MEDICAL SCIENCE

Comparison of depression and its associated risk factors between medical and non-medical students

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ABSTRACT

Background: Psychiatric illnesses have abnormal thoughts, feelings and behaviors. According to the 2019 Global Burden of Disease research, mental diseases remain one of the top ten leading sources of burden throughout the world. Depression and anxiety are the most common mental health problems among college students. Depression is a mental illness marked by persistent sadness and loss of interest. Depression affects around 7-9% of college students and can present much earlier in life. *Aim:* The primary objective of our research is to compare depression among medical and non-medical students in Al-Madinah Al-Munawwara. The secondary objectives are to explore the risk factors associated with depression and whether being medical or non-medical can contribute to the difference in the risk factors. *Methods:* This was a cross-sectional study among 386 students, divided into medical background students (n=241) and non-medical students (n-145); all participants signed a consent form and offered a DASS (Depression, Anxiety, Stress, Scales) survey, including 21 questions to be filled out. *Results:* Across the overall sample of participants, most participants have reported normal DASS feelings regardless of their background, while anxiety was the highest among severe DASS reports, there was a significantly different association between DASS and GPA score, same as for the DASS outcomes between medical and non-medical; however, there were non-significant different either between gender, marital status and seniority level. *Conclusion:* In conclusion, depression among students was influenced by several factors, including educational background and academic level of students.

Keywords: Depression, GPA, DASS, medical, non-medical, male, female

1. INTRODUCTION

Psychological disorders are conditions marked by aberrant thoughts, emotions and actions. Although it's tough, psychologists and mental health experts need to agree on what kinds of inner sensations and behaviors indicate the presence of a psychological problem (Bonfiglio et al., 2011). Most mental diseases are believed to result from genetic and environmental causes. Previous research has demonstrated the existence of genetic risk factors shared by various mental disorders (Kumar et al., 2013).

According to Rehm and Shield, (2019) mental disorders remained among the top ten leading causes of the global burden, with no indication of a global decline since 1990. The anticipated YLLs of mental diseases were extremely low and did not represent the prematurity of persons suffering from mental illnesses (Koob, 1999). In 2016, more than 1 billion people worldwide suffered from mental and addiction diseases. They were responsible for 7% of the worldwide illness burden in DALYs and 19% of all handicapped years. Many psychological disorders include depression, panic disorder, anxiety, compulsive disorder, phobia disorder and post-traumatic stress disorder. There are also two classifications for psychiatric disorders: Acute and chronic. This underlines that psychological disturbance is a complex disease requiring extensive care and control (WHO, 2022).

Depression, a mental condition, is distinguished by persistent sorrow and a loss of interest. Depressive disorders are classified in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), as disruptive mood dysregulation disorder, major depressive disorder, persistent depressive disorder (dysthymia), premenstrual dysphoric disorder and depressive disorder related to a different health issue. A depressive illness is characterized by suffering, emptiness, rage and physical and cognitive impairments that significantly limit an individual's ability to function (Chand and Arif, 2020; Medani et al., 2021).

Depression affects about 7-9 percent of college students, although it can begin much earlier in life. Nearly half of all episodes of depression begin by the age of 18. Suicide, being the third greatest cause of mortality among young adults (Pedrelli et al., 2014), is another big worry (CDC) (Confided in Source). According to a comprehensive poll of 8,155 students conducted in 2015, 6.7% had suicidal thoughts, 1.6% had a suicide plot and 0.5% had attempted suicide in the preceding year (Solmi et al., 2021). As a result, there is a need to raise knowledge and understanding about how to handle psychological difficulties in university students, as well as the risk factors that may be involved.

2. METHODS

Study design

This was a cross-sectional, non-interventional survey study among students in Al-Madinah Al-Munawwara, Saudi Arabia. It was carried out from September 2022 to January 2023.

Study population

The inclusion criteria for the participants were undergraduate students above 18 years old, living in Al-Madinah Al-Munawwarra, and current students at either medical science colleges or non-medical science colleges; participants with a history of psychological disorders and chronic diseases were excluded. Of the 523 responses, 386 met the above criteria and were used in the study. Those with diagnosed psychiatric or chronic diseases were excluded from our study.

