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RESEARCH ARTICLE

PSYCHOLOGICAL DISTRESS AND ITS ASSOCIATION WITH DAILY LIVING ACTIVITIES AND UNIVERSITY STUDIES AMONG MEDICAL SCIENCE STUDENTS: UNIVERSITY OF GUYANA

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ABSTRACT

Objectives: To conduct a detailed analysis of the relationships between student worries and psychological distress within the College of Medical Sciences.

Designs and Methods: A convenience sampling technique was used to select participants who provided consent before answering a questionnaire. All participating students were legally eligible. Demographic data collection included age, residence and sex. The study used a modified Warwick-Edinburgh Mental Well-Being Scale to evaluate students' well-being, mental health, concerns, medication usage, and coping strategies.

Results: There was a significant association between Mental health status based on Warwick-Edinburgh Mental well-being groups and interference with Daily Living Activities and University Studies ($X^2 = 26.497$, $df=1$, $p < 0.001$). An odds ratio showed those who reported interference with daily living activities and University studies due to worry were four times more likely to experience psychological distress than their counterparts (OR: 3.6517 95 %, CI:2.207- 6.042, Z. statistic: 5.041, Significance level $P < 0.0001$). A Chi-squared test found that there is a significant association between Mental health status and Student requests for support from Academic staff among College of Medical Science students. ($X^2 = 9.760$, $df=1$, $p < 0.002$). The Shapiro-Wilks test found the Warwick-Edinburgh mental health and well-being scores to be normally distributed; Test statistic $W= 0.993$, $df: 289$, p -value: 0.175. An independent samples T-test showed a significant difference between the mean scores on the Warwick-Edinburgh Mental Well-Being Scale for those who reported interference with daily living activities due to worry. The effect size is large ($d=0.838$). The 95% confidence interval for the difference of the means ranged from 3.3 to 5.87.

Conclusion: These findings collectively underscore the intricate relationships between mental health, academic challenges, and the seeking of support among College of Medical Science students. The results align with existing research, contributing to a deeper understanding of the nuanced factors influencing mental well-being within this academic context.

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INTRODUCTION

The pursuit of education within the College of Medical Sciences presents unique challenges and stressors for students, necessitating a focused exploration of the connections between their worries and mental health. Owens *et al.* (2017). emphasize that the college experience often triggers shifts in lifestyle behaviours and mental health challenges among students (1). In this context, there is a notable gap in understanding how specific worries within the context of medical science education contribute to

mental health outcomes. Research by Ghrouz *et al.* (2019) underscores the importance of considering discipline-specific challenges in higher education, highlighting the need for targeted investigations into the stressors faced by students in fields such as medical science (2). Additionally, Pancer *et al.* (2000) stressed the significance of recognizing the unique stressors associated with specific academic disciplines when examining mental health (3). The college experience, especially within the demanding field of medical sciences, is known to be associated with heightened stressors and mental health challenges for students. Existing literature underscores the need to explore the specific worries within this academic context and their implications on mental well-being. Beauchemin *et al.*, (2018) emphasize the general understanding that the transition to higher education often results in lifestyle changes and increased mental health challenges for students (4). This transitional period forms the backdrop for a more detailed exploration of concerns within specialized academic domains such as the College of Medical Sciences.

