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The Impact of Assessments on Students' Mental Well-being in Gulf Medical University, Ajman, UAE: A Cross-sectional Survey Study

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ABSTRACT

Medical students often experience heightened academic stress, which adversely impacts their mental well-being. This study examines the effect of assessments on the mental well-being of medical students at Gulf Medical University, Ajman, UAE. A cross-sectional survey was conducted over eight months with 258 participants from years 2 and 3 of the MBBS and BDS programs. A self-administered, validated questionnaire assessed domains such as anxiety, depression, disordered eating, burnout, and sleep disturbances. The findings revealed that 70% of the students experienced poor mental well-being, with significant associations between exam-related stress and factors such as forgetfulness, procrastination, appetite disturbances, and insufficient sleep. Female students, third-year students, and those in the BDS program reported worse mental health outcomes. Furthermore, high levels of stress during final exams were reported by 90.2% of the participants, significantly correlating with poorer mental well-being. The study underscores the need for targeted interventions, including peer support programs, counseling services, and adaptive academic policies, to mitigate the detrimental effects of assessments on student mental health. These findings emphasize the urgency of institutional reforms to foster a healthier academic environment for medical students.

Keywords: Mental Health; Well-Being; Stress; United Arab Emirates; Prevalence.

INTRODUCTION

Mental health and well-being among university students, particularly those pursuing medical education, have emerged as a critical area of concern in recent years. Research indicates that medical students frequently experience heightened levels of academic stress, which can adversely impact their psychological well-being [4]. The rigorous demands of medical training, characterized by intense examination periods, heavy workloads, and high-performance expectations contribute significantly to anxiety, depression, and burnout among students [6]. Studies have demonstrated that academic stressors are closely linked to various mental health challenges, including sleep disturbances, disordered eating, and increased anxiety during exam periods [26][25]. Additionally, demographic factors such as gender and age appear to influence the extent of stress experienced by students, with younger students and female students often reporting poorer mental well-being [14].

The present study aims to examine the impact of assessments on the mental well-being of medical students at Gulf Medical University in Ajman, UAE. A cross-sectional survey was conducted over eight months, involving 258 participants from the second and third years of the MBBS and BDS programs. By assessing domains such as anxiety, depression, disordered eating, burnout, and sleep disturbances, this research seeks to provide insights into the specific mental health challenges faced by medical students and highlight areas for potential intervention.

Ultimately, this study aims to contribute to the growing body of literature on student mental health and propose evidence-based strategies to improve the well-being of learners in higher education. Given the urgency of the findings, it underscores the necessity for institutional reforms to foster a healthier academic environment for medical students [24].

METHODS

This Cross-sectional survey design was adopted for year 2 and 3 medical university students (MBBS&BDS) at Gulf Medical University in Ajman UAE. The study lasted 8 months from January 2023 to September 2023. Data was collected from individuals 18 years of age and above, and they were given a self-administered Questionnaire/Survey to attain the objectives of the research.

Participants: All Medical University students ranging from years 2-3, Aged 18 and above, All Nationalities, and both genders were selected. Those who were not willing to participate, those under 18, and those who did not give informed consent were excluded from the study. This was a population-based study we included samples from all years of Medical University students, ranging from years 2-3.

Variables: The scoring was done based on a point system wherein:

- Sometimes = 1 point
- Rarely, ever = 2 points
- Most of the time = 3 points and
- Always = 4 points.

However, the points were reversed if the question was asked in a negative context. Since there were ***18 questions*** directed toward the students' well-being:
(1) The highest possible score = 72
(2) The lowest possible score = 18

The cut-off for this scoring was ***49 points***, as it equates to the ***75th percentile*** and gives us an accurate representation of the students who have good mental health compared to those having poor mental well-being.

Sample Size: This was a population-based study; we included samples of all years from Medical University students, ranging from year 2-3 MBBS and BDS students at Gulf Medical University.