Data source

We enrolled 386 consenting participants to provide their inputs in the pre-designed online questionnaires. The questionnaires were delivered via a Google Forms link and disseminated among participants through WhatsApp; inputs were captured from the participants and analyzed to assess the overall depression scores among university students and the risk factors influencing their inputs as represented by their study backgrounds, either medicinal or non-medical.

In our study, we had two cohorts (C1 and C2) of medical and non-medical students. The sample size for the two cohorts will be almost identical and recruited students were invited to participate in the study by filling out Microsoft Forms survey questionnaires.

Statistical analysis

Our data selection was based on certain characteristics; the first segment covers socio-demographic aspects; medical status, lifestyle, and academic profiles are all examples of socio-demographic features. The second component evaluated the students' levels of stress, anxiety and sadness.

Gender, age, marital status, whether children are present, family monthly income, place of residence throughout the study time, hometown, father's educational level, mother's educational level, the status of the parents (alive and married/divorced or dead), family responsibilities, family conflicts, travel time from home to university and whether working during the study period were all included in the socio-demographic information.

The depression, anxiety and stress scale (DASS) assessed psychological morbidity. A verified 21-item DASS variant is more commonly utilized. Seven of the 21 items are from depression, anxiety and stress. The replies for each item varied from 0 to 3, with 0 indicating that the thing does not relate to the student and 3 indicating that the item applies completely or regularly to the students. Outcomes then were stratified between normal, moderate and severe DASS feelings. Participants received the survey electronically through email spreading, WhatsApp or live interaction; we have also used IBM SPSS V26 in all study analysis outcomes.

3. RESULTS

Baseline characteristics

In our study, 386 participants have been consented and participated in providing their inputs into the questionnaires; across the sample, 59.5% were female, the mean age of 22.4, 91.9% were single and 94.3% were Arab in ethnicity, the majority lived with their families (92.4%) as per (Table 1). In terms of academic preference of the selected sample, we found that the participant's backgrounds vary between medical and non-medical experience, with a contribution more from medical colleges (58.6%) and non-medical colleges (41.4%). Most of them are juniors and 64% of the participants scored a GPA of more than 4, almost half of the participants studied more than 4 hours and more than one-third of participants (37.4%) studied 1-3 hours as per (Table 2).

Table 1 Baseline characteristics

Baseline characteristics (n=386)	
Age	
Mean avg. age (Year)	22.45
Gender	
Male	41.5
Female	59.5
Marital status	
Single	91.9
Married	7.5
Divorced	0.6
Ethnicity	
Arab	94.3
African	2.0
Asian	2.8
European	0.3
Arab/African	0.3
Arab/Asian	0.3
Residence city	
Family	92.4
Student residence	7.6

Depression, Anxiety, Stress, Scales (DASS) among overall students

The level of depression, anxiety, stress, scale (DASS) was assessed across the 386 participants; 21 questions were provided in Figure 1; the outcomes were stratified based on stress, anxiety and depression and the results were aggregated towards 3 findings, regular, moderate and severe DASS feelings. Across the whole sample, most participants reported being normal regarding DASS. Outcomes towards normal DASS vary between stress "68.4%" depression "67.3%" and the lowest anxiety with "55.7%". While for moderate DASS, anxiety feelings were higher with "17.1%" of the sample, followed by depression "at 16%" and the lowest was stress with

"11.4%" of the sample. Lastly, the severe feeling of DASS was again the highest towards anxiety at "27.2%, followed by stress at "20.2%" and the lowest was the feeling of depression at 16.7%" (Figure 1).

