ORIGINAL ARTICLE

Mental Health Status, Influencing Factors and Self-Coping Approaches Among Medical Imaging Students at International Islamic University Malaysia

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ABSTRACT

Background: This research investigates the mental health status, influencing factors, and self-coping strategies among Medical Imaging students at the International Islamic University Malaysia (IIUM). Recognizing the increasing trend of mental health issues among students, this study aims to identify the prevalence of depression, anxiety, and stress, and to explore the factors contributing to these conditions. **Methods:** The study used a cross-sectional design. The target population was IIUM Medical Imaging students (Year 1 to Year 4). Convenience sampling was performed. The required sample size was 79, calculated using the Krejcie and Morgan method. A total of 88 completed questionnaires were returned. Data collection was conducted online from March to May 2024, using a newly designed questionnaire consisting of four parts, including the Depression, Anxiety, and Stress scale (DASS-21). Data analysis for the objectives used descriptive analysis. **Results:** A cross-sectional study (n=88) among Medical Imaging students, predominantly female (76.1%), revealed significant mental distress, with anxiety being the most prevalent concern, as only 37.5% (n=33) of students reported normal anxiety levels, and combined severe and extremely severe anxiety affected 32.9% of the cohort. Stressors exhibited marked gender differences: male students primarily cited financial and family issues (76.2% for both) as major factors, whereas female students most frequently reported study-related stress (73.1%), self-related issues (73.1%), and peer relationships (71.6%). Regarding coping, both genders favoured passive and spiritual approaches, such as sleeping (Male: 80.9%; Female: 80.6%), but males reported higher engagement in physical activity (57.1% vs. 20.9% for females), while females preferred social/creative outlets. **Conclusion:** The study underscores the critical need for increased awareness and interventions to address mental health issues among university students. It highlights the importance of providing adequate support systems and promoting effective self-coping mechanisms to improve the overall well-being and academic performance of students. The research contributes valuable insights into the mental health landscape of Medical Imaging students and offers recommendations for future studies and institutional policies to enhance student mental health support.

INTRODUCTION

The Global and National Burden of Mental Health Disorders

Mental health is fundamental to human well-being, influencing an individual's cognitive abilities, performance, and social interactions. Currently, mental health disorders represent a substantial global public health burden. According to the World Health Organization (WHO), approximately one in seven individuals globally, equivalent to about 1.1 billion people was affected by a mental disorder in 2021, with anxiety and depressive disorders identified as the most prevalent conditions (Institute for Health Metrics and Evaluation, 2024). This issue is acutely reflected in the Malaysian context, particularly among the youth population. Recent evidence from the Institute for Youth Research Malaysia (IYRES) and the United Nations Children's Fund (UNICEF) indicates a substantial mental health burden among Malaysian youth. Findings from the Malaysian Youth Mental Health Index 2023 (MyMHI'23) reported that approximately six in ten individuals aged 15 to 40 exhibited mild to severe depressive symptoms (IYRES & UNICEF, 2024). The same assessment documented an overall mental health score of 71.91, reflecting a moderate risk level across the youth population (The Star, 2024). Complementary analyses further revealed that nearly one in ten Malaysian youths had experienced suicidal ideation, plans, or attempts as early as 2020 (IYRES & UNICEF, 2024).

The situation has been further aggravated by the COVID-19 pandemic. National surveillance data reported a nearly fivefold rise in mental-health-related help-seeking in 2022 compared to 2020, suggesting a worsening trend in psychological distress (Sulaiman, 2022). Collectively, these data highlight an escalating mental health crisis among Malaysian youth and underscore the need for focused,

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evidence-based research and targeted interventions for vulnerable population groups.

Academic Stress, Burnout, and the Impacts

The rising prevalence of mental health issues among young adults (Jurewicz, 2015) is strongly correlated with stressors originating from their educational environment, including financial difficulties, learning challenges, and particularly, academic workload. The rigorous academic demands and high-stakes evaluation inherent in university education are key contributors to student burnout, a syndrome linked to negative educational attitudes and recognized within academic contexts (Liu et al., 2023).

