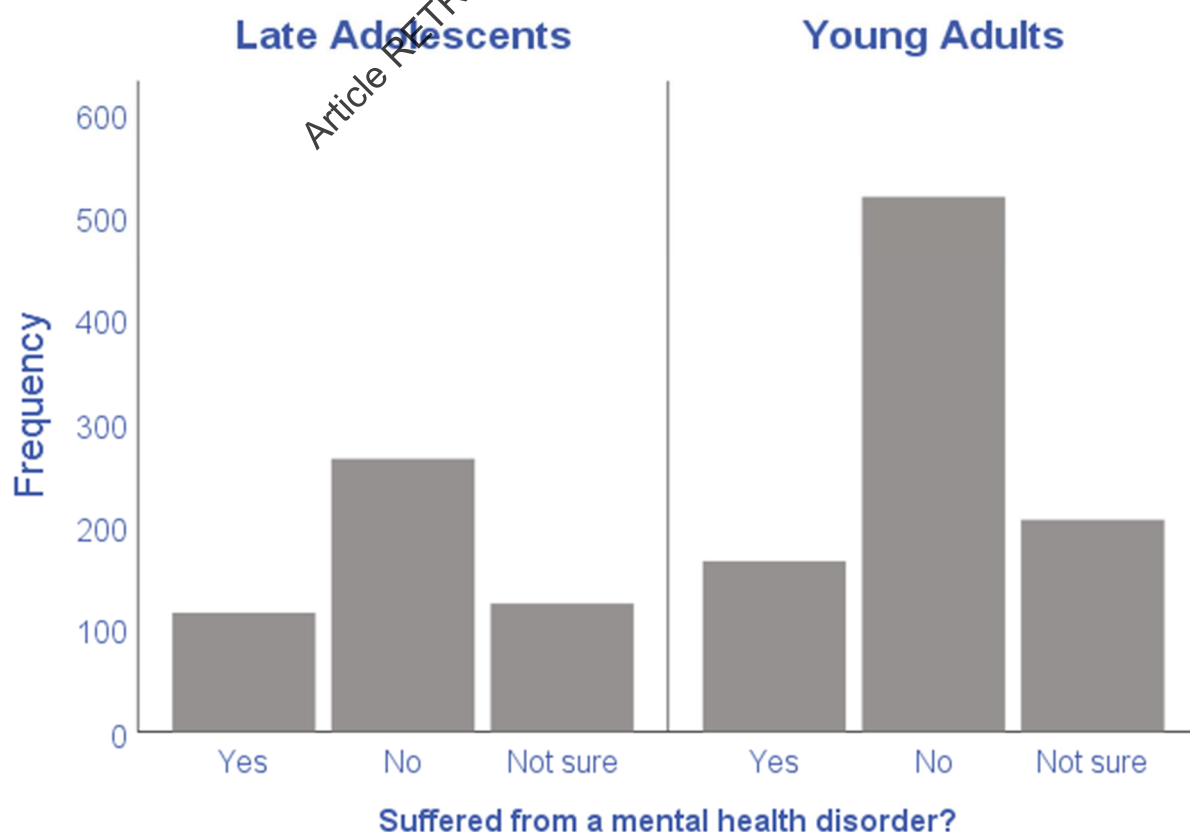


Figure 3 shows the distribution of students' mental health statuses based on their age categories. It can be seen from the figure that young adults recorded a higher frequency of mental health issues, with a total of 165 cases, in comparison with 115 late adolescents. Similarly, it is indicated from the figure that a total number of 519 young adults reported not experiencing any mental health problems while 265 of late adolescents also confirmed not experiencing mental health issues. It is also observed that young adults are more likely to be unsure of their mental health state than late adolescents.

Table 3 tabulates the factors influencing mental health disorders with respect to students' age categories. There was a statistically significant difference between age categories and factors influencing mental health disorders, as demonstrated by the Chi-square and Cramer's V analysis ($p < 0.05$). It can be seen from the table that 20 percent of the late adolescent students reported financial problems as their source of mental health disorders, while 26.6 percent of young adults affirmed this factor. In terms of learning problems, late adolescents reported a higher percentage (22.4%) of learning problems than young adults. There is a slight difference with respect to family problems as a source of the students' mental disorder, where 10.5 percent of the late adolescents affirmed it as opposed to 11.6 percent of the young adults. Similarly, 36.7 percent of the late adolescent students reported personal problems as their source of mental health disorder while 27.6 of young adults indicated the same factor as the problem. It was also observed that 5.1 percent of young adults were bullied by friends as their source of mental health problems, in comparison with 2.8 percent of late adolescents. Meanwhile, 7.5 and 10 percent of late and young adolescent students, respectively, indicated none of the factors as their source of mental health problems. Overall, it was demonstrated that personal problems contributed to the highest source of mental health problems among all the students, with a total of 30.9%, followed by financial problems (24.2%), and learning problems (20.3%). Family problems accounted for 11.2 total of the total with bullied friends (4.2%), while 9.1 percent of the students reported none of the factors as the source of their mental health problems.

