Original Research Article

Mental Health Assessment of Medical Students in Tanta University, Across Sectional Study

Abstract

Background: Mental health disorders are common in universitystudents, where themost common of them include substance abuse, anxiety, and mood disorders. College students are in a transitory age that's accompanied byvarious stressors and during which diverse mental health problems usually appear for the 1st time.

Objective : To assess presence of mental health disorders among under graduate medical students.

Methods:2900 students were invited to complete a survey that was built on Microsoft form app provided by information technology unit and directed to medical students in mentioned grads individually. An e-mail has been sent to each student's academic official e-mail which was provided to students in the first three academic years.Email included GHQ-28 form associated with phrases fostering involvement in the study and assuring anonymity.

ResultsThe response rate for the GHQ-28 survey was 25.9% of emailed students completing the questionnaire. The mean GHQ-28 score of 13.78 is considerably higher than general population norms.

Conclusion: The majority of students (88.16%) scored above the threshold for psychological morbidity and were considered as apossible caseindicating elevated psychological distress in this student sample.

Keywords: Mental Health, Medical students, Sincerely

Introduction:

According to World Health Organization (WHO), mental health refers to a condition of well-being hereby individuals detect their capabilities, become capable of coping with the normal stressorsin life, work fruitfully as well as contribute to their communities[1]. According toMelia and Egan[2] in 1980 one in each ten college students used some form of mental health services while in 2019 one in every three. There has been a 210 percentelevation in the numbers of students dropping their studies because of poor mental health in the last four years[3].In a great international survey of 14,000 students across nineteen universities in eight countries, thirty five percent of students met the diagnostic criteria for ≥ 1 commonplace mental health problem[4].

According to surveys in twenty-one countries with diverse income levels, the WHOassessed the association of mental diseases with college entry. They found that (20.3%) of university students had 12-month DSM-IV disorders. nevertheless, only 16.4 percent of students received any treatment for their mental disorders[4].

Suicide is the 3rd leading cause of mortality among young adult individuals and has become a crucial problem among university students. The majority of students with suicidal thought don’tquest for therapy, it’s pivotal to have screening approaches to detect them and intervene them in management[5]. Lack of determination or dismissal of mental health manifestations and absence of therapy are famous problems among college students and mightparticipate in mental health problems sustainability in such individuals. Early detection of college students suffering mental health disorders and complete assessment ispivotalso as to provide sufficient services along withensuring better outcome[6].

Universities have tobe the mother of developing an integrated as well as coordinate system of mental health services for students, that’s related to academic supervision. The principles that

maymentor this developmentinclude accessibility, culturally competent, and developmental proper services; and integrated studies to detect the development of services moving forward[7].

Technology-based programs that is usually usedin screening andmanagementmight be available all the time and might be cost-efficient as well. E-mental health comprise the usage of digital technology along withnovel media to deliver screening, health promotion, prevention methods, early interventions, treatments, or relapse preventions in addition to improving health care delivery (such as electronic patients' files), optimal education (electronic-learning), and online research in the field of mental health[8].

A study concluded that 74 percent of the students approved receiving health data online, and >40 percentdocumented that they often look for the Internet to know health information, denoting that that college students markedlydepend on the Internet as health resources[9].

Patients and methods:

This study was performed in Neuropsychiatry Department, Faculty of Medicine, Tanta University, and The Center of Psychiatry, Neurology and Neurosurgery, Tanta Universityfrom October 2020 through 2 academic years 2020/2021 and 2021/2022. The study included 2900 students. Targeted population was Egyptian students of the first three academic years of the integrated program.

Students were excluded if Students refused to engage in the study or students in programs other than the integrated program.The study was cross sectional using GHQ-28

- **Communication methods:**

- Students were invited to be included in the study through an e- mail provided by the information technology (IT) unit.

- The research also included collaboration with Tanta Students Scientific Association (TSSA).
- The insider Tanta: An independent newspaper at Tanta University

- **Steps of the study**

Mental health awareness:

This was done by serial of flayers to promote awareness of students' mental health with collaboration of the Insider Tanta

Mental Health assessment:

Using e-mail, we invited all first-, second-, and third-year medical students of the traditional program to complete GHQ-28 survey that was built on Microsoft forms and directed to students in mentioned grades to determine the possibility of having psychiatric problems.