Table 2 Academic preference

Academic preference (n=386)	
Specialty	
Medical student	62.4
Non-medical student	37.6
Academic level	
Senior	42.3
Junior	53.7
GPA	
1 – 2	0.5
2 – 3	3.8
3 - 3.5	7.5
3.5 – 4	24.9
4 - 4.5	32.2
4.5 – 5	31.1
Daily studying hours	
1 – 2	17.4
2 – 3	19
3 – 4	17.4
4 – 5	23.5
More than 5 h	22.7

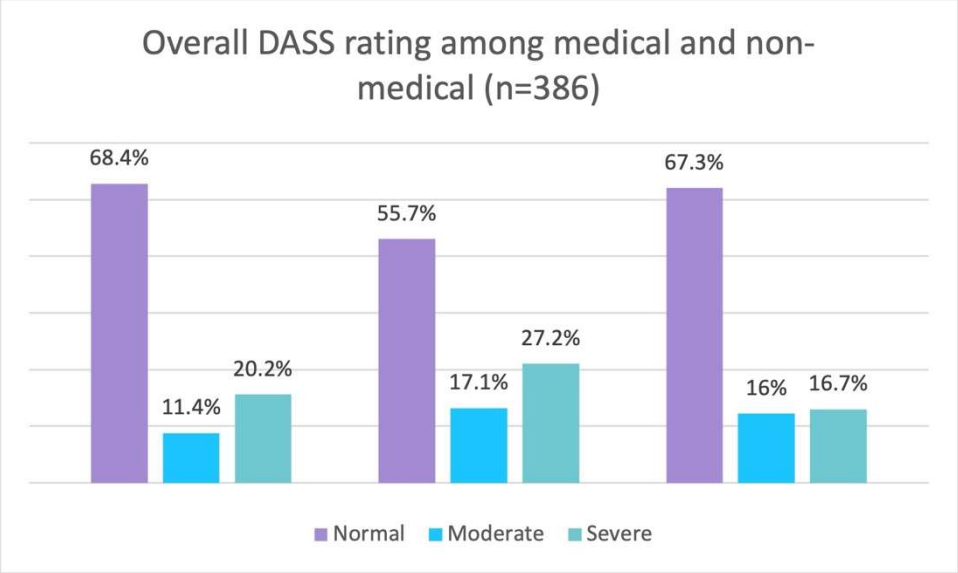

Figure 1 Depression, Anxiety, Stress, Scales (DASS) among overall students (n=386)

Depression, Anxiety, Stress, Scales (DASS) among medical students

Across the sample, 241 participants were medical students and the different degrees of DASS were assessed among them; the outcomes were almost like the overall participants (Figure 2). The majority of subjects were DASS normal throughout all three stress, anxiety and depression sectors; severe anxiety was the greatest, "26.5%," while severe stress was the lowest, "12.8%".

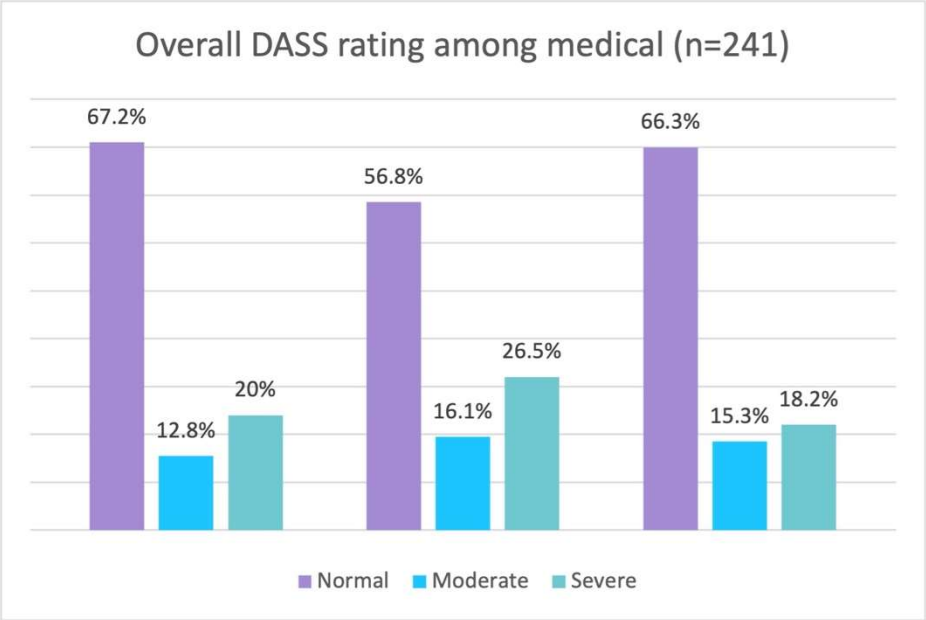

Figure 2 Depression, Anxiety, Stress, Scales (DASS) among medical students (n=241)

Depression, Anxiety, Stress, Scales (DASS) among non-medical students

Out of the 386 participants, 145 participants were non-medical students and the overall outcomes of the DASS reporting were consistent with either the overall or medical students (Figure 3), most non-medical students reported normal DASS feelings in specific towards feelings of depression "69.5%" and stress across "70%". In contrast, severe stress feelings were only reported among 9%, which was the lowest DASS reported.

