

THE RELATIONSHIP BETWEEN STUDENT ENGAGEMENT AND BURNOUT SYNDROME AMONG MEDICAL STUDENTS IN JEDDAH, SAUDI ARABIA

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Abstract

Background: Burnout is a psychological syndrome that is considered to be a combination of exhaustion, cynicism, and inefficacy, commonly resulting from unmanaged chronic academic stress. Student engagement is defined as a positive state of mind in terms of acquiring knowledge. Students who are engaged and contribute to their learning environment are more resilient to academic stress. Effective stress management, supportive environments, and a sense of purpose in one's work or studies can play crucial roles in promoting well-being and preventing burnout. Additionally, fostering a positive and engaging learning environment can contribute to higher levels of student engagement and overall satisfaction with the educational experience.

Aim: The study aimed to explore the relationship between medical students' academic engagement and burnout levels in Jeddah, Saudi Arabia.

Subjects and Methods: 405 students from the second to the sixth year at different private and governmental medical schools in Jeddah participated voluntarily in this study. The Utrecht Work Engagement Scale–Student Survey (UWES–S) was used to assess the level of student engagement while the Maslach Burnout Inventory–Student Survey (MBI–SS) was used to measure the extent of burnout syndrome among medical students. Results: With regards to the Utrecht Work Engagement Scale–Student Survey (UWES–SS), a significant number of study participants achieved high scores across various subthemes. 94.6 % of students scored in the high mean score more than 60% of the total of the UWES–SS. The Maslach Burnout Inventory (MBI) provided a distribution of scores across the three MBI subthemes. In the Exhaustion (EX) subtheme, the percentage of students experiencing high levels of exhaustion was notably higher in preclinical years (48.3%) compared to clinical years (40.8%). Overall, student engagement levels were negatively correlated with burnout levels.

Conclusion: A majority of the study population exhibited elevated levels of burnout. However, a notable conclusion was revealed as there was a discernible decrease in the burnout level of clinical years' students who had an increased engagement level. This underscores the significance of bolstering engagement as a means of preventing burnout.

Keywords: Burnout, Medical students, Student Engagement, preclinical years, clinical years.

Introduction

Burnout is a psychological syndrome that comprises a combination of exhaustion, cynicism, and inefficacy resulting from chronic unmanaged stress from a working environment or an academic milieu. With regards to academic environment, burnout can be characterized by three dimensions: feelings of energy depletion or exhaustion due to study demands, increased mental distance or detachment from studying, and feelings of incompetence or inadequacy about studying [1]. Many studies have found that burnout rates tend to be higher in medical students. [2] This can be related to the pressure of learning and retaining a lot of information and coping with the heavy loads of their studies. Experiencing burnout may impede the professional growth of medical students by fostering unprofessional behaviour or causing a less compassionate perspective on a physician's responsibilities. [3] This can potentially put the health of their future patients at risk. Therefore, knowing the prevalence of burnout among medical students can aid educators in addressing the problem and assisting students in dealing with it. Regarding student engagement, it can be defined as a positive state of mind in terms of studying and acquisition of knowledge, where students tend to be more determined toward their educational goals. Engaged students demonstrate greater resilience to academic stress, experiencing a heightened sense of well-being and a reduced likelihood of future burnout. [1] Engagement is characterized by three fundamental dimensions: vigor, dedication, and absorption. [5] Vigor is characterized by substantial vitality and mental resilience while engaging in academic pursuits, along with a capacity for persistent and dedicated study. Dedication involves a sense of significance, enthusiasm, inspiration, and pride in one's academic endeavors, coupled with a willingness to challenge oneself for further improvement. As for absorption, it denotes the quality of complete focus and immersion in one's studies, maximizing the effective utilization of time for learning. [4] In 2021, a systematic review of the prevalence of burnout syndrome among university students showed estimates of 55.4% for emotional exhaustion, 31.6% for cynicism, and 30.9% for academic efficacy, with medical students having a high burnout prevalence compared to other professions. [6] In Riyadh, Saudi Arabia, a burnout study done in 2017 found that the overall prevalence of burnout among medical students was 67.1%. [7] Hence, it can be of great value to assess burnout as well as engagement levels of undergraduate medical students in Jeddah, Saudi Arabia and to explore the relationship between these two important components. This study answers the following questions: What is the prevalence of burnout syndrome among undergraduate medical students in Jeddah? What is the academic engagement level of undergraduate medical students in Jeddah? What is the relationship between engagement and burnout among medical students in Jeddah? The Objectives are to measure the prevalence of study burnout syndrome in undergraduate medical students who study

in Jeddah, using the Maslach Burnout Inventory–Student Survey (MBI–SS). Assess the level of student engagement among undergraduate medical students who study in Jeddah, using the Utrecht Work Engagement Scale–Student Survey (UWE–SS). And to explore the relationship between student engagement and burnout syndrome among medical students in Jeddah, Saudi Arabia.