Table 3. Factors influencing mental health disorders among students in different age categories.

Age Category	Factors influencing mental health disorder						Total (%)
	Financial Problem (%)	Learning Problem (%)	Family Problem (%)	Personal Problem (%)	Bullied by Friends (%)	None (%)	
Late Adolescent	20	22.4	10.5	36.7	2.8	7.5	100
Young Adolescent	26.6	19.1	11.6	27.6	5.1	10	100
Overall Total (%)	24.2	20.3	11.2	30.9	4.2	9.1	100

$\chi^2(5) = 22.469$; $p = 0.001$, Cramer's $V = 0.127$; $P = 0.001$

Figure 4 shows the frequencies of the incidence of mental health across age categories based on various factors. It can be detected from the figure that young adults reported a higher frequency of mental health problems with respect to various factors. Moreover, the figure indicates that young adults are more likely to experience mental health issues as a result of financial, learning, family, and personal problems compared to late adolescents. In addition, young adults are more likely to be bullied by friends than late adolescents. Nonetheless, a larger proportion of young adolescents reported more cases of other factors influencing their health than late adolescents.

Figure 4. Incidence of mental health status based on various factors.

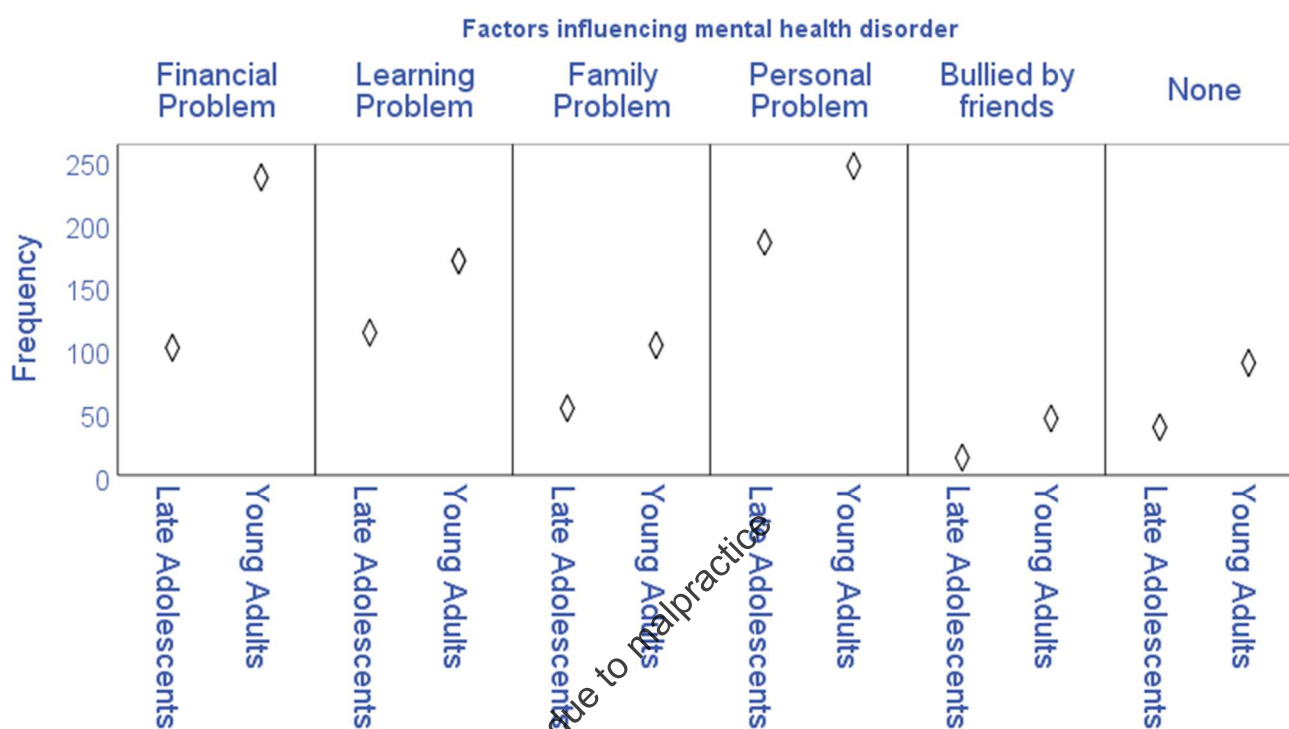


Table 4 depicts mental health disorders and various strategies for coping with mental health problems associated with the students' age categories. It is demonstrated from the table that a total of 38, 38.5 and 29.4 percent of the late adolescent students reported experiencing irrational thinking disorder sometimes, often, and always while 35.2 and 43.9 percent indicated never and seldom experienced such disorders. On the other hand, 62, 61.5%, and 70.6 percent of young adults confirmed experiencing irrational thinking disorder whilst 64.8 and 56.1 percent reported never and seldom experienced such disorders, respectively. Moreover, 39.5, 37.5%, and 22.2 percent of late adolescents reported sometimes, often, and always experiencing brain disturbance to the point of acting out of control while 35.2 and 43.9 percent of them never and seldom experienced such problems, respectively. In the young adolescent category, 62, 61.5 and 70.6 percent reported that they sometimes, often, and always experienced brain disturbance until acting out of control whilst 64.8 and 56.1 percent never and seldom experienced the problem, respectively.