Ethical considerations: An informed consent was obtained from all students participating in our research.There were no expected risks for participants. There were adequate provisions to maintain the privacy of participants and confidentiality of the data e.g., the patient will have his secret code and private file linked to the research and the research results will only be used for scientific purposes.

Statistical analysis

Organization, tabulation of data was carried out to be statistically analyzed by SPSS version 19 (Statistical Package for Social Studies) created by IBM, Illinois, Chicago, USA. For numerical values the range mean, and SD were estimated. The differencebetween 2 mean values wascalculated using the Mann-Whitney test as the variables were not normally distributed. Differences of mean values of variables at different periods of follow up were tests by Kruskal-Wallis test. For categorical variable the number and % were calculated and differencebetween

subcategories were tested by chi square ($\chi 2$); When it'snot appropriate, Fisher exact test and Monte Carlo exact test were used. The level of significance was adopted at $p<0.05$.

Results

The response rate for the GHQ-28 survey was 25.9% of emailed students completing the questionnaire. The mean GHQ-28 score of 13.78 (SD = 6.88) is considerably higher than general population norms, indicating elevated psychological distress in this student sample. The majority of students (88.16%) scored above the threshold for psychological morbidity and considered it as apossible case.

Examining the GHQ-28 subscales shows the highest distress levels in anxiety/insomnia symptoms (mean 4.64, SD=2.35) with 62.5% scoring positively. Somatic symptoms were also common (mean 3.76, SD=2.43) with 44.55% scoring positively. Severe depression symptoms were less frequently endorsed (mean 3.35, SD=2.06) though still concerning given the 1.6% reporting significant depressive symptoms. Suicidal ideation was assessed separately, with 17.02% of students endorsing some level of suicidal thoughts or attempts.

Females scored significantly higher than males on the overall GHQ-28 (females: M=14.33, SD=6.71; males: M=12.9, SD=7.07; p=0.006). Analysis of the GHQ-28 subscales showed females scored significantly higher than males on somatic symptoms (females: M=4.0, SD=2.37; males: M=3.37, SD=2.49; $p<0.001$), anxiety/insomnia symptoms (females: M=4.8, SD=2.23; males: M=4.39, SD=2.51; p=0.019), and severe depression (females: M=3.55, SD=2.04; males: M=3.02, SD=2.05; $p<0.001$). There was no significant difference as regardgender for social dysfunction or suicidal ideation.

Chi-square tests indicated a significantly greater proportion of females versus males scored above the clinical cutoff on the somatic symptoms' subscale (49% vs 37%, p=0.002) and severe depression subscale (36% vs 28%, p=0.002).

Discussion

Mental health issues among college students are a growing concern globally. The transition to university can negatively impact academic performance and wellbeing. Among students in Egypt and the broader Arab region, research quantifying the prevalence of mental disorders and evaluating evidence-based interventions is limited. However, existing research indicates mental health issues are common in this population too. There is a need for further study on the unique needs of undergraduate students in this region to develop tailored treatment approaches[10].

One recommended approach is stepped care, where the least resource-intensive effective interventionsare delivered 1st, followed by more intensive treatments if needed[11].

Developing stepped care approaches for university students in Egypt could provide much-needed mental health services. Until 2021, 309 research articles have been published from the Arab areaconcerning the mental health and well-being of college students, while the global research output in this field was (5554). Saudi Arabia leads the list, followed by Jordan and then Egypt, Though Egypt has the third most research output on this topic among Arab nations, few studies have examined interventions for Egyptian undergraduate's specifically[12].Further research should evaluate stepped care effectiveness for this group. Findings would guide implementation of tailored programs to support students' mental health needs during this challenging life stage. Ongoing assessment and adaptation would ensure the approach continues meeting their needs.