Subjects and Methods

Study Design:

A cross-sectional analytical study was conducted among medical students who study in Jeddah city to assess the prevalence of burnout syndrome among undergraduate medical students and to explore the relationship between students' academic engagement and burnout levels.

Site of the Study:

The study was conducted by ISNC medical students among undergraduate medical students in Jeddah City, Saudi Arabia during the academic year 2022–2023.

Target Population:

The study population included undergraduate medical students who studied in Jeddah, Saudi Arabia from the second to the sixth year. Exclusion criterion: All medical students who study outside Jeddah City.

Sample Size and Type:

A convenient non-probability sampling technique was used. The sample size was calculated using Epi info Application, and the sample size was equal to 385 or more which is what was needed to have a confidence level of 95%.

Data Collection tools:

1) A well-known valid Utrecht Work Engagement Scale–Student Survey (UWES–SS) was used to evaluate the student engagement of the undergraduate medical students in Jeddah City. This survey, using google forms, was sent to the students by different social media platforms, and it consisted of 17 items that assess three underlying factors of student engagement: vigor (six items), dedication (five items), and absorption (six items). Each item of this self-administrated questionnaire was rated using a seven-point response scale anchored at the extremes by the values of 0 = never and 6 = always. Previous research has provided evidence for the reliability and validity of this scale to be used with university students. [5]

2) Maslach Burnout Inventory–Student Survey (MBI–SS) was used to measure burnout syndrome in undergraduate medical students in Jeddah City. Previous research has given evidence for the scales' reliability and validity for university students. The MBI–SS is a modified version of the Maslach Burnout Inventory General Survey (MBI–GS), and it evaluates three factors of burnout syndrome: exhaustion, cynicism, and academic efficacy. The items were fulfilled by students on a seven-point frequency scale ranging from values of 0 = never to 6 = always. [8]

This survey was sent, using Google form https://docs.google.com/forms/d/e/1FAIpQLSfXyTpK7xfGk71MLfXzOstMaMstCcHqIVXSiftgOxweP94z9g/viewform?usp=pp_url to students through different social media platforms, and it consisted of 15 items: five items that measure exhaustion (low is within 0–9, moderate 10–14, and high > 14), four items that measure cynicism (low is within 0–1, moderate 2–6, and high > 6), and

six items that measure academic efficacy (low is 22, moderate 23–27, and high ≥ 28). The two-dimensional criteria (high scores for emotional exhaustion and cynicism) and three-dimensional criteria (high scores for emotional exhaustion and cynicism and low scores for academic efficacy) were used as the criteria for the diagnosis of burnout. [9]

Data Analysis:

In this study, data analysis was done using Statistical Package for the Social Sciences (SPSS version 23). Numerical variables were presented as mean and a standard deviation. Nominal variables were presented as frequency and percentage. Parametric and non-parametric tests were used according to the type of variables. 95% CI was calculated, and the p-value < 0.05 was used as a cutoff point for statistical significance. Tables and figures were utilized when appropriate.

Ethical considerations:

The ethical clearance for the study was obtained from Ibn Sina National College Institutional Research Review Board (**IRRB-02-19032023**). All students were informed about the purpose of the study and their right to refuse participation. Ethical conduct was maintained during data collection and throughout the research process in accordance with the Helsinki Declaration (Medical Association Declaration of Helsinki, 2008) [10]. Participation in the study was voluntary, and the participants' confidentiality was maintained as the online questionnaires were provided anonymously. Each student had the right to withdraw from the study at any point without any consequences.

Results

Figure 1 shows that most of the responses were received from female medical students (63%), with the highest response rate from female clinical-year students (41.5%), while the lowest response rate was from male preclinical-year students (13.8%).

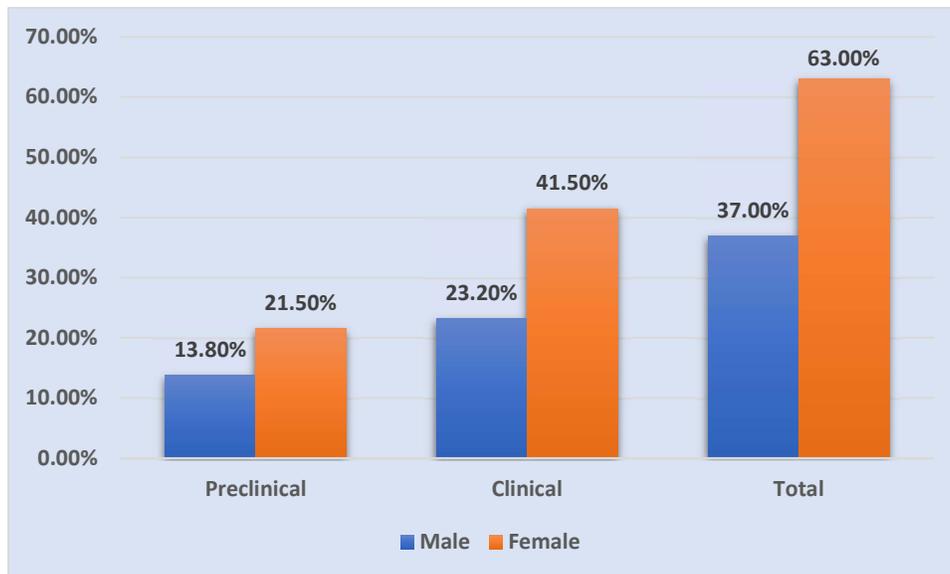


Figure 1. Distribution of the Studied Students by Gender in Clinical and Preclinical Years (n=405)

Figure 2 shows that most of the responses (32.84%) are from the fourth-year medical students, and the least responses (11.36%) are from the sixth-year medical students.