The table further demonstrates the various coping mechanisms employed by the students. It was shown that 26.5, 25%, and 54.5 percent of the late adolescent students reported sometimes, often, and always taking medication as a solution to their mental health problem, while 36.3 and 38.2 percent indicated never and seldom sought such strategies. In the young adults' perspective, a higher number of percentages were comparatively observed with 73.5, 75%, and 45.5 percent reported sometimes, often, and always taking medication as a solution to their mental health problem, while 64.8 and 56.1 percent indicated never and seldom sought such mechanisms.

A total of 33.3, 22.2%, and 36.4 percent of late adolescents confirmed that they sometimes, often, and always sought medical help as a solution for their mental health problems, respectively, while 36.3 and 38.2 percent declared never and seldom sought medical help, respectively. In the young adult perspective, comparatively higher percentages were observed with 66.7, 77.8%, and 63.6 percent reporting sometimes, often, and always seeking medical help as a solution for their mental health problem while 63.8 and 59.3 percent indicated never and seldom sought such mechanisms, respectively. It was revealed that late adolescent of 36.6, 25, and 28.6 affirmed that they sometimes, often, and always seek traditional medical services for their mental health problems, while 36.3 and 39.7 percent declared never and seldom sought traditional help, respectively. In the young adult perspective, comparatively higher percentages were observed with 68.4, 75%, and 71.4 percent reporting sometimes, often, and always seeking traditional help as a solution for their mental health problem while 63.7 and 60.3 percent indicated never and seldom sought such mechanisms, respectively.

The table further reveals that 36.9, 25.9%, and 50 percent of late adolescents confirmed that they sometimes, often, and always sought the advice of a councillor as a solution for their mental health problem while 35.2 and 44.4 percent declared never and seldom sought medical help, respectively. In the young adult perspective, comparatively higher percentages were observed with 63.1, 74.1%, and 50 percent reporting sometimes, often, and always seeking the advice of a councillor as a solution for their mental health problem while 64.8 and 55.6 percent indicated never and seldom sought such mechanisms, respectively.

Table 4. Mental health disorders and various coping mechanisms across student age categories.

Age Category	Ever experienced an irrational thinking disorder?					Total F
	Never F (%)	Seldom F (%)	Sometimes F (%)	Often F (%)	Always F (%)	
Late Adolescent	399(35.2)	50(43.9)	35(38.0)	15(38.5)	5(29.4)	504
Young Adults	733(64.8)	64(56.1)	57(62.0)	24(61.5)	12(70.6)	890
Overall Total (%)	1132(81.2)	114(8.2)	92(6.6)	39(2.8)	17(1.3)	1394(100)
Age Category	Ever experienced brain disturbance to the point of acting out of control?					Total F
	Never F (%)	Seldom F (%)	Sometimes F (%)	Often F (%)	Always F (%)	
Late Adolescent	423(35.6)	38(42.7)	30(39.5)	9(37.5)	4(22.2)	504
Young Adults	764(64.4)	51(57.3)	46(60.5)	15(62.5)	14(77.8)	890
Overall Total (%)	1187(85.2)	89(6.4)	76(5.5)	24(1.7)	18(1.3)	1394(100)
Age Category	Do you take pills/medication as a solution to your mental health problem?					Total F
	Never F (%)	Seldom F (%)	Sometimes F (%)	Often F (%)	Always F (%)	
Late Adolescent	464(36.3)	21(38.2)	9(26.5)	4(25.0)	6(54.5)	504
Young Adults	814(63.7)	34(61.8)	25(73.5)	12(75.0)	5(45.5)	890
Overall Total (%)	1278(91.7)	55(3.9)	34(2.4)	16(1.1)	11(0.8)	1394(100)
Age Category	Have you ever sought medical help for your mental health problems?					Total F
	Never F (%)	Seldom F (%)	Sometimes F (%)	Often F (%)	Always F (%)	
Late Adolescent	460(36.2)	22(40.7)	14(33.3)	4(22.2)	4(36.4)	504
Young Adults	809(63.8)	32(59.3)	28(66.7)	14(77.8)	7(63.6)	890
Overall Total (%)	1269(91.0)	54(3.9)	42(3.0)	18(1.3)	11(0.8)	1394(100)
Age Category	Do you seek traditional medical services for your mental health problems?					Total F
	Never F (%)	Seldom F (%)	Sometimes F (%)	Often F (%)	Always F (%)	
Late Adolescent	462(36.3)	25(39.7)	12(36.6)	3(25.0)	2(28.6)	504
Young Adults	812(63.7)	38(60.3)	26(68.4)	9(75.0)	5(71.4)	890
Overall Total (%)	1274(91.4)	63(4.5)	38(2.7)	12(0.9)	7(0.5)	1394(100)
Age Category	Ever sought the advice of a councillor for your mental health problem?					Total F
	Never F (%)	Seldom F (%)	Sometimes F (%)	Often F (%)	Always F (%)	
Late Adolescent	390(35.2)	59(44.4)	41(36.9)	7(25.9)	7(50.0)	504
Young Adults	719(64.8)	74(55.6)	70(63.1)	20(74.1)	7(50.0)	890
Overall Total (%)	1109(79.6)	133(9.5)	111(8.0)	27(1.9)	14(1.0)	1394(100)