Academic workload and separation from school were found to have negative effects on college students' health via perceived stress (Yang et al., 2021). Inadequate sleep is also associated with poor mental health outcomes (Milojevich & Lukowski, 2016; Yaghmour et al., 2023). Additionally, diet routine and obesity can influence mental illness by impacting mood, and improvements in diet quality have been linked to better mental health outcomes (Jacka et al., 2011).

This intense academic stress is a major concern, as it has been empirically linked to the development of serious mental health problems such as depression, anxiety, and substance abuse (Pascoe et al., 2020, Kadhum et al., 2022). If left unaddressed, academic stress and subsequent burnout can profoundly impair a student's emotional regulation, psychological resilience, and overall capacity to succeed in their academic and personal life.

Poor mental health has far-reaching consequences across multiple domains. It can lead to chronic physical conditions like cardiovascular disease, diabetes, and obesity, emphasizing the intricate, bidirectional relationship between mental and physical health. In social relationships, conditions like depression and anxiety frequently lead to social isolation and loneliness, impeding recovery (Hamza et al., 2021).

Student-Specific Challenges, Coping, and Assessments

Students face unique challenges, with medical students, for example, showing significantly higher rates of depression compared to the general population due to their workload (Slavin et al., 2014). University life exposes students to challenges that can improve their resilience and adaptation to the adult world. Self-coping approaches are critical for managing stress, utilizing methods like mindfulness, physical exercise, and in the Islamic perspective, performing prayer and reciting the Quran.

For assessment, the Depression Anxiety Stress Scales-21 (DASS-21) measures emotional states (Laranjeira et al., 2023), while the Perceived Stress Scale-10 (PSS-10) assesses the perception of stress (Sandu et al., 2015). The Depression Anxiety Stress Scales-21 (DASS-21) and the Perceived Stress Scale-10 (PSS-10) are psychometric instruments that measure distinct facets of psychological distress, offering complementary data for comprehensive mental health assessment. The DASS-21 functions as a state-based measure, providing a quantitative score across three primary emotional states: depression, anxiety, and stress, by assessing symptomatic manifestations over a recent period. Conversely, the PSS-10 is designed as a measure of perceived stress, focusing on the cognitive appraisal of life circumstances; specifically, it assesses the degree to which individuals judge their lives to be unpredictable, uncontrollable, and overwhelming. Therefore, the DASS-21 quantifies the severity of internal emotional symptoms, while the PSS-10 quantifies an individual's psychological judgment of their external stress exposure.

Study Rationale and the Focus on IIUM Medical Imaging Students

Given the documented vulnerability of university students and the increasing trend of mental health challenges in Malaysia, this study targets IIUM Medical Imaging undergraduate students. This cohort represents young adults navigating the academic pressures of a demanding professional field, making them susceptible to stress factors such as peer pressure, complex subject matter, heavy assessment schedules, and time constraints. Crucially, the study also seeks to investigate their self-coping approaches.

As a population within an Islamic institution, their coping repertoire is expected to include both conventional and faith-based strategies, such as worship to Allah SWT, seeking advice from family and friends, alongside activities like social media use, entertainment, sports, and art. Understanding these coping mechanisms is vital, as effective strategies are key determinants of positive mental health outcomes. The aim of this study is, therefore, to systematically identify the mental health status, contributing influence factors, and the self-coping approaches utilized by these students.

The general objective of this study was to investigate the mental health status, influencing factors, and self-coping approaches among IIUM Medical Imaging students. This overarching goal was supported by three specific objectives: (i) To identify the mental health status of the

students using the Depression, Anxiety and Stress Scale 21 (DASS-21); (ii) To identify the influencing factors relating to mental health among the students; and (iii) To explore life satisfaction and self-coping approaches among the students, with particular focus on gender differences.

MATERIALS AND METHODS

The study employed a cross-sectional research design, which involves collecting data from a population or subset at a single time point to provide a snapshot of student's mental health status, influencing factors and self-coping approaches.

Population and Sampling Design

The target population for this research was Medical Imaging students at the International Islamic University Malaysia (IIUM), including all male and female students from Year 1 until Year 4.