Study Instrument and Validation Procedure: This was a self-administered Questionnaire/Survey to attain the objectives of the research. The questionnaire contained domains that affect students' well-being, anxiety, depression, disordered eating, self-harm, panic attacks, burnout, and thoughts of suicide. The questionnaire assessed well-being socially, mentally, and physically. A pilot study was conducted before the research, the content validation was done by 3 experts in the field. The questionnaire was validated by two psychologists.

Statistical Analysis: The data was entered in an Excel file and exported to SPSS v28. The result was displayed as frequency and percentage. The chi-square test was used to find the association between categorical variables. A P value less than 0.05 is statistically significant.

Ethics Statement: This research was completely anonymous as well as there was full privacy of one's answers; no answers were shared. Confidentiality was also maintained. The research proposal was sent to the IRB (Institutional Review Board) of GMU to get approval. Informed consent will be obtained from the participants before the study. Confidentiality and anonymity were maintained. No drugs or any other procedures were included in the research. After getting ethical approval from the IRB, we had the questionnaire validated by experts and finalised the questionnaire, and the comments were incorporated. We then obtained permission from the deans of different colleges to get permission for the data. The participants had been approached, and the data collection had taken place only after getting the informed consent form from each participant; their doubts were cleared by the investigators. All data will be stored in a Confidential manner and will not be shared with any other person. The data is accessible only to the investigators, supervisor, IRB members, and statistician. The data will be stored for 3 years in the Community Medicine Department as per the GMU policy.

RESULTS

258 total samples were collected. The sociodemographic data reveal a diverse group of medical students at Gulf Medical University. A significant majority, 71.7%, are aged 20 years and below, indicating a young student population. The nationality distribution shows that 38.4% of participants are from the South East Region, while 29.4% come from the Eastern Mediterranean Region. Most students, 89.9%, are not married, reflecting typical demographic trends among university students. In terms of academic progression, 56.6% are in Year 2, and 43.4% are in Year 3 of their medical studies. Furthermore, 72.9% of the participants are enrolled in the MBBS program, while 27.1% are pursuing BDS. Lastly, the grade percentage indicates that 56.2% of students scored 85 and below, which may correlate with their stress levels and overall mental well-being.

TABLE 1: Sociodemographics.

Variables	Category	Frequency	Percentage
Age	20 and below	**185**	**71.7**
	21 and above	73	28.3
Nationality	African Region	31	12
	South East Region	76	29.4
	Eastern Mediterranean Region	**99**	**38.4**
	Americas Region	34	13.2
	Western Pacific Region	17	6.6
	European Region	**1**	**0.4**
Marital Status	Married	6	2.3
	Not married	**232**	**89.9**
	Other	20	7.8
Year of Study	Year 2	**146**	**56.6**
	Year 3	112	43.4
Course	MBBS	**188**	**72.9**
	BDS	70	27.1
Grade Percentage	85 and below	**145**	**56.2**
	86 and above	113	43.8

The findings from Table 2 illustrate a concerning picture of mental well-being among students. Many reported difficulties in maintaining a healthy weight and feeling good about their body condition during exam periods. A substantial portion of students expressed challenges in articulating feelings of overwhelm while preparing for exams, highlighting issues related to emotional expression and stress management. Furthermore, 32.6% of participants reported experiencing depression linked to exam stress, with a high prevalence of burnout and anxiety noted among respondents. These results underscore the adverse effects that academic pressures have on students' mental health, emphasizing the need for supportive resources.

TABLE 2: Distribution of mental well-being among students.