Discussion

The purpose of this study was to investigate the factors that affect students' mental health and the coping mechanisms employed by students. This issue has been identified as a significant health problem in higher education and linked to poor academic performance and low graduation rates. It is worth noting that, to the best of our knowledge, this investigation is the first attempt to explore the association between these factors in a broader perspective within the Malaysian context. Given the importance of a data-driven approach in providing reliable information about a given phenomenon, we aimed to

investigate these elements' associations through the collection of relevant data in a case-study format. Analysis and interpretation are crucial for achieving predetermined objectives.

It was demonstrated from the findings of the current study that there is a statistically significant difference between genders in mental health status, as evident in Table 1 and Figure 2. Female undergraduate students reported higher exposure to mental health-related problems than their male counterparts. The current study's findings revealed a statistically significant difference between genders in mental health status, as depicted in Table 1 and Figure 2, underscoring the importance of delving deeper into gender-specific aspects of mental health among undergraduate students. This observation aligns with the existing scholarly literature that consistently highlights gender differences in mental health outcomes. For instance, a previous study found that female college students exhibited higher levels of stress and anxiety compared to their male counterparts (Nahar et al., 2019). This substantiates the notion that gender plays a pivotal role in shaping mental health experiences among university students.

The elevated prevalence of mental health-related problems among female undergraduate students, as indicated in this study, may be attributed to various factors illuminated by prior research. Preceding researchers have identified that females often face unique stressors related to societal expectations, body image concerns, and interpersonal relationships, all of which can significantly impact mental well-being (Mahon et al., 2023). Additionally, the academic environment itself may contribute to these disparities, as previous studies have shown that female students may experience higher academic pressures and expectations, leading to heightened stress levels (Gao et al., 2020). Furthermore, the observed gender gap in the mental health status of undergraduate students has implications for the design and implementation of targeted interventions. Tailoring mental health support services to address specific needs and stressors faced by female students is paramount. Previous investigation exemplifies the efficacy of gender-specific interventions, demonstrating that targeted programs for female college students led to a significant reduction in reported stress levels (Park et al., 2023). It is essential to recognise that gender differences in mental health are not merely biological but are intricately linked to sociocultural factors (Campbell et al., 2022). This highlights the influence of cultural expectations and societal norms on female students' mental health. Addressing these sociocultural determinants is crucial for developing comprehensive strategies to promote mental well-being.

It was hypothesised (H2) that there would be a significant association between the age categories of students and their mental health status. There is insufficient evidence to support our initial hypothesis, as reflected in Table 2. However, Figure 3 demonstrates that young adults are more likely to suffer from mental health-related disorders than late adolescents. Hypothesis (H2), positing a significant association between the age categories of students and their mental health status, but not supported by the evidence presented in Table 2, warrants a comprehensive exploration of the nuanced relationship between age and mental health outcomes among the student population. These unexpected findings underscore the need for a more refined understanding of how age dynamics influence mental health, necessitating an examination of existing literature and empirical studies. Contrary to the initial hypothesis, the lack of a statistically significant association between age categories and mental health statuses, as indicated in Table 2, prompts a reconsideration of the multifaceted factors influencing mental health outcomes among students. Research suggests that while age is an important factor, it may interact with other variables such as academic pressures, social support systems, and life transitions, contributing to the complexity of the relationship (Storrie et al., 2010). A holistic examination of these factors is crucial for a more accurate interpretation of the findings. However, the noteworthy observation from Figure 3, indicating that young adults are more prone to mental health-related disorders compared to late adolescents, introduces a compelling dimension to the discourse. This finding aligns with several studies emphasizing the unique challenges faced by young adults in the transition to independence and increased responsibilities (Arnett, 2000; Kessler et al., 2005). The shift to university life, career aspirations, and financial independence during young adulthood can contribute to heightened stress levels and vulnerability to mental health issues.