Ghrouz *et al.* (2019) provided a crucial perspective by underlining the necessity of discipline-specific investigations into the relationship between stressors and mental health outcomes in higher education (2). Their study on medical students sheds light on the unique stressors related to rigorous academic curricula, clinical responsibilities, and the anticipation of future healthcare roles. This discipline-specific focus is vital for understanding the intricacies of student worries within the College of Medical Sciences. Pancer *et al.* (2000) contributed to the discussion by emphasizing recognizing specific stressors within academic disciplines (3). Their work stresses that medical science students, facing the demands of complex coursework, practical experiences, and the responsibility associated with future healthcare professions, likely encounter worries distinct from those in other academic fields. Studies by Beauchemin *et al.* (2018) and Bruffaerts *et al.* (2018) underscore the broader significance of understanding the relationship between stressors and mental health outcomes in academic settings. These studies provide a foundation for recognizing the intricate interplay between academic demands and psychological well-being, applicable to the specific context of medical science education. The existing works of literature support the premise that medical science students face unique stressors, and there is a need for an in-depth analysis of the relationships between these worries and mental health outcomes (4,5) This research aims to address this gap by conducting a detailed analysis of the relationships between student worries and mental health within the College of Medical Sciences. By examining discipline-specific stressors, such as academic pressure, clinical responsibilities, and the anticipation of future professional roles, this study seeks to provide valuable insights that can inform tailored mental health interventions for medical science students. The outcomes of this research have the potential to enhance our understanding of the mental health challenges these students face and contribute to the development of targeted strategies and support systems that promote their overall well-being.

METHODS

Study Design: This cross-sectional study analysed the relationships between student worries and psychological distress within the College of Medical Sciences. Google Forms were employed to administer questionnaires across the College of Medical Sciences digitally.

Data Collection: The research team employed convenience sampling, ensuring participants' consent before questionnaire completion. All students involved were legally eligible, meeting Guyana's legal age requirement of 18 years. Collected demographic data encompassed age, residence (urban/rural), and gender. Utilizing a modified Warwick-Edinburgh Mental Well-Being Scale (6), the study assessed students' well-being, mental health, concerns, medication use, and coping strategies.

A pilot test, involving 30 students from October 6th to 17th, preceded reliability testing via IBM SPSS software (version 29), yielding a Cronbach alpha of 0.866. Post-reliability assessment, and questionnaire adjustments tailored to the study's sample. The updated questionnaire was administered from October 20th to November 8th, 2023.

Sample Size: A sample size of 265 persons was calculated using Cochran's formula. The parameters used for the calculation are a confidence interval of 95%, a margin of error of 5% population proportion of 50% and a population size of 850. The study was able to consider 289 responses.

Data Sources: The information was collected using a Google Form distributed through the University of Guyana's DECC communication channel and accessed via the principal researcher. Following required approvals, students received links to the form and provided consent for their data to be collected. All participants were over 18 years old and legally permitted to consent according to Guyana's laws.

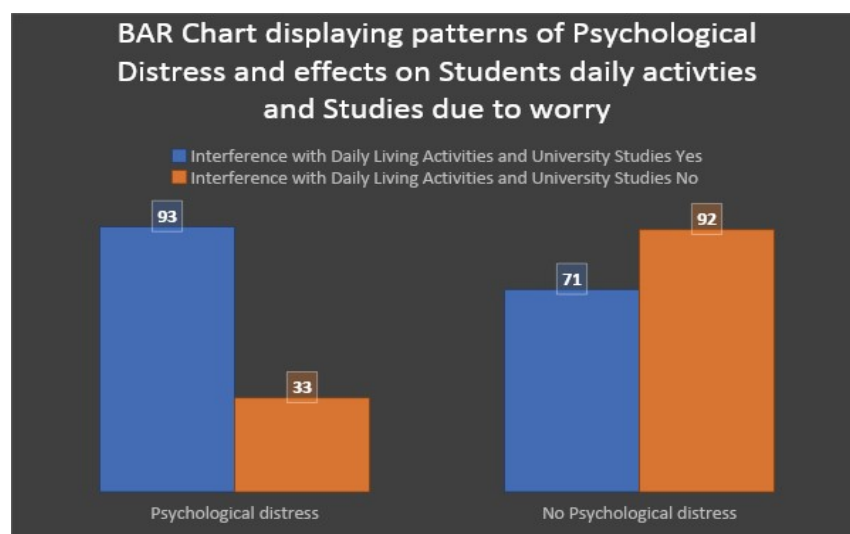
Data Analysis and Statistical tests: The modified Warwick-Edinburgh Mental Well-Being Scale (6) used 9 items assessed via a five-point Likert scale system and garnered a post-administration Cronbach alpha score of 0.854. The responses are as follows: None of the time-1 Rarely-2 Some of the time-3 Often-4, All the time-5. Lower scores on the modified Warwick-Edinburgh Mental Well-Being Scale indicate poorer mental health, while higher scores indicate better mental health and less psychological distress. Psychological distress was defined as scores lower than 26 out of 45, and no psychological distress as scores equal to or greater than 26 out of 45. Chi-squared tests were used to explore associations between the interference of worries with daily living activities and University studies and the Warwick-Edinburgh Mental Well-Being Scale category. Also, Pearson Chi-squared tests were used to assess associations with students 'requests for support from the academic staff and their Warwick-Edinburgh Mental Well-Being Scale category. A Shapiro-Wilk test checked the normal distribution of the Warwick-Edinburgh Mental Well-Being Scale scores. Subsequently, an independent samples T-test determined if there was a significant difference in mean scores between