Statement	Sometimes	Rarely, ever	Most of the time	Always
I am able to maintain a healthy weight during exams.	55 (21.3)	56 (21.7)	**76 (29.5)**	71 (27.5)
I feel good about the condition of my body before exams.	70 (27.1)	49 (19)	**104 (40.3)**	35 (13.6)
I can express my feelings of overwhelmedness when I'm studying for my exams	64 (24.8)	32 (12.4)	60 (23.3)	**102 (39.5)**
I am a chronic worrier	68 (26.4)	24 (9.3)	**86 (33.3)**	80 (31)
I am flexible and adapt or adjust to change in a positive way	73 (28.3)	39 (15.1)	**102 (39.5)**	44 (17.1)
My friends regard me as a stable, emotionally well-adjusted person	62 (24)	27 (10.5)	**131 (50.8)**	38 (14.7)
I take time to think about what important in life- who I am, What I value, where I fit in, and where I'm going	**103 (39.5)**	16 (6.2)	64 (24.8)	76 (29.5)
I am content with my mental health right now	**99 (38.4)**	27 (10.5)	72 (27.9)	60 (23.2)
I tend to let my emotions get the better of me and I act without thinking	**107 (41.5)**	49 (19)	68 (26.4)	34 (13.1)
I manage my time well, rather than time managing me	83 (32.2)	46 (17.8)	**87 (33.7)**	42 (16.3)
Do you ever get panic attacks before an exam	**74 (28.7)**	71 (27.5)	52 (20.2)	61 (23.6)
Do you ever feel burned out	69 (26.7)	34 (13.2)	**85 (32.9)**	70 (27.1)
Does the thought of taking an exam make you depressed	84 (32.6)	30 (11.6)	53 (20.5)	**91 (35.3)**
Do you ever get Palpitations (heart pounding or racing) before taking an assessment	**89 (34.5)**	40 (15.5)	74 (28.7)	55 (21.3)
How often do you seek mental health support if you find yourself needing to talk to someone about concerns	**83 (32.2)**	58 (22.5)	71 (27.5)	46 (17.8)
How important do you think it is to seek help from your close friends or family members	74 (28.7)	14 (5.4)	**85 (32.9)**	**85 (32.9)**
I feel run down and drained of physical or emotional energy	80 (31)	21 (8.1)	**90 (34.9)**	67 (26)
I feel that there is more work to do than I practically can do	**91 (35.3)**	32 (12.4)	88 (34.1)	47 (18.2)

Figure 1 visually represents the distribution of mental well-being among the surveyed students, indicating a significant trend toward poor mental health. The data suggests that a majority of students are struggling with various aspects of their mental well-being, further emphasizing the urgent need for institutional support and intervention. This visual representation reinforces the quantitative findings from the tables, portraying a clear picture of the mental health challenges faced by medical students at Gulf Medical University. The prominence of poor mental health outcomes calls for immediate attention to creating healthier academic environments and support systems.