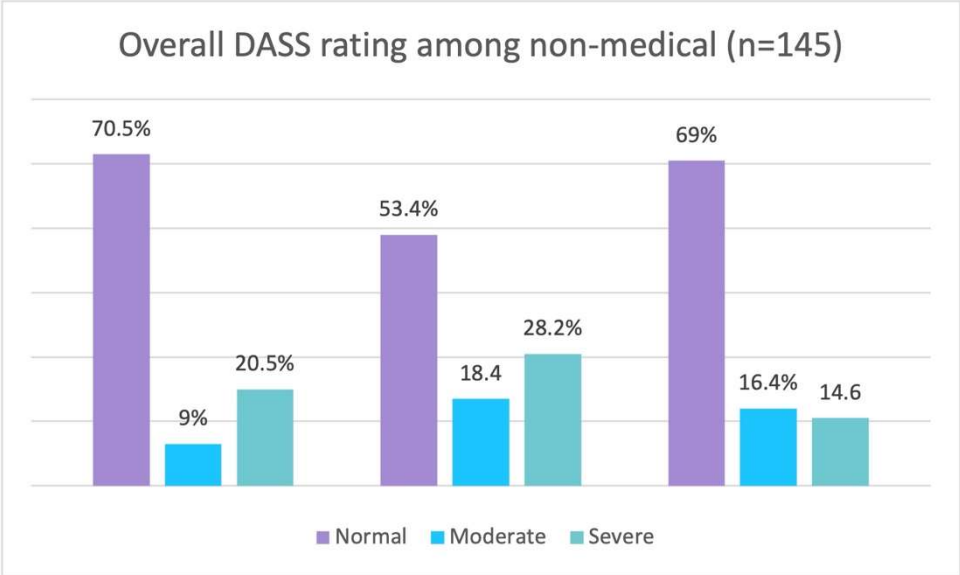

Figure 3 Depression, Anxiety, Stress, Scales (DASS) among non-medical students (n=145)

Correlation between medical and non-medical students toward DASS

The correlation between medical students (n=241) and non-medical students (n=145) was studied in our study; there was a substantial relationship between the degree of DASS and the student's background in general, as well as between normal and severe stress feelings with a P value of (p= 0.0216). In terms of anxiety, all parameters were statistically significant as well between normal, moderate and severe feelings of anxiety and lastly, the depression feeling was statistically significant across normal and moderate DASS reports with a P value of (p=0.0432) (Figure 4).