those who reported experiencing interference with daily living activities and University Studies due to worry and those who did not. Finally, an Odds ratio was calculated to ascertain what the likelihood of psychological distress was for those who reported interference with daily living activities and university studies due to worry. All statistical tests were performed with 95% confidence intervals and a significance level of $p < 0.05$.

RESULTS

There was a significant association between Mental health status based on Warwick-Edinburgh Mental well-being groups and interference with Daily Living Activities and University Studies among College of Medical Science students. ($X^2 = 26.497$, $df=1$, $p < 0.001$). Those who reported interference with daily living activities and University studies due to worry were four times more likely to experience psychological distress than their counterparts. Therefore, there is a significant association between Mental health status based on Warwick-Edinburgh Mental well-being groups and Student requests for support from Academic staff among College of Medical Science students. ($X^2 = 9.760$, $df=1$, $p < 0.002$). A Shapiro-Wilk's test was used to assess the normality of the modified Warwick-Edinburgh mental health well-being scores and the results are as follows: Test statistic $W = 0.993$, $df: 289$, p -value: 0.175.

Figure 1. Distribution of Students Experiencing Psychological Distress and Its Impact on Daily Activities Due to Worry



Since the p -value is greater than 0.05, the modified Warwick-Edinburgh mental health well-being test scores are normally distributed.

Independent Samples T-test: The mean score for students who noted interference with daily living activities and studies with psychological distress is $M = 24.59$, $SD = 5.45$. The mean score for students who noted no interference with daily living activities and studies and no psychological distress is $M = 29.18$, $SD = 5.51$. The “T-test revealed a significant difference between the two groups $t(7.057)$, $df = 287$, $p < 0.001$.” The effect size for the difference was small to medium ($d = 0.838$). The 95% confidence interval for the difference in the means ranged from 3.3 to 5.87.

Table 1. Chi-squares test showing the association between Interference with Daily Living Activities and University Studies due to worry and psychological distress

	Psychological distress	No Psychological distress	Total
Interference with Daily Living Activities and University Studies due to worry			
Yes	93 (32.2%)	71 (24.6%)	164 (56.8%)
No	33 (11.4%)	92 (31.8%)	125 (33.2)
Totals	126 (43.6%)	163 (56.4%)	289 (100%)

Table 2. Odds ratio displaying the association between Interference with Daily Living Activities and University Studies due to worry and psychological distress

	Outcome		
	Psychological Distress	No Psychological Distress	Total
Interference with Daily Living Activities and University Studies due to worry			
Yes	93	71	164
No	33	92	125
Total	126	163	289

Odds ratio: 3.6517 95 % CI:2.207- 6.042 Z statistic: 5.041 Significance level $P < 0.0001$

Table 3. Chi-squared test showing the association between Student requests for Support from Academic Staff and Psychological distress

	Psychological distress	No Psychological distress	Totals
Student Request for Support from Academic Staff			
Yes	90 (31.1%)	87 (30.1%)	177 (61.2%)
No	36 (12.5%)	76 (26.3%)	112 (38.8%)
Totals	126 (43.6%)	163 (56.4%)	289 (100%)