Moreover, concept of "emerging adulthood" further elucidates the challenges faced by young adults in their late teens and early twenties (Arnett, 2016). This developmental stage is characterized by

exploration, identity formation, and increased autonomy, which may coincide with heightened stressors and mental health vulnerabilities. Moreover, previous researchers emphasize that the onset of many mental health disorders often occurs during the transition to adulthood (Hunt and Eisenberg, 2010; Kessler and Üstün, 2004). The stressors associated with this period, including academic demands, social pressures, and changing family dynamics, can cumulatively contribute to an increased risk of mental health disorders. In light of these considerations, it becomes evident that while age alone may not be the sole determinant of mental health statuses, the developmental stage of young adulthood carries distinct challenges that warrant targeted interventions. The findings from Figure 3, despite not aligning with the initial hypothesis, present an opportunity to reevaluate mental health support strategies, emphasizing the unique needs of young adults during this critical period of life.

There is sufficient evidence to support our third hypothesis (H3) which states that there are significant differences in factors influencing students' mental health with respect to their age categories as demonstrated in Table 3. Late adolescent showed higher percentages in learning and personal problems while young adults recorded higher percentages in financial, family problems and are more likely to be bullied by friends. Late adolescents, amid the transitional phase from adolescence to adulthood, often grapple with heightened stress levels attributed to increased academic demands and the intricate exploration of personal identity (Arnett, 2000). The pervasive influence of these challenges is substantiated by Arnett's developmental theory, which underscores the unique stressors encountered during the late adolescent years (Arnett, 2016). Concurrently, young adults confront a distinct set of stressors, primarily characterized by financial independence and family-related responsibilities. Previous longitudinal study elucidates the substantial impact of financial stressors on the mental health of young adults striving for economic autonomy (Luthar and Goldstein, 2008). Furthermore, the transition to young adulthood introduces complexities in peer relationships, where the prevalence of bullying among friends during early adulthood increases (Kaltiala-Heino et al., 1999). This emphasizes the enduring significance of peer dynamics on mental well-being during this life stage.

Research has consistently shown that late adolescence is a critical period marked by increased academic demands and identity exploration, both of which can contribute to heightened stress levels. It was reported that late adolescents are often navigating the challenges of transitioning from adolescence to adulthood, and this transition can manifest in heightened levels of stress related to academic performance and personal identity (Brown et al., 2021; Musa and Haque, 2017).

The transition to young adulthood is frequently associated with increased responsibilities, including financial independence, and establishing familial connections. Financial stressors during this period have been extensively studied. According to a longitudinal study by preceding researchers, young adults often face financial challenges as they strive for economic self-sufficiency, which can contribute to heightened stress and negatively impact mental health (Luthar and Goldstein, 2008).

Concerning the observation that young adults are more likely to be bullied by friends, existing literature supports the idea that peer relationships continue to play a significant role in mental health during early adulthood. A study found that bullying among peers is prevalent in the early adult years and can have a lasting impact on mental well-being (Kaltiala-Heino et al., 1999). Overall, it is demonstrated that personal problems contributed to the highest source of mental health problems among all the students followed by financial problems and learning problems. Family problems and bullied by friends are the least contributing factors to the source of students' mental health problems. The finding that personal problems rank as the highest source of mental health issues among students aligns with existing research emphasizing the psychological complexities that individuals navigate during their educational journey. Related research discusses the significance of personal stressors in their study, revealing that students often grapple with issues related to identity, self-esteem, and interpersonal relationships, all of which can profoundly impact mental well-being (von Biela et al., 2020).

Moreover, the elevated prominence of financial problems as a significant contributor to students' mental health challenges is substantiated by extensive research. The strain of financial burdens on mental health is well-documented underscoring the impact of financial stress on psychological well-being (Drentea and Reynolds, 2012). This elucidates the intricate connection between economic factors and

mental health outcomes, particularly within the student demographic where financial pressures can be exacerbated by academic costs and the pursuit of independence.

However, the comparatively lower contribution of family problems and being bullied by friends to students' mental health challenges warrants consideration within the broader socio-ecological context. Existing literature, emphasizes the multifaceted nature of bullying and its impact on mental health (Lindstrom Johnson et al., 2019). The study underscores that while peer victimization is a critical concern, its effects may vary, and the role of family dynamics remains an essential dimension in understanding mental health outcomes.

The final hypothesis (H4) of the study, which states that mental health and coping mechanisms differ significantly across students with regard to their age categories can, therefore, be accepted as shown in Table 4. Young adults are found to be experiencing higher irrational disorders as well as brain disturbance to the point of acting out of control compared to late adolescents. Existing research underscores the critical period of emerging adulthood as characterized by heightened vulnerabilities, providing insights into the complex interplay of biological, psychological, and social factors. Neurobiological studies shed light on the ongoing development of the prefrontal cortex, a region crucial for impulse control and decision-making, during the transition from late adolescence to young adulthood (Steinberg, 2017). This developmental trajectory may explain the increased susceptibility of young adults to irrational behaviours and difficulties in self-regulation. Steinberg's work highlights the protracted maturation of the prefrontal cortex which may render young adults more prone to impulsive actions and emotional volatility.