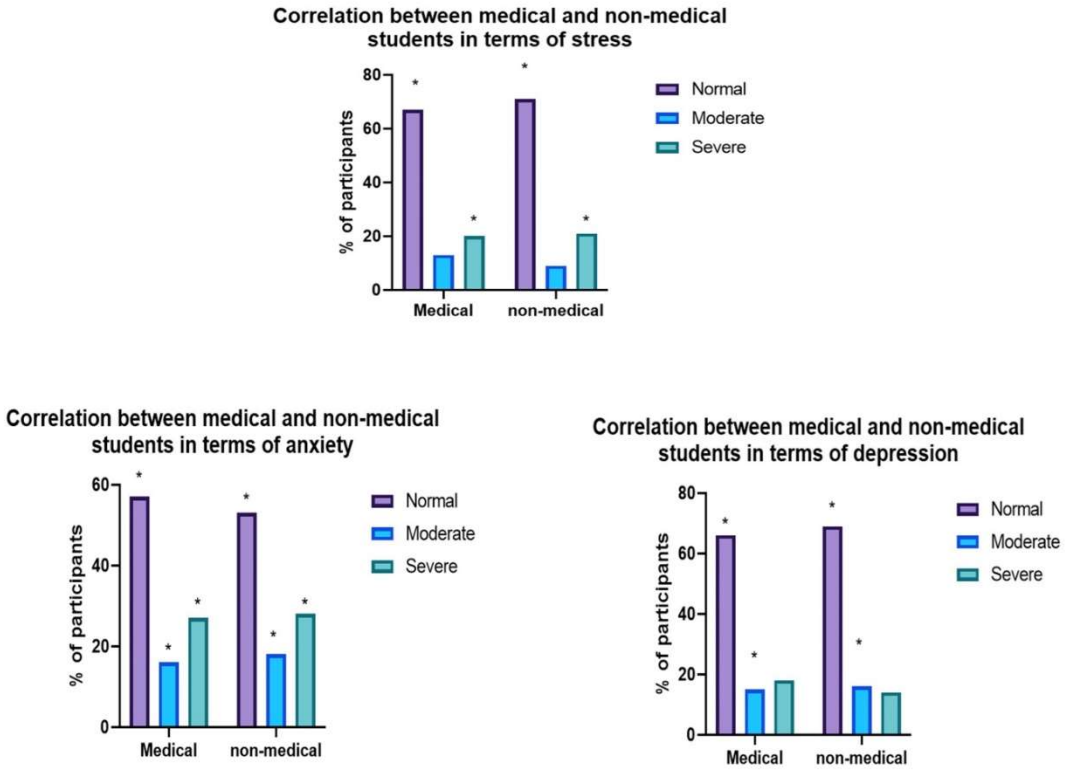

Figure 4 Correlation between medical and non-medical students toward DASS

Depression, Anxiety, Stress, Scales (DASS) about GPA

The association between DASS and the GPA grade of students was assessed as per (Figure 5). The GPA score, the normal state of the DASS and the severe state of the DASS were substantially distinct, while there was a non-significant difference in terms of moderate DASS and GPA score; this was consistent with the different GPA grades from 1 to 5, the highest incidence of severe DASS was reported in the student's scoring GPA between 1 and 2, while the lowest severe DASS was reported among students scoring GPA between 4 and 5.

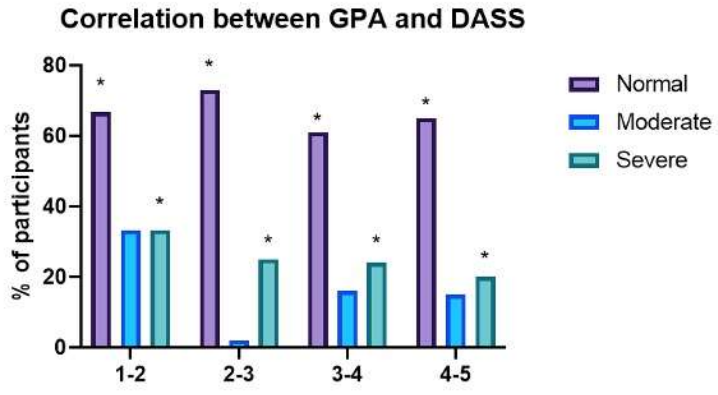

Figure 5 Depression, Anxiety, Stress, Scales (DASS) to GPA

Depression, Anxiety, Stress, Scales (DASS) to sex

The correlation between sex and DASS was also matched in our study results outcomes; in our study, more females reported severe or extremely severe incidence of DASS, which varies between stress, depression or anxiety compared to males, while more males

reported normal DASS vs. females. However, there was a non-significant difference in gender-specific and DASS, as per (Figure 6). In general, there was a numerically higher proportion of males "76% reported normal DASS", 10% have moderate DASS and 14% have severe DASS; on the other hand, 56% of females reported normal DASS, 18% reported moderate and 26% reported severe DASS.