A recent review of the literature indicates that research on mental health among college students in the Arab area, including Egypt, has disproportionately focused on just three issues - stress,

depression, and anxiety[12]**.** These 3issues accounted for ~93 percent of published articles, while other important mental health issues were relatively understudied. Several factors may contribute to this imbalance between global and regional research priorities, including limited research experience, effect ofcultures and religion, and insufficient research convergence in the regioninternationally. Consequently, there are significant gaps in our understanding of the prevalence as well as the correlation of other mental problems among undergraduate populations in Egypt. The present study aimed to help address this gap by providing data on a wide range of common mental problems in a large sample of undergraduate students at an Egyptian university. Findings will diversify the research landscape and inform efforts to develop tailored, evidence-based mental health services for this population. Ongoing work must expand the scope of student mental health research in the region to align with global priorities.

Study Recruitment and Response Rate

Study participants were recruited through a cross-sectional online survey. The target population comprised all first, second, and third year undergraduate medical students enrolled at Tanta University during the 2020-2021 academic year. This purposeful sampling approach aimed to recruit the full population of students in the integrated modular-based medical degree programs (n=2,900) in order to obtain a homogenous sample.

Email invitations containing a link to the secure online survey were sent to all students in the target population using official university email addresses. Out of 2,900 students invited, a total of 752 responded by accessing the survey link and providing consent, yielding an initial response rate of 25.93%. This response rate exceeds those reported in similar large-scale mental health surveys delivered online to university students. For example, Ebert et al.[13]achieved a 25.92% response rate from 11,169 invited students across multiple German universities. McLafferty et al.

[14]obtained a lower 16.95% completed response rate among 4,365 first year undergraduates surveyed at an Irish university.

Typical response rates for online surveys have been estimated between 34-36% in recent publications. Therefore, the response rate obtained here is reasonably consistent with online survey methodology expectations within the literature. Furthermore,Fosnacht et al.[15]established that samples over 500 with as little as 5-10% response can provide reliable data. Given our sample exceeded 500 responses with a substantially higher response rate, it should sufficiently reflect the target population.

Psychiatric assessment by GHQ-28

The 28-item General Health Questionnaire (GHQ-28) was utilized in the present study to screen participants for common mental disorders. Using the validated scoring approach of 0-0-1-1, 663 out of 752 respondents (88.16%) exceeded the threshold for psychiatric 'cases' warranting further assessment and potential clinical intervention.This prevalence rate is markedly higher than findings from two recent Egyptian studies that utilized different screening instruments. Specifically, El-Gilany et al.[16] administered the 90-item Symptom Checklist (SCL-90-R) and found 58.8% of medical students exhibited symptoms indicative of one or more mental disorders. Similarly,Musa et al.[17] used the GHQ-12 and identified 63% of medical undergraduates as potential cases.The rate of 88.16% identified in the current sample aligns more closely with a study of Hong Kong medical students, which reported 95% and 87% positive screens on the Oldenburg Burnout Inventory (OLBI) and GHQ-12 respectively[18]**.** However, it substantially exceeds prevalence estimates from a number of other countries, including 40.7% in China, 11-44.9% in Iran, 39.1% in the United Kingdom, 7.4% in Asia, and approximately 50% in the United States based on published studies using various methodologies[19].The variability in

prevalence rates across studies may reflect differences in mental health screening methods, sample characteristics, cultural factors, and education systems. Nevertheless, the remarkably high prevalence of probable mental disorders indicated by the GHQ-28 among Egyptian medical undergraduates in the present study is concerning. It aligns with the chronic stress and strain associated with medical education. Longitudinal monitoring of the mental health status of medical students in Egypt using consistent, psychometrically robust screening tools could strengthen understanding of this issue over time.

Also, it's noticeable that there were no significant differences between males and femalesas regards semester participation or even the GHQ-28 score, which matches Mascaskillstudy[20].

The 88.16% prevalence of probable mental disorders in the current medical student sample far exceeds the 16.93% population estimate for Egyptian adults[21]. However, high rates are expected in this group due to increased risk during the transition to adulthood and university[19]**.**Additionally, the intense pressures of medical school may further contribute to poor mental health in this population. Medical education requires competitive pre-medical preparation, a demanding admissions process, and rigorous academic requirements. Students also face a competitive peer environment, exposure to severely ill patients, and limited leisure time. As concluded by Dyrbye et al.**[21]**these unfavorable components of the medical school environment and training process can lead to mental exhaustion and higher rates of mental illness.