Inclusion and Exclusion Criteria

The selection of participants was based on the following criteria as tabulated in Table 1.

Table 1: Inclusion and Exclusion Criteria for Participant Selection

Category	Inclusion	Exclusion
Participants	IIUM Medical Imaging students	Other than IIUM Medical Imaging students
Study Status	Status of study should be active	Not active in study status
Head Injury	No history of severe head injury	History of severe head injury
Medication	Do not take any medication related to mental health	Currently taking any medication related to mental health
Medical History	No history of mental health, psychiatry, etc.	History of significant medical illness or psychiatric/ neurological disorder

Sample Size and Sampling Method

A total of 99 IIUM Medical Imaging students were approached as participants. The required sample size was determined to be 79 students using the Krejcie and Morgan method (Krejcie & Morgan, 1970) and Equation 1. The equation is defined as:

$$s = X^2\, NP(1-P)/[d^2\,(N-1) + X^2\, P(1-P)] \quad (1)$$

where, s = The required sample size
X^2 = The table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)
N = The population size (99)
P = The population proportion (assumed to be 0.50)
D = The degree of accuracy expressed as a proportion (0.05).

Out of the 99 students who were invited to participate, 88 students returned completed questionnaires, yielding a response rate of 88.9%. The sampling method utilized was convenience sampling, also known as availability sampling. This is a non-probability sampling technique where participants are chosen based on their convenient availability and accessibility to the researcher.

Study Location and Duration

The study was conducted at the International Islamic University Malaysia (IIUM), Kuantan Campus, involving students from the Department of Diagnostic Imaging and Radiotherapy (Year 1 to Year 4). The overall study, including the research proposal, ethical clearance, data collection, data analysis, and thesis write-up, was conducted from October 2023. The data collection specifically took place from March 2024 until May 2024.

Ethical Approval

Two levels of ethical clearance were obtained, following the tenets of the Declaration of Helsinki; i) Kulliyyah Postgraduate and Research Committee (KPGRC), Kulliyyah of Allied Health Sciences (Approved 24th January 2024) and, ii) IIUM Research Ethical Committee (IREC) (Approved 20th February 2024). These approvals were compulsory prior to commencing the research, as the study involved human participants, even though no physical intervention was needed.

Questionnaire Design and Data Collection

A set of questionnaires was designed to assess the prevalence of depression, anxiety, and stress related to coping styles and social supports. The questionnaire was divided into four parts: Part A, B, C and D.

Part A consist of socio-demographic items which assessed variables like email address, gender, year of study, age, health status, and history of diseases and medication. Anonymity was successfully maintained using a data

separation protocol, despite the necessary collection of identifying information (e.g., email address) for crucial procedural purposes. The identifiers were collected strictly to prevent submission redundancy and to verify participant eligibility against the study's inclusion criteria. Following these verification checks, the identifiers were stripped from the main analysis file, ensuring the final, aggregated dataset contains only de-identified responses and preserving the integrity of participant privacy. Part B was the validated Depression, Anxiety, and Stress scale (DASS-21) questionnaire. The DASS-21 uses a 4-point Likert scale (0–3) where respondents rate how much each statement applied to them over the past week, with 0 = did not apply at all, 1 = applied some of the time, 2 = applied a good part of the time, and 3 = applied most of the time. Each of the three subscales—Depression, Anxiety, and Stress—contains seven items, and the scores for each subscale are summed and then multiplied by 2 to align with the original 42-item version. Higher scores indicate greater severity of symptoms.

While Part C comprised questions on possible influencing factors questionnaire which covered factors potentially affecting student mental health, such as family, financial issues, peers, life events, study-related problems, and trauma incidents. And Part D focused on self-coping approaches to assess various self-coping approaches like exercising, listening to music, sleeping, and worshiping Allah SWT and life satisfaction questionnaire; Satisfaction with Life Scale (SWLS) which is a 5-item instrument utilizing a 7-point Likert scale (ranging from 1= Strongly Disagree to 7= Strongly Agree) to assess subjective well-being (Townshend, 2025). This scale is designed to quantify an individual's global cognitive judgment regarding their overall life satisfaction, functioning as a reliable measure of this construct as a single, unidimensional factor.