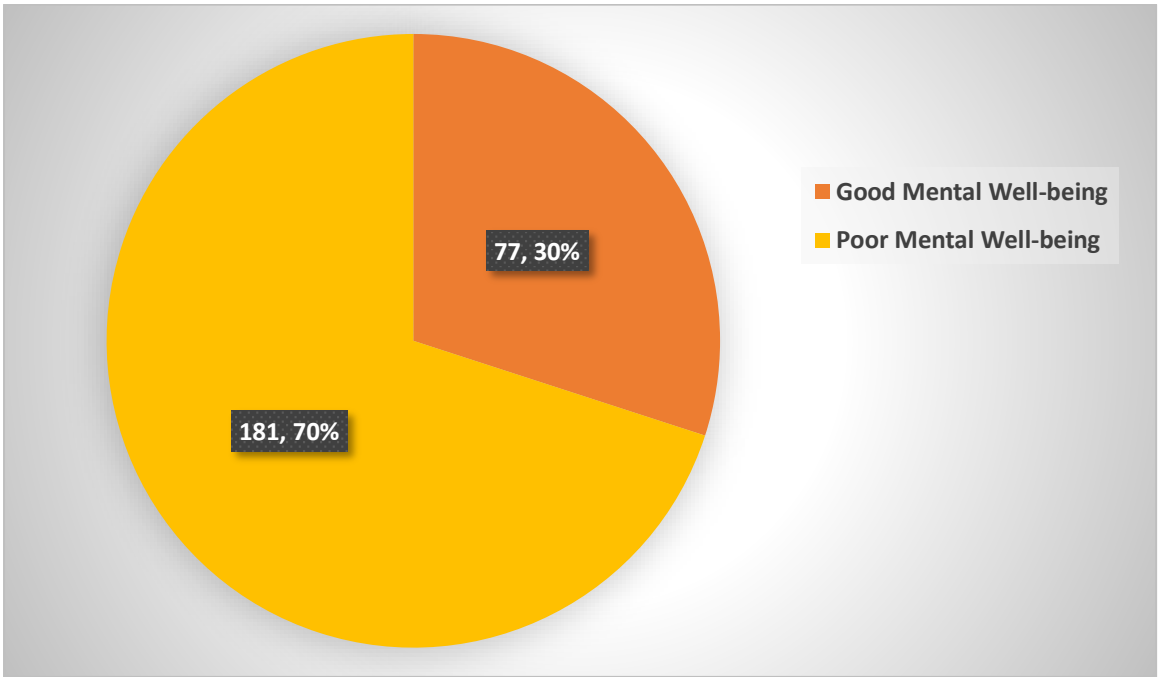

FIGURE 1: Distribution of Mental Well-Being.

Table 3 reveals significant associations between various sociodemographic factors and mental well-being. Notably, students from the African region reported poorer mental health outcomes compared to their peers from other nationalities. Gender differences are pronounced, with 77.5% of female students indicating poor mental well-being, contrasting with 53.8% of male students. This disparity suggests that female students may be more vulnerable to the stressors associated with medical education. Additionally, the course of study impacts mental health, as BDS students exhibit significantly worse outcomes than those in the MBBS program. These associations highlight the influence of demographic factors on students' mental health and the necessity for tailored interventions.

TABLE 3: Association Between Socio-Demographic Factors and Mental Well-Being.

Variables		Mental Well-being		P-value
		Poor	Good	
Age	20 & below	**133 (71.9)**	52 (28.1)	NS
	21 & above	48 (65.8)	25 (34.2)	
Nationality	African Region	23 (74.2)	8 (25.8)	**<.001**
	South East Region	55 (72.4)	21 (27.6)	
	Eastern Mediterranean Region	**79 (79.8)**	20 (20.2)	
	Americas Region	15 (44.1)	19 (55.9)	
	Western Pacific and European Region	9 (50)	9 (50)	
Gender	Female	**138 (77.5)**	40 (22.5)	**<.001**
	Male	43 (53.8)	37 (46.3)	
Course	MBBS	**119 (63.3)**	69 (36.7)	**<.001**
	BDS	**62 (88.6)**	8 (11.4)	
Year of Study	Year 2	**102 (69.9)**	44 (30.1)	NS
	Year 3	79 (70.5)	33 (29.5)	

The data presented in Table 4 illustrates a clear link between academic performance and mental well-being. Students achieving grades of 85 and below exhibited poorer mental health, with 61.6% reporting negative mental well-being. In contrast, those scoring 86 and above demonstrated significantly better mental health outcomes, with 80% reporting good mental well-being. This finding suggests that academic success is intricately tied to students' mental health, reinforcing the need for strategies to support those struggling academically to enhance their overall well-being.

TABLE 4: Association Between Performance of Students and Mental Well-Being.

Variable		Mental Well-being		P-value
		Poor	Good	
Grade	84 and below	85 (61.6)	53 (38.4)	0.001
	85 and above	96 (80)	24 (20)	

Table 5 examines the relationship between studying-related factors and mental well-being, revealing critical insights. A staggering 90.2% of students experiencing high stress during final exams reported poor mental well-being, indicating the profound impact of exam-related stress. Additionally, factors such as forgetfulness and procrastination were strongly correlated with mental health issues, suggesting that these behaviors may exacerbate stress and anxiety among students. These findings highlight the necessity of addressing study habits and stress management in educational settings to improve mental health outcomes.

TABLE 5: Association Between Studying-Related Factors and Mental Well-Being.