In summary, the remarkably high prevalence of probable psychiatric disorders in the present undergraduate medical sample likely reflects both individual vulnerabilities during a major transitional life stage as well as contextual factors related to the frequently distressing medical

school environment. Addressing mental health issues in this population will require efforts to improve the educational system itself as well as provide accessible clinical services.

Comparison of GHQ-28 subscales

Females had significantly higher mean scores for overall psychological distress, somatic symptoms, anxiety/insomnia, and severe depression compared to males. The proportion screening positive for somatic symptoms and severe depression was also significantly higher in females. These results align with epidemiological data showing higher rates of internalizing disorders such as anxiety and depression among women. However, no significant gender difference wasobseved for social dysfunction, suicidal ideation, or suicide attempt.

These findings may relate totendencies for higher psychological stress in female medical students. Prior studies indicate women in medical training tend to be more competitive, preoccupied with academic achievement, self-critical of performance, and prone to expressing depressive symptoms (even minor) compared to male peers[22-24]**.** Lower exercise engagement in females has also been proposed as a factor[22]**.** Additionally, some discrimination in professional opportunities between genders may persist in the medical field, despite overall majority representation of women[25]**.** Further research should continue investigating sources of increased psychological distress and mood symptoms among female undergraduates in medical education programs. The reasons for the identified gender disparities in mental health are likely multidimensional, potentially relating to biological susceptibilities, socialization patterns, differences in help-seeking, and variations in reporting tendencies. Further research through longitudinal and qualitative approaches could provide more insight into the factors contributing to the observed gender differences. It is encouraging there were no differences in suicidality but concerning that almost 1 in 5 students of both genders reported suicidal ideation or attempts.

Suicide, in spite of not being a distinct diagnosis, is the 3rd leading reason of mortality among young adult individuals and is a serious problem among college students[10]**.** A large survey concluded that among 8,155 students, 6.7 percenthad suicidal thoughts, 1.6 percentrevealed having a suicide plan, and 0.5 percentrevealed making suicidal attemptsover the least in the year[26]. Given that the vast majority of students with suicidal thought don't quest for therapy, it's pivotal to have screening approaches to detect them and intervene them in treatment[27]. Depressionis considered one of the essential risk factors for suicide in this age group.

Conclusion and recommendations

- Mental disorders are highly prevalent among undergraduate and medical students, indicating a need for greater infrastructure to assess, monitor, and address mental health at universities.
- Collaboration between university departments as IT unit and student organizations is critical for raising awareness, reducing stigma, and improving mental health outcomes.
- Depression, anxiety, suicidal ideation, and substance use disorders are common issues affecting student wellbeing, with females demonstrating greater psychological distress than males overall.
- Integrated counseling services are needed to promote mental health, deliver prevention programs, and enable early intervention.
- A comprehensive, multi-faceted approach is required to support student mental health involving awareness promotion, stigma reduction, gender-sensitive interventions, counseling, collaboration between university and student groups, and periodic needs assessment. Such initiatives can help foster wellbeing and academic success.

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Table (1)Percentage of students who completed GHQ-28 survey

Students who received e-mails N=2900		**Students who completed GHQ-28 survey N=752 (25.9%)**
GHQ score	**Mean ± SD**	13.78 ± 6.88
	Range	0 – 28
	Positive	663 (88.16%)
	Negative	89 (11.84%)

Table (2): Relationships between gender and mental health assessment of participants via email

		Male (n=289)	Female (n=463)	P value
GHQ score	**Mean ± SD**	12.9 ± 7.07	14.33 ± 6.71	**0.006***
	Range	0 - 28	0 - 28	
	Positive	247 (85%)	416(90%)	0.082
	Negative	42 (15%)	47 (10%)	
Somatic symptoms score	**Mean ± SD**	3.37 ± 2.49	4 ± 2.37	**<0.001***
	Range	0 - 7	0 - 7	
	Positive	108 (37%)	227(49%)	**0.002***
	Negative	181 (63%)	236 (51%)	
Anxiety/Insomnia score	**Mean ± SD**	4.39 ± 2.51	4.8 ± 2.23	**0.019***
	Range	0 - 7	0 - 7	
	Positive	168 (58%)	302(65%)	0.053
	Negative	121 (42%)	161 (35%)	
Social dysfunctions score	**Mean ± SD**	2.11 ± 1.93	1.98 ± 1.94	0.362
	Range	0 - 7	0 - 7	
	Positive	38 (13%)	59 (13%)	0.911
	Negative	251 (87%)	404(87%)	
Severe depression score	**Mean ± SD**	3.02 ± 2.05	3.55 ± 2.04	**<0.001***
	Range	0 - 7	0 - 7	
	Positive	82 (28%)	168 (36%)	**0.002***
	Negative	207 (72%)	295(64%)	
Suicidal score	**Mean ± SD**	0.18 ± 0.38	0.17 ± 0.37	0.719
	Range	0 - 1	0 - 1	
	Attempt	51 (18%)	77 (17%)	0.765
	No	238 (82%)	386 (83%)	