Furthermore, the transition to young adulthood encompasses a myriad of stressors related to identity formation, independence, and societal expectations. Arnett's theory of emerging adulthood posits that the 18- to 25-year-old age range is marked by exploration and instability, contributing to increased emotional turmoil and mental health challenges (Arnett, 2000). This instability may manifest as irrational behaviours and disturbances in brain functioning among young adults grappling with the complexities of identity and societal roles. Additionally, the social context plays a pivotal role in understanding the mental health challenges of young adults. A related study highlights the impact of social stressors, such as academic and career pressures, on the mental health of young adults (Patias et al., 2021). These stressors may contribute to brain disturbances and irrational behaviours as young adults navigate the demands of higher education and career aspirations.

Young adults are observed to resort to taking pills or medications as a solution to their mental health problems compared to late adolescents. They are also found to seek more medical help when compared with late adolescents. The propensity of young adults to resort to medications for mental health issues may be influenced by the evolving nature of psychiatric disorders during this life stage. Young adulthood is often associated with the onset or exacerbation of mental health conditions, such as mood disorders and anxiety disorders (Pandya and Lodha, 2022). The study by Kessler and colleagues underscores the heightened vulnerability of young adults to mental health challenges, necessitating pharmacological interventions as part of a comprehensive treatment approach (Kessler and Üstün, 2004).

The inclination of young adults to seek more medical help for mental health issues compared to late adolescents can be attributed to several factors. Arnett's theory of emerging adulthood posits that this life stage is marked by increased independence and autonomy, leading young adults to take charge of their healthcare decisions (Arnett, 2000, 2016). Consequently, young adults may proactively seek medical assistance to address mental health concerns and engage in a collaborative approach with healthcare professionals. Additionally, the recognition of mental health issues as legitimate medical conditions has been growing, reducing stigma and encouraging help-seeking behaviours (Corrigan et al., 2014). This cultural shift may particularly influence young adults who are more attuned to seeking medical help for mental health concerns, considering mental health as an integral aspect of overall well-being.

It was further demonstrated that young adults are more likely to seek traditional help as well as counsellors' advice sometimes and often for their mental health problems compared with late adolescents. The discernible tendency of young adults to seek traditional help and counselling advice

for mental health issues more frequently than late adolescents is a noteworthy aspect that underscores the evolving strategies individuals employ in coping with mental health challenges during the transition to adulthood. The inclination of young adults to seek traditional forms of help, such as confiding in family members or seeking support from religious or community groups, can be linked to the changing nature of their social networks. Previous study indicates that social support from various sources becomes increasingly important during young adulthood, and traditional help-seeking behaviours may serve as coping mechanisms within broader social contexts (Umberson et al., 2010).

The propensity of young adults to often seek counsellors' advice may be influenced by the recognition of the value of professional mental health support. A related study revealed that young adults, in particular, may be more receptive to the benefits of counselling, recognizing it as a valuable resource for managing mental health concerns and fostering psychological well-being (Rickwood et al., 2007). Additionally, the transitional nature of young adulthood, marked by identity exploration and role transitions, may create an environment where seeking professional advice is perceived as a constructive step towards managing the challenges associated with this life stage (Arnett, 2000; Hunt and Eisenberg, 2010).

Conclusions

In the current investigation, we explored various factors associated with mental health-related disorders and different coping mechanisms adopted by undergraduate students. This study emphasizes the prevalence and multifaceted nature of mental health concerns among higher education students, highlighting their vulnerability to various stressors within the educational environment. The significant association between female gender and reported mental health problems necessitates further investigation and tailored support systems. While age did not directly impact overall mental health status, the age-specific differences in contributing factors and coping mechanisms reveal the evolving challenges students face across developmental stages. Young adults, experiencing higher financial pressures, family strains, and peer bullying, are more likely to seek professional help and medication, indicating a potential gap in accessible support for late adolescents grappling with learning and personal issues.

Recommendation and future direction

Based on the findings of the current study, we urgently call for action from the relevant stakeholders such as universities, policymakers, and mental health professionals. Universities need systemic changes through measures such as academic support, financial aid, peer mentoring, and destigmatization efforts. On the other hand, policymakers should allocate resources for targeted interventions like affordable, culturally competent mental health services on campus and in communities. Mental health professionals should develop age-specific interventions and collaborate with universities for early identification and support. By acknowledging the multifaceted nature of student mental health and implementing these targeted interventions, a supportive environment can be created that empowers students to thrive. This study paves the way for further research and collaboration to build a healthier and more resilient student population. Further research should delve deeper into additional factors impacting mental health to enhance our understanding and refine intervention approaches.

Limitations of the study

This study is subject to certain limitations. Its cross-sectional design prevents establishing causal relationships, and the reliance on self-reported data may introduce response bias. The study did not account for academic performance (e.g., GPA) or collect comprehensive sociodemographic information such as family background and socioeconomic status, which could influence mental health. Additionally, the use of Chi-square tests, while appropriate for categorical data, limits the ability to assess complex interactions. Future research should employ longitudinal designs, incorporate academic performance metrics, use multivariate models, and include qualitative approaches to enhance understanding.