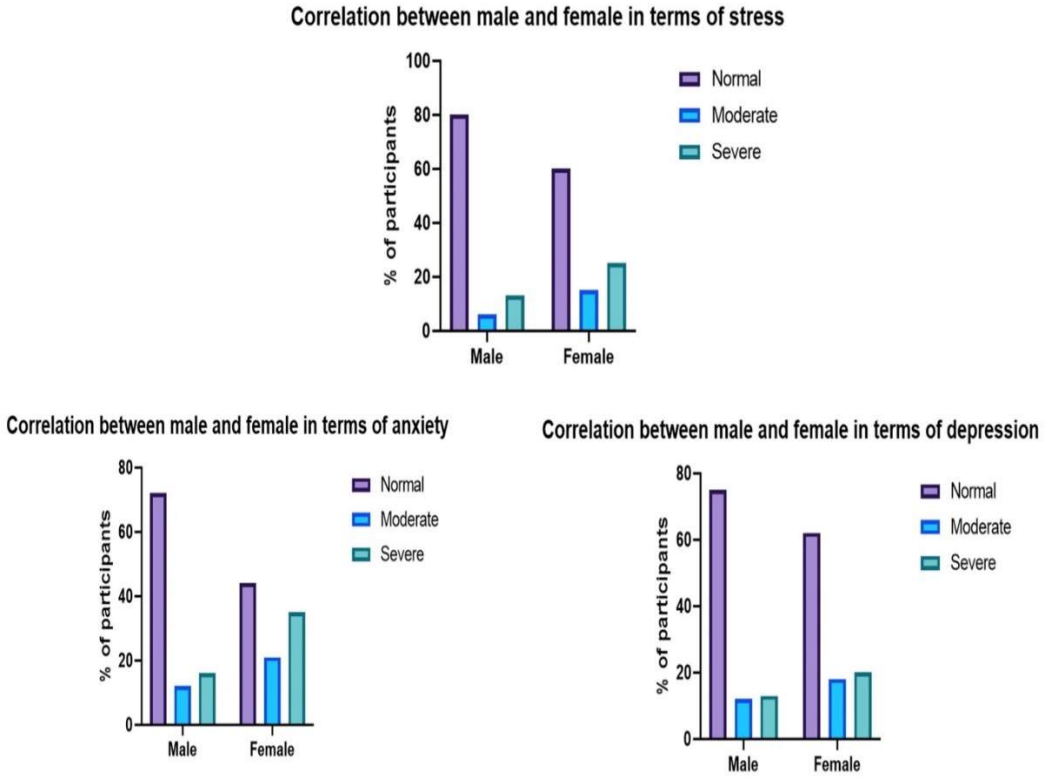

Figure 6 Depression, Anxiety, Stress, Scales (DASS) to sex

Depression, Anxiety, Stress, Scales (DASS) to marital status and seniority

The association between marital status and DASS was studied in our study; the findings from this point indicate a non-significant difference between being single or married compared to the DASS. However, the incidence of normal DASS was reported more among married students with very minimal cases of severe DASS (Figure 7). However, DASS also considered seniority and there was no discernible difference between being junior or senior about DASS; however, the juniors were more confronted with reporting severe DASS with around one out of four of them and 58% reported normal DASS, while only 17% of seniors or almost 1 out of 6 reported severe DASS as per (Figure 8).