Table 4. Independent sample t-test showing the difference between the mean scores on the Warwick-Edinburgh Mental Well-Being test for those who had interferences with daily living activities and those who did not

Interference with Daily Living Activities and University Studies	Mean	t-Value	P value	Confidence interval (CI)
Yes	24.59 +/- 5.44	7.057	<0.001	5.86- 3.31
No	29.18 +/- 5.50	df=287		
Effect Size Cohen's d	d = 0.838 for this difference the effect size is small to medium			

DISCUSSION

The findings presented in Table 1 reveal a significant association between Mental Health status, as assessed by the Warwick-Edinburgh Mental Wellbeing groups, and interference with daily living activities and university studies among College of Medical Science students. This aligns with prior research emphasizing the impact of academic stressors on mental health outcomes (2,3). Contrasting these findings with those from other studies provides a broader context and deeper understanding of the factors influencing student mental health. Franzen *et al.* (2021) explored similar phenomena across a diverse student body from multiple health disciplines, identifying academic satisfaction and demographic factors such as age and gender as significant predictors of psychological health outcomes (7). Their results underscored the multifaceted nature of student psychological well-being, influenced by systemic and individual variables, and highlighted the complex interplay between academic satisfaction and mental health. Bedaso *et al.* (2020) further expanded on the predictors of mental distress by identifying the critical roles of social support and lifestyle choices, specifically substance use, demonstrating high odds ratios for these factors as predictors of mental distress among health science students in Ethiopia (8). This emphasizes the importance of social networks and lifestyle in managing or exacerbating mental health issues, complementing the findings related to academic life's impact. Meanwhile, Nerdrum *et al.* (2009) provided insights into the temporal dynamics of psychological distress within specific educational programs. They documented significant changes in psychological distress levels over time among nursing, physiotherapy, and occupational therapy students, suggesting that curriculum and program-specific factors could significantly impact students' mental health over their educational journey (9). Those reporting interference with daily living activities and university studies due to worry were four times more likely to experience psychological distress than their counterparts. The correlation between daily living activities, university studies, and mental health underscores the complex interplay between academic life and psychological well-being among medical science students (9). This is consistent with studies by Famodu *et al.* (2018) and Nagata *et al.* (2019), emphasizing the adverse effects of academic-related stress on mental health (10,11). Moreover, Othman *et al.* focused on identifying various stressors among health sciences students using the Medical Student Stressor Questionnaire (MSSQ). Their study indicated that academic-related stressors (ARS) were perceived as the highest source of stress, which is consistent with our findings that academic interference correlates strongly with psychological distress (12). The reliability analysis in Othman's study further reinforces the significance of these stressors in affecting student well-being, mirroring our results on the impact of stress on academic activities. Similarly, Chen *et al.* (2022) explored the prevalence of various dimensions of psychological distress among nursing students, finding significant relationships between enrolment year, age, and mental health issues (13). Like our study, they reported that academic pressures and program duration influence students' mental health.

This parallel further emphasizes the broader applicability of our findings across different settings and cohorts, underscoring the critical role of educational environment factors in student psychological well-being. Additionally, the recognition of the association between mental health status and student request for support aligns with the literature emphasizing the role of support systems in mitigating mental health challenges among students (2,4). This reinforces the importance of accessible support services within the College of Medical Sciences. These diverse studies highlight the pressing need for academic institutions to address psychological distress comprehensively, considering both internal pressures and broader socio-demographic factors. Our study not only confirms the significant role of psychological distress in academic interference but also enhances understanding of how various forms of stress and coping mechanisms interact within the educational environment. An Independent Samples T-test revealed a significant difference between the mean scores for students experiencing interference with daily living activities and studies with psychological distress compared to those without such interference falls within the small to medium range, indicating a practical significance (Cohen, 1988). This aligns with the existing literature on the impact of stressors on mental health outcomes (4). The comparison of stress-related research across various studies provides a comprehensive understanding of the pervasive nature of stress and its impact on university students from diverse backgrounds and disciplines. Othman *et al.* (2013) identified a spectrum of stressors among health sciences students, with Academic Related Stressors (ARS) and Intrapersonal and Interpersonal Related Stressors (IRS) being particularly significant (12). Their study underscored that academic assessments and workload are primary stress inducers, findings that resonate with our research which also highlights academic demands as crucial