Variable		Mental Well-being		P-value
		Poor	Good	
Stress during formative exams	Low stress during formative exams	**63 (75)**	21 (25)	NS
	High stress during formative exams	118 (67.8)	56 (32.2)	
Stress during final exams	High stress during final exams	**46 (90.2)**	5 (9.8)	**<0.001**
	Low stress during final exams	135 (65.2)	72 (34.8)	
Forgetfulness	Highly forgetful	**110 (80.3)**	27 (19.7)	**<0.001**
	Not so forgetful	71 (58.7)	50 (41.3)	
Procrastination	Procrastinator	**89 (88.1)**	12 (11.9)	**<0.001**
	Non-Procrastinator	92 (58.6)	65 (41.4)	
Energy Levels	High energy	**119 (78.8)**	32 (21.2)	**<0.001**
	Low energy	62 (57.9)	45 (42.1)	

The findings from Table 6 further elucidate the factors contributing to mental well-being among students. A striking 95.9% of students reported high anxiety the night before exams, correlating significantly with poor mental well-being. Moreover, those experiencing appetite problems (82.3%) and difficulties in relaxing (83.3%) also reported worse mental health outcomes. These results suggest that anxiety and physical health issues, such as appetite disturbances, are closely linked to students' overall mental health. This underscores the importance of comprehensive mental health support that addresses both psychological and physical health concerns, particularly during high-stress periods like examinations.

TABLE 6: Association Between Other Factors and Mental Well-Being.

Variable		Mental Well-being		P-value
		Poor	Good	
Anxiety	High anxiety the night before	**70 (95.9)**	3 (4.1)	**<0.001**
	Low anxiety the night before	111 (60)	74 (40)	
Problems with appetite	Have appetite problems	**93 (82.3)**	20 (17.7)	**<0.001**
	No appetite problems	88 (60.7)	57 (39.3)	
Sleep	Sufficient sleep	**104 (75.4)**	34 (24.6)	NS
	Insufficient sleep	34 (24.6)	43 (35.8)	
Trouble Relaxing	Have trouble relaxing	**100 (83.3)**	20 (16.7)	**<0.001**
	Do not have trouble relaxing	81 (58.7)	57 (41.3)	
Socio-Environmental aspects of life	Affected by socio-environmental aspects	**99 (79.2)**	26 (20.8)	**0.002**
	Not affected by socio-environmental aspects	**82 (61.7)**	51 (38.3)	

DISCUSSION

A study was conducted among medical school students to find out how commonly they are stressed and to find an association between levels of stress and academic performance. The results of the study demonstrated that 87% of students had completed the questionnaire, and a higher stress level was seen in females at 75.7% than in males, who were at 57%. Students in the first year had the highest rate of stress at 78.7%, followed by the students in the second year who had 70.8%, students in the third year (68%), students in 4th year (43.2%), and students in the fifth year (48.3%). Year of study and stress level were significantly correlated, and it was shown that stress increased physical problems and reduction in sleep, and attendance. A higher academic stress level was associated with poor mental well-being according to a study conducted among university students [24].

Similarly, in the present study, high levels of stress during final and formative exams were associated with poor mental well-being. It was found that 90.2% of the students who had high levels of stress during final exams had poor mental well-being. Females were found to have poor mental well-being compared to males. The current study found that third-year students were experiencing poor mental well-being compared to the second year, which agrees with the report by Barbayannis et al. The reason may be that they are taking more advanced courses, making the workload more difficult [25]. The present study reported a significant association between EMR students with poor mental health. Lee et al reported that better mental health for non-white ethnic groups. An article described a study that demonstrated how medical students suffer from anxiety and stress, as well as the negative effects of anxiety and stress. The purpose of this study was to examine if medical students' psychological distress was related to their degree of stress and other negative effects of their education.

A study done among 377 medical students in their fourth year of medical school at the Belgrade Faculty of Medicine reported that exams were rated as a major stressor by 63.1% of all students. Exam stress and interactions with faculty members were the elements most closely associated with student mental health issues. Finally, academic stress has a significant impact on the mental health of medical students [28]. Similarly, in our study, we found that students had high levels of anxiety the night before the exam, making up 95.9% of the students who suffered from stress and anxiety, as well as eating problems and sleep disturbances. It was discovered that high anxiety due to exams had a strong association with poor mental well-being in students. Our study concluded that anxiety resulted in poor overall mental well-being of students, which affected the main aspects of their lives, such as appetite and sleep.