The data was collected using an online-based questionnaire distributed via an online platform, Google Form. Data collection was carried out during the active semester, starting from Week 2 of IIUM Academic Calendar. Participants were made anonymous to respect privacy, and the data was solely for research purposes.

Data Analysis

Descriptive analysis was used to analyse all the specific objectives of the study. These objectives included studying the mental health status, identifying possible influence factors relating to mental health, and exploring life satisfaction and self-coping approaches among medical imaging students based on gender.

RESULTS

Demographic Data

The total number of completed questionnaires was 88. The demographic analysis of the Medical Imaging students demonstrated a significant gender imbalance in the cohort, comprising 67 females (76.1%) and 21 males (23.9%). The distribution of respondents across the four years of study was approximately even, with Year 4 having the highest proportion (27.3%, n=24) and Year 1 and Year 3 each accounting for 23.9% (n=21 each). In terms of health, most students were not on medication (90.9%, n=80) or afflicted with any disease (87.5%, n=77). The few reported medical conditions and medications were confirmed not to be related to mental health issues.

Depression, Anxiety, and Stress Scale (DASS-21)

Prevalence by Year of Study

Analysis of the DASS-21 scores by academic year (Table 2) showed that most students fell within the normal range for stress (61.4%, n=54) and depression (52.3%, n=46). However, anxiety presented a more concerning trend, with only 37.5% (n=33) of students rated as having normal anxiety levels, the lowest percentage across all three categories.

In terms of severe mental distress, 9.0% (n=8) of students reported severe depression, with the highest prevalence in Year 3. Extremely severe anxiety affected 17.0% (n=15) of students, with Year 4 showing the highest count (n=4). Severe anxiety affected 15.9% (n=14) of students, with the highest prevalence in Year 1 (n=7).

Prevalence by Gender

When examining DASS-21 scores by gender (Table 2), a greater number of females reported mild stress (n=12) compared to males (n=4). Conversely, all three cases of extremely severe depression were reported by male students, with no females reporting this severity level. For anxiety, the distribution of severe and extremely severe cases was approximately equal, affecting 17.0% (n=15) of the cohort for each category, indicating significant anxiety across both genders.

Overall, gender-based DASS-21 data indicate that, while both male and female students experience stress, depression, and anxiety, the severity and distribution of these conditions differ. Females are more likely to report mild to moderate stress and depression, whereas males report more cases of severe depression. Anxiety affects both genders, with severe and extremely severe cases being equally prevalent. These findings highlight the importance of gender-specific mental health support in

addressing the unique challenges that male and female medical imaging students face.

Table 2: The DASS-21 data based on the year of study and gender of the Medical Imaging students

	Year of Study, *n*				Gender, *n*	
	1	**2**	**3**	**4**	**Male**	**Female**
Stress						
Normal	14	13	10	17	11	43
Mild	3	4	6	4	4	12
Moderate	4	2	3	2	6	5
Severe	-	3	1	1	-	5
Extremely severe	-	-	1	-	-	1
Depression						
Normal	12	12	8	14	11	36
Mild	2	1	1	3	2	5
Moderate	5	7	8	4	4	19
Severe	1	2	3	2	1	7
Extremely severe	1	-	1	1	3	-
Anxiety						
Normal	7	10	5	10	6	26
Mild	3	1	4	5	4	9
Moderate	1	3	6	3	1	12
Severe	7	4	1	2	5	10
Extremely severe	3	4	4	4	5	10

Factors of Mental Health Problem

The factors contributing to mental health problems demonstrated clear gender differences (Table 3). For male students, family issues (76.2%) and financial issues (76.2%) were the most significant stressors. Self-related issues (66.7%) and past experiences (61.9%) were also important contributing factors.

In contrast, female students most frequently cited self-related issues (73.1%) and study-related stress (73.1%) as major factors. A high proportion of females also identified friends, colleagues, and peers as major contributors (71.6%). Furthermore, a greater proportion of female students (50.7%) identified physical appearance as an influencing factor compared to males.