stressors. Both studies suggest potential interventions, such as modifying academic workload and assessment strategies, to mitigate these stressors and enhance student well-being (Othman *et al.*, 2013). Adding another layer to the multifactorial nature of student stress, Nagata *et al.* (2019) explored the relationship between food insecurity and mental health, finding that food insecurity significantly correlates with higher incidences of depression, anxiety, and suicidal thoughts (11). This association points to the necessity of addressing basic life needs as part of a holistic approach to supporting student mental health, an aspect that, while not the focus of our study, underscores the complexity of factors influencing student well-being (Nagata *et al.*, 2019). Similarly, Deasy *et al.* (2014) examined the stress experiences of nursing and education students, noting significant psychological distress linked to academic pressures, financial concerns, and living conditions (16). These findings align closely with ours, reinforcing the pervasive impact of such stressors and suggesting the need for institutions to offer more robust support systems (Deasy *et al.*, 2014). Finally, Atkinson *et al.* (2020) focused on the psychological distress among medical students, pointing out the acute stress linked to academic and financial concerns within this group (17). Their findings, along with ours, advocate for targeted mental health interventions and the development of support systems specifically designed for students in rigorous academic environments (Atkinson *et al.*, 2020). Addressing these multifaceted needs effectively calls for comprehensive strategies that encompass policy reform, enhanced mental health services, and a cultural shift within educational settings to reduce stigma and promote mental health awareness. Integrating these diverse perspectives is crucial for enhancing our understanding and effectively supporting student mental health. Such efforts are not only about mitigating stress but also about building a robust support system that acknowledges the varied dimensions of student life that contribute to psychological well-being.

CONCLUSION

These comparative analyses illustrate that while the immediate academic environment significantly impacts student mental health, broader factors such as demographic characteristics, academic satisfaction, and social support also play crucial roles. Each study contributes to a layered understanding of student psychological well-being, indicating that a multifaceted approach is essential for comprehensively grasping the factors at play. The findings collectively highlight the intricate relationships between mental health, academic challenges, and the seeking of support among College of Medical Science students. The results align with existing research, contributing to a deeper understanding of the nuanced factors influencing mental well-being within this academic context. Through combined efforts, there is a significant opportunity to improve student well-being in university settings, demonstrating the importance of targeted interventions and holistic support frameworks.

RECOMMENDATIONS

Institutional Support Structures: The university should consider establishing a dedicated mental health centre within the College of Medical Sciences. This centre would provide specialized services for mental health issues commonly faced by medical students and offer therapeutic interventions tailored to their specific needs. Development of a comprehensive support system that includes psychological counselling, crisis intervention, and stress management programs specifically designed to address the unique pressures of medical training.

Curricular Reforms: Integration of mental health education into the medical curriculum could empower students with knowledge about common mental health issues, their signs, and preventive measures. Consideration should be given to curriculum pacing and workload, potentially offering modules on resilience training and stress management to better prepare students for the challenges of medical education.

Faculty Training: Training for faculty on recognizing signs of student distress and appropriate referral mechanisms can be vital in early identification and support for students struggling with mental health issues. Workshops on empathetic communication and supportive teaching practices could be beneficial in creating a more supportive educational environment.

Research Initiatives: Ongoing research initiatives to monitor the mental health of students and evaluate the effectiveness of implemented support measures are crucial. These initiatives could involve longitudinal studies to track student mental health over time and assess the long-term impact of specific interventions. Encouragement of faculty and student-led research on mental health topics could also foster a more inclusive and proactive academic community regarding mental health awareness and innovation.

Community and Peer Networks

Establishment of peer support groups that provide a platform for students to share experiences and coping strategies under the guidance of trained facilitators. Strengthening community ties through outreach programs and partnerships with external mental health organizations can enhance the resources available to students.

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