It is an optional section, which is used to recognize all those who helped to obtain the results of the research, projects that finance the research, colleagues who review the scientific value of the articles, among other variables present.

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References

- Ahmad MS, Md Yusoff MM and Razak IA (2011) Stress and its relief among undergraduate dental students in Malaysia. *Southeast Asian Journal of Tropical Medicine and Public Health* 42(4). Citeseer: 996.
- Ahmad OB, Boschi-Pinto C, Lopez AD, et al. (2001) Age standardization of rates: a new WHO standard. GPE Discussion Paper Series: No 31. Geneva: World Health Organization (31): 1–14. Available at: <http://www.who.int/healthinfo/paper31.pdf>.
- Arnett JJ (2000) Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist* 55(5). American Psychological Association: 469.
- Arnett JJ (2016) Does emerging adulthood theory apply across social classes? National data on a persistent question. *Emerging adulthood* 4(4). Sage Publications Sage CA: Los Angeles, CA: 227–235.
- Batty GD, Kivimäki M, Bell S, et al. (2018) Psychosocial characteristics as potential predictors of suicide in adults: an overview of the evidence with new results from prospective cohort studies. *Translational psychiatry* 8(1). Nature Publishing Group UK London: 22.
- Boguszewicz C, Boguszewicz M, Iqbal Z, et al. (2021) The fourth industrial revolution-cyberspace mental wellbeing: Harnessing science & technology for humanity. *Global foundation for cyber studies and research*.
- Brown MRG, Pazderka H, Agyapong VIO, et al. (2021) Mental health symptoms unexpectedly increased in students aged 11–19 years during the 3.5 years after the 2016 Fort McMurray wildfire: Findings from 9,376 survey responses. *Frontiers in Psychiatry*. Frontiers: 682.
- Campbell F, Blank L, Cantrell A, et al. (2022) Factors that influence mental health of university and college students in the UK: a systematic review. *BMC public health* 22(1). BioMed Central: 1–22.
- Corrigan PW, Druss BG and Perlick DA (2014) The impact of mental illness stigma on seeking and participating in mental health care. *Psychological Science in the Public Interest* 15(2). Sage Publications Sage CA: Los Angeles, CA: 37–70.
- Cuttilan AN, Sayampanathan AA and Ho RC-M (2016) Mental health issues amongst medical students in Asia: a systematic review [2000–2015]. *Annals of translational medicine* 4(4). AME Publications.
- Drentea P and Reynolds JR (2012) Neither a borrower nor a lender be: The relative importance of debt and SES for mental health among older adults. *Journal of aging and health* 24(4). Sage Publications Sage CA: Los Angeles, CA: 673–695.
- Dyrbye LN, Thomas MR and Shanafelt TD (2006) Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. *Academic medicine* 81(4). LWW: 354–373.
- Dyrbye LN, Massie FS, Eacker A, et al. (2010) Relationship between burnout and professional conduct and attitudes among US medical students. *Jama* 304(11). American Medical Association: 1173–1180.
- Gao W, Ping S and Liu X (2020) Gender differences in depression, anxiety, and stress among college students: a longitudinal study from China. *Journal of affective disorders* 263. Elsevier: 292–300.