***significant**

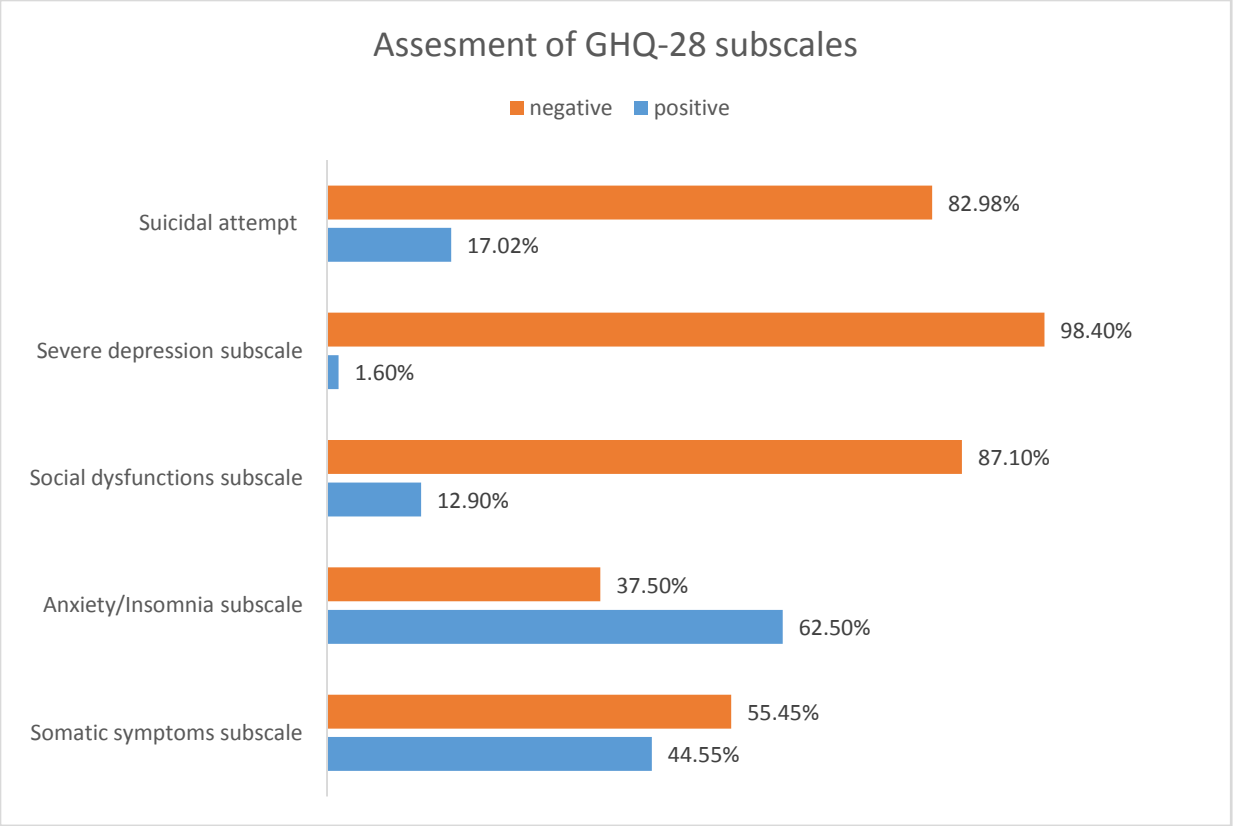

Figure (1): Assessment of GHQ-28 subscales