In a study conducted at a Saudi Medical School, where the researchers took fifth-year medical students as part of a cross-sectional study, test anxiety and stress were researched using a twelve-statement self-administered questionnaire. The researchers found that 65% of students were affected by exam stress and anxiety in the weeks or days before an exam. They also reported changes in sleeping patterns, where students were experiencing less sleep and lower quality of sleep during these times.

Negative impacts on eating patterns were also reported, with students saying they were not eating as frequently with smaller meals throughout the day. The overall general feeling was also reported to be negatively impacted [8]. Our results also showed that the same confounding factors were due to the examination stress and anxiety; students had a negatively correlated effect on sleep patterns, leading to poor well-being. As well as with eating patterns, students who had appetite problems due to exam anxiety and stress had poor well-being as well.

A cross-sectional mixed-method study was done at University College Dublin, using Final-year medical students to research how exam stress affected students' mental well-being and general well-being. The researchers found that out of the 235 students who used, 161 responded, and of 161, 65.2% of respondents were above the acceptable standards of stress on a perceived stress scale. On a Subjective stress scale, 36.3% of students had a high score on the scale, showing that students had high stress because of the exams [9]. With our results, we found similar results where 67.8% of the students had high-stress levels during formative exams and 90.2% of students had high stress levels during final exams.

The study done on adolescents' subjective well-being was goal-driven to find out the relationship between teenagers' subjective well-being, academic success, and test anxiety in universities in Germany for both females and males. This study used the Grade Point Average as a measure of the student's academic performance [6]. The results of the study showed that exams had affected the students' cognitive components negatively, as well as harmed students' anxiety when it came to worrying about assessments. The students reported that whenever an exam was coming up, they would worry about doing well, and their anxiety increased. The Grade Point Average of the students had also been affected by the anxiety and the negative cognitive component of the examinations [6]. Compared to our results, we found similar correlations where high anxiety the night before an exam was associated with the worse well-being of the students. We found that anxiety the night before an exam had negative effects on student's cognitive ability, sleep, stress, etc. 95.9% of the students reported that the high anxiety before an examination had given them a negative association with the factors that we associated with well-being.

LIMITATIONS

The concept of mental well-being was not assessed using a standardized questionnaire. Only second and third-year students were included in the study. This study is limited to a single university; therefore, the results of the study cannot be generalized.

CONCLUSION

This study highlights the significant impact of academic assessments on the mental well-being of medical students at Gulf Medical University. The findings indicate a troubling prevalence of poor mental health, with 70% of participants experiencing negative mental well-being, particularly during high-stress periods such as final exams. Notably, female students, third-year students, and those enrolled in the BDS program reported worse mental health outcomes, underscoring the need for targeted interventions. The factors that had the biggest impact on the student's mental well-being were appetite problems, lack of sleep, stress, forgetfulness, and anxiety but there were strong associations identified between academic stressors—such as anxiety, procrastination, and sleep disturbances—and poor mental health outcomes suggest that academic pressures significantly contribute to psychological distress.

Given the urgency of these findings, educational institutions must implement supportive measures to promote mental well-being. Proposed interventions include the establishment of peer support programs, enhanced counseling services, and adaptive academic policies that prioritize student mental health. By fostering a healthier academic environment, institutions can help mitigate the detrimental effects of assessments on student well-being, ultimately contributing to improved academic performance and quality of life for medical students. This research contributes to the growing body of knowledge on student mental health, emphasizing the need for institutional reforms that recognize and address the unique challenges faced by medical students in their educational journeys.

Author contributions

All authors have sufficiently contributed to the study and agreed with the results and conclusions.

Abbreviations

BDS: Bachelor of Dental Surgery.
MBBS: Bachelor of Medicine, Bachelor of Surgery.
UAE: United Arab Emirates.
IRB: Institutional Review Board.
SPSS: Statistical Package for the Social Sciences.
NS: Not Significant.
P: Probability value.
ANOVA: Analysis of Variance.
BMI: Body Mass Index.
CVD: Cardiovascular Disease.
GPA: Grade Point Average.

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