- Gururaj G, Varghese M, Benegal V, et al. (2016) National Mental Health Survey of India, 2015-16: prevalence, patterns and outcomes. *Bengaluru: National Institute of Mental Health and Neuro Sciences, NIMHANS Publication* 129.
- Hassan I, Musa RM, Latiff Azmi MN, et al. (2023) Analysis of climate change disinformation across types, agents and media platforms. *Information Development*. SAGE Publications Sage UK: London, England: 02666669221148693.
- Hunt J and Eisenberg D (2010) Mental health problems and help-seeking behavior among college students. *Journal of adolescent health* 46(1). Elsevier: 3–10.
- Kaltiala-Heino R, Rimpelä M, Marttunen M, et al. (1999) Bullying, depression, and suicidal ideation in Finnish adolescents: school survey. *Bmj* 319(7206). British Medical Journal Publishing Group: 348–351.
- Kearns M, Muldoon OT, Msetfi RM, et al. (2015) Understanding help-seeking amongst university students: the role of group identity, stigma, and exposure to suicide and help-seeking. *Frontiers in psychology* 6. Frontiers Media SA: 1462.
- Kessler RC and Üstün TB (2004) The world mental health (WMH) survey initiative version of the world health organization (WHO) composite international diagnostic interview (CIDI). *International journal of methods in psychiatric research* 13(2). Wiley Online Library: 93–121.
- Kessler RC, Berglund P, Demler O, et al. (2005) Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of general psychiatry* 62(6). American Medical Association: 593–602.
- Kumar S, Dagli RJ, Mathur A, et al. (2009) Perceived sources of stress amongst Indian dental students. *European journal of dental education* 13(1). Wiley Online Library: 39–45.
- Lindstrom Johnson S, Waasdorp TE, Gaias LM, et al. (2019) Parental responses to bullying: Understanding the role of school policies and practices. *Journal of educational psychology* 111(3). American Psychological Association: 475.
- Luthar SS and Goldstein AS (2008) Substance use and related behaviors among suburban late adolescents: The importance of perceived parent containment. *Development and psychopathology* 20(2). Cambridge University Press: 591–614.
- Mahon C, Fitzgerald A, O'Reilly A, et al. (2023) An exploratory investigation of body esteem, body dissatisfaction and body change behaviours in sexual minority young adults from a risk and protective perspective. *Psychology & Sexuality* 14(2). Taylor & Francis: 351–370.
- Maliki A, Abdullah MR, Juahir H, et al. (2017) Back translation reliability of TEOSQ in team game, individual game and gender category. *Journal of Fundamental and Applied Sciences* 9(2S): 467–484.
- Muirhead V and Locker D (2008) Canadian dental students' perceptions of stress and social support. *European journal of dental education* 12(3). Wiley Online Library: 144–148.
- Musa RM and Haque M (2017) Academic performance of pre-clinical and clinical medical students' of East Coast Malaysian Peninsula: A cross-sectional and descriptive study that stimulates their life. *Journal of Applied Pharmaceutical Science* 7(6): 169–175. DOI: 10.7324/JAPS.2017.70624.
- Musa RM, Hassan I, Abdullah MR, et al. (2022) A longitudinal analysis of injury characteristics among elite and amateur tennis players at different tournaments from electronic newspaper reports. *Frontiers in Public Health* 10. Frontiers Media SA.
- Nahar VK, Davis RE, Dunn C, et al. (2019) The prevalence and demographic correlates of stress, anxiety, and depression among veterinary students in the Southeastern United States. *Research in veterinary science* 125. Elsevier: 370–373.
- Pandya A and Lodha P (2022) Mental health consequences of COVID-19 pandemic among college students and coping approaches adapted by higher education institutions: A scoping review. *SSM-Mental Health* 2. Elsevier: 100122.
- Park S, Woo H and Kim S-H (2023) A Systematic Review and Meta-Analysis of Bystander's Barriers to Intervene in Gender-Based Violence and the Role of Failed Prior Attempts. *Trauma, Violence, & Abuse*. SAGE Publications Sage CA: Los Angeles, CA: 15248380231204888.
- Patias ND, Von Hohendorff J, Cozzer AJ, et al. (2021) Mental health and coping strategies in undergraduate students during COVID-19 pandemic. *Trends in Psychology* 29. Springer: 414–433.
- Pöhlmann K, Jonas I, Ruf S, et al. (2005) Stress, burnout and health in the clinical period of dental education. *European journal of dental education* 9(2). Wiley Online Library: 78–84.
- Rickwood DJ, Deane FP and Wilson CJ (2007) When and how do young people seek professional help for mental health problems? *Medical journal of Australia* 187(S7). Wiley Online Library: S35–S39.

Ritchie H and Roser M (2018) Our world in data. *Mental health*. Available at: <https://ourworldindata.org/mental-health>.

Sabo A, Kueh YC, Musa RM, et al. (2022) Factorial validity and measurement invariance of the psychological need satisfaction in exercise scale across gender. *Plos one* 17(6). Public Library of Science San Francisco, CA USA: e0269155.

Stallman HM (2010) Psychological distress in university students: A comparison with general population data. *Australian psychologist* 45(4). Wiley Online Library: 249–257.

Steinberg L (2017) A social neuroscience perspective on adolescent risk-taking. In: *Biosocial Theories of Crime*. Routledge, pp. 435–463.

Storrie K, Ahern K and Tuckett A (2010) A systematic review: students with mental health problems—a growing problem. *International journal of nursing practice* 16(1). Wiley Online Library: 1–6.

Sugiura G, Shinada K and Kawaguchi Y (2005) Psychological well-being and perceptions of stress amongst Japanese dental students. *European Journal of Dental Education* 9(1). Wiley Online Library: 17–25.

Umberson D, Crosnoe R and Reczek C (2010) Social relationships and health behavior across the life course. *Annual review of sociology* 36. Annual Reviews: 139–157.

Vignesh Kumar J, Rita S and Thomas J (2013) Mental health of adolescents. *International Journal of Applied Business and Economic Research* 11(2): 201–213. Available at: <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health> (accessed 9 February 2024).

von Biela VR, Bowen L, McCormick SD, et al. (2020) Evidence of prevalent heat stress in Yukon River Chinook salmon. *Canadian Journal of Fisheries and Aquatic Sciences* 77(12). NRC Research Press 1840 Woodward Drive, Suite 1, Ottawa, ON K2C 0P7: 1878–1892.

WHO (2013) Mental Health Action Plan 2013 - 2020 - Additional Background Material. *Saúde Mental* (January). Available at: <https://www.who.int/publications/i/item/9789241506021> (accessed 9 February 2024).

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