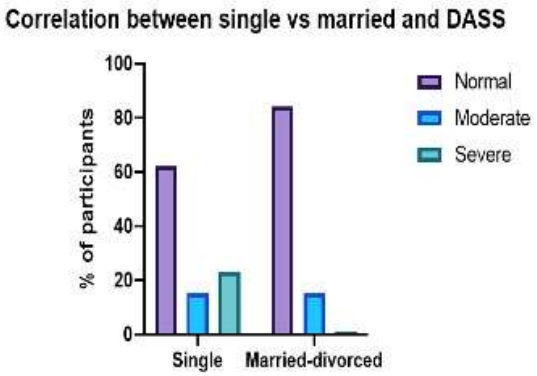

Figure 7 Correlation between marital status and DASS

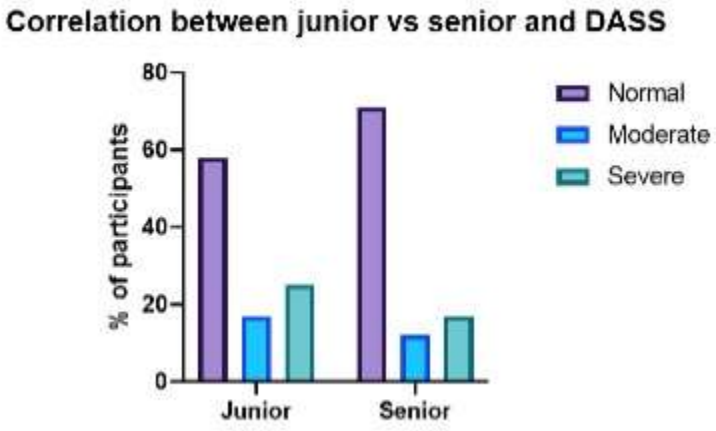

Figure 8 Correlation between seniority and DASS

4. DISCUSSION

Our study aimed to see if there was a difference in DASS between medical and non-medical students. Assessing depression has always been a research interest because of the strong link between the decreased quality of life and depression and the impaired productivity of participants. When focusing on the next generation for any community, youth are always confronted with great care to grow a healthier generation.

Several studies have assessed the level of depression among college students at various age stages, including undergraduate, postgraduate and PhD students. A meta-analysis of 16 studies indicated that depression rates ranged from 10% to 47% among 23,469 PhD students. The PHQ-9 (nine studies) and several CES-D variants were the most used depression measures (four studies) (Satinsky et al., 2021).

The remaining 386 students in our study had DASS scores ranging from moderate to severe, with more than half of them having normal scores. These findings were consistent with previous studies that examined student prevalence, risk factors and treatment options for psychiatric illnesses. The data show that 54% of the students were found to be normal, while 7% had borderline clinical depression, 18% had major depression and only 21% of the responses showed moderate or severe depression without any extreme depression. This shows that approximately one-fifth of students' exhibit clinical depression symptoms (Wijesekara, 2022).

The second research looked at the incidence of depression, anxiety and stress in medical and non-medical students at Umm Al-Qura University in Makkah, Saudi Arabia. Cross-sectional questions were asked to 465 students, half of whom were medical students. The study's findings showed that undergraduate medical and non-medical students are particularly susceptible to melancholy, anxiety and stress (Mirza et al., 2021).

In our study, females had higher rates of severe or extremely severe DASS, which can be caused by stress, depression or anxiety, than males. This matched earlier research. In a study done in Saudi Arabia, researchers collected data from 2,562 medical students from 20 colleges; 1,572 (61.4%) were female, while 990 (38.5%) were male. Mild to severe depression was reported by 66.6% of the males and 87.6% of the females (Alharbi et al., 2018). The data for this most current meta-analysis came from 18 papers published between January 2010 and March 2019. Depression was observed in 30.9–77.6 percent of Saudi medical students, with a mean frequency of 51.5 percent. The findings of this review indicate a considerable incidence of depression among medical students, as well as the effect of relevant socio-demographic variables. Women are considered to be more vulnerable to depression (Aljaber, 2020).

In our study, there was no statistically significant difference between moderate DASS and GPA score, the normal state of DASS or the severe condition of DASS. This was partially aligned with another international study that assessed several factors contributing to DASS. This study's findings showed a weak, statistically significant negative correlation between stress level and GPA ($r = -0.159$, $p = 0.009$), indicating that as stress levels increase, students' GPA decreases (Sun and Zoriah, 2015). Some limitations were identified in our study, like self-reporting, cross-sectional design and single center; however, our findings significantly contributed to understanding the DASS among students in Al-Madinah Al-Munawwara.

5. CONCLUSION

In conclusion, whether medical or non-medical, students' levels of depression, anxiety and stress fluctuate; it is additionally affected by GPA, degree and orientation; therefore, additional research must be conducted for ensuring a link between the DASS and other risk factors for students in various cities.

Acknowledgment

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Author contribution

The authors value the participants' input. Contributions of the authors: AK and AH developed the approach and wrote the text. The AK, AH, KO and AG were involved to collect samples. KO oversaw and participated in the project's planning, statistical evaluation, and article preparation phases. The final draft was read by all writers before being approved.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Ethical approval

The official permission was approved by the Al-Rayan Research Ethics Committee (HA-03-M-122-019). Participation was voluntary and online written informed consent from all the participants after describing the aim of the study. Privacy and confidentiality were assured.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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