Table 3: The factors of mental health problems among Medical Imaging students based on gender.

Factors	**Male, *n***	**Female, *n***
Family	16	42
Financial	16	36
Friends, Colleagues, Peers	11	48
Life events	12	41
Myself	14	49
Past experience	13	37
Physical appearance	9	34
Relationship	10	25
Self-expectation	12	44
Social media	4	16
Study	7	49
Trauma incidents	3	12
Others	1	3

Life Satisfaction and Self-Coping Approach

Life Satisfaction

Overall, the "Satisfaction of Life Test" showed a general sense of contentment, with a sizable proportion of respondents agreeing or partially agreeing with the positive statements (Table 4). However, the statement, "If I could live my life over, I would change almost nothing," elicited a polarised response, with 14 students strongly agreeing but 8 strongly disagreeing, suggesting that a significant portion of the cohort is critical of their life choices or circumstances.

Table 4: Satisfaction with Life Scale (SWLS) among Medical Imaging students.

Life satisfaction	**Number, *n***						
	Strongly agree	**Agree**	**Slightly agree**	**Neutral**	**Slightly disagree**	**Disagree**	**Strongly disagree**
In most ways my life is close to my ideal	5	22	25	25	7	3	1
The conditions of my life are excellent	5	27	18	28	8	1	1
I am satisfied with my life	10	25	20	20	8	5	0
So far, I have gotten the important things I want in my life	11	18	25	20	8	5	1
If I could live my life over, I would change almost nothing	14	12	15	19	11	9	8

Gender-based analysis of life satisfaction (Table 5) revealed that males consistently reported higher average satisfaction (e.g., mean score of 3.62 for "In most ways my life is close to my ideal") across all five statements compared to females (e.g., mean score of 3.10 for the same statement).

Table 5: The life satisfaction test among Medical Imaging students based on gender.

Life Satisfaction	Gender	Mean
In most ways my life is close to my ideal	Male	3.62
	Female	3.10
The conditions of my life are excellent	Male	3.24
	Female	3.13
I am satisfied with my life	Male	3.24
	Female	3.01
So far, I have gotten the important things I want in my life	Male	3.33
	Female	3.12
If I could live my life over, I would change almost nothing	Male	4.10
	Female	3.55

Self-Coping Approach

Self-coping strategies (Table 6) were primarily dominated by passive activities such as sleep and listen to music, and spiritual method for both genders. The most common coping mechanisms for both male and female students were sleeping (Male: 80.9%; Female: 80.6%), listening to music (Male: 76.2%; Female: 76.1%), and worshipping and praying to Allah SWT (Male: 71.4%; Female: 76.1%). Self-isolation was also a prevalent strategy among both genders, though slightly more common in females (62.7%) than males (57.1%). Females, relative to males, were more likely to engage in creative activities such as drawing, painting and reading. Conversely, males reported a higher percentage for physical activities such as exercising and sport.

Table 6: The self-coping approach to mental health problem Medical Imaging students based on gender.

Self-Coping Method	Gender			
	Male (N = 21)		Female (N = 67)	
	n	%	*n*	%
Browse social media	11	52.4%	36	53.7%
Cook/bake	3	14.3%	12	17.9%
Draw/painting	2	9.5%	19	28.4%
Eat	14	66.7%	47	70.1%
Exercise/sport	12	57.1%	14	20.9%
Explore new things	4	19.0%	12	17.9%
Go to entertainment centre	8	38.1%	16	23.9%
Hiking/outdoor activities	6	28.6%	10	14.9%
Listen to music	16	76.2%	51	76.1%
Photography	2	9.5%	4	6.0%
Play musical instrument	1	4.8%	5	7.5%
Read	0	0%	19	28.4%
Seek advice	7	33.3%	14	20.9%
Self-isolate	12	57.1%	42	62.7%
Share with trusted person	9	42.9%	31	46.3%
Shopping	5	23.8%	17	25.4%
Sleep	17	81.0%	54	80.6%
Spend time with family/friends	10	47.6%	22	32.8%
Travel	7	33.3%	9	13.4%
Watch drama/movie	12	57.1%	39	58.2%
Worship & pray to Allah SWT	15	71.4%	51	76.1%
Write poetry/fiction	1	4.8%	6	9.0%
Others	0	0%	0	0%

Overall, both male and female students use sleeping and listening to music as primary coping strategies. Religious practices like worship and prayer are equally important for both genders. Females, on the other hand, tend to engage in more social interactions and creative activities, whereas males prefer physical activities and solitary coping methods such as self-isolation. These findings suggest that mental health support programmes should take gender preferences into account in order to effectively address Medical Imaging students' coping needs. For example, providing opportunities for creative expression and social interaction may benefit female students, whereas encourage physical activity and provide spaces for quiet reflection may benefit male students.

DISCUSSION

Mental Health Status and Academic Stress

The study's findings regarding the Depression, Anxiety, and Stress Scale (DASS-21) indicate that a significant proportion of Medical Imaging students, particularly those in Year 1 to Year 3, experienced mild to extremely severe levels of mental distress. In contrast, Year 4 students reported the most stable mental health status because they are more academic experience and adaptation to collegiate demands and workload in learning. Anxiety was identified as the most prevalent issue across the entire cohort, with a concerning number of students exhibiting severe and extremely severe levels. This high prevalence

of anxiety warrants targeted intervention, particularly in the early academic years where students are adjusting to a new environment and curriculum.

Gender-Specific Stressors and Influencing Factors

The findings highlighted distinct patterns in the factors contributing to mental health challenges based on gender. Male students were primarily stressed by external factors, with family and financial issues being the most significant stressors. For female students, the major contributors were internal and social pressures, with academic performance (study-related stress), self-related issues, and social relationships with peers being the most highly cited factors. This gender-based variance emphasizes that mental health support programs must be tailored to address the unique stressors faced by each group, such as providing financial counselling for male students and establishing enhanced peer support networks for female students.

Life Satisfaction and Self-Coping Mechanisms

An analysis of life satisfaction indicated that male students reported a higher mean level of satisfaction across all related statements compared to female students. Regarding self-coping strategies, both genders heavily relied on passive and spiritual methods, with sleeping, listening to music, and engaging in religious practices being the most common. Gender differences in coping preferences were notable: males were more likely to utilize physical activities such as exercise and sports, along with self-isolation. Female students showed a greater inclination towards social strategies, such as discussing problems with trusted people, and creative outlets like reading and drawing. These insights are valuable for developing gender-sensitive intervention programs, such as encouraging physical activities for male students and facilitating creative expression and social support groups for female students.

CONCLUSION

The study concludes that a significant proportion of Medical Imaging students at IIUM face considerable mental health challenges, with anxiety emerging as the most prevalent concern. Crucially, the research identified distinct gender differences in both the primary factors influencing mental health and the preferred self-coping mechanisms. These findings underscore the necessity for university support systems to develop and implement gender-specific and targeted mental health interventions to effectively support the unique psychological needs of both male and female student populations. For instance, universities could introduce female-focused emotional expression workshops—such as guided art therapy or peer-support circles—since female students in this study showed higher engagement in activities like drawing, reading, and sharing with trusted persons. Meanwhile, male-focused stress-management programs could incorporate physical activity-based coping, such as structured sports sessions or outdoor challenges, aligning with the higher tendency of male students to cope through exercise, hiking, and social activities.

The study acknowledges limitations, including a small, non-random sample size, which restricts the generalizability of the findings. Data collection during an active semester may have inflated typical stress levels, and the reliance on self-reported data is susceptible to response biases. Future research should employ a larger, more diverse, and randomly selected sample, alongside longitudinal studies to monitor changes in mental health over time. The integration of qualitative research methods, such as interviews or focus groups, is also recommended to provide richer and more contextual insights into students' personal experiences, particularly given that the use of a single institution and self-report measures may introduce potential sources of bias in the current findings.

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Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the author(s) used Gemini by Google to rephrase some sentences in the texts and formatting the references. The author(s) subsequently reviewed, revised, and approved all content, and accept full responsibility for the final manuscript.

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