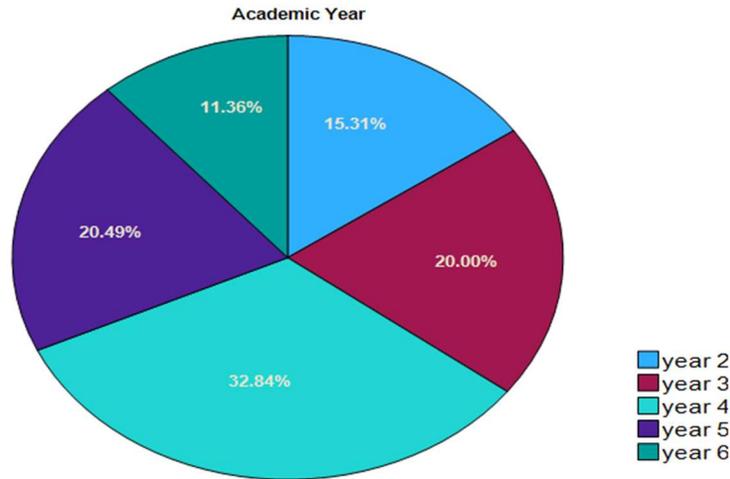


Figure 2. The Distribution of the Studied Medical Students by Academic Years (n=405)

Table 1 provides a clear breakdown of the types of medical schools presented by the studied medical students. More than half of the study participants came from private medical schools, with 232 out of 405 students (57%). Among the private medical schools, Ibn Sina National College had the highest frequency of responses, accounting for 121 out of the 232 participants (29.9%). In the case of governmental medical schools, King Abdul-Aziz University received the highest number of responses, with 80 out of 173 students (19.8%).

Table 1. Frequency Distribution of the studied participants in relevance to Type and Name of Medical Schools in Jeddah City (n=405)

Type of Medical school	Name of Medical Schools	Frequency	
		Number N	Percent %
Private Medical Schools 232 (57%)	Ibn Sina National College	121	29.9%
	Batterjee Medical College	67	16.5%
	Fakeeh College for Medical Sciences	45	11.1%
Governmental Medical Schools 173 (43%)	King Abdulaziz University	80	19.8%
	King Saud Bin Abdulaziz University for Health Sciences	58	14.3%
	Jeddah University	34	08.3%
Total		405	100%

Table 2 displays the scores on the Maslach Burnout Inventory (MBI) for the studied medical students, both in their preclinical and clinical years, providing a distribution of scores across the three MBI subthemes. In the Exhaustion (EX) subtheme, the percentage of students experiencing high levels of exhaustion is notably higher in the preclinical years (48.3%) compared to the clinical years (40.8%), and this difference is statistically significant ($p = 0.032$). For Cynicism (CY), the table shows that in both preclinical and clinical years, the highest percentage of students falls into the 'High' score category, and there is no statistically significant difference between the two groups.

Regarding Professional Efficacy (EF) scores, it is evident that the majority of students in both preclinical and clinical years express a high sense of professional efficacy, with percentages of 75.5% and 72.1%, respectively. Again, there is no statistically significant difference between the two groups in this subtheme. The total of mean scores of the MBI between preclinical and clinical years reveals a statistically significant difference, with a p-value of 0.001.

Table 2. The Maslach Burnout Inventory (MBI) Scores among Preclinical and Clinical Years Medical Students (n=405)

Subthemes of MBI	Intervals	Phase of Study		P value
		Preclinical	Clinical	
Exhaustion (EX)	Low <17	13(9.1%)	49(18.7%)	

Frequency (%)	Moderate 18-29	61(42.7%)	106(40.5%)	0.032*
	High > 30	69(48.3%)	107(40.8%)	
Cynicism (CY) Frequency (%)	Low <5	38(26.6%)	67(25.6%)	0.054
	Moderate 6-11	47(32.9%)	60(22.9%)	
	High > 12	58(40.6%)	135(51.5%)	
Professional Efficacy (EF) Frequency (%)	Low > 40	13(9.1%)	21(8.0%)	0.527
	Moderate 34-39	22(15.4%)	52(19.8%)	
	High < 33	108(75.5%)	189(72.1%)	
Total Mean (SD)		100 (56.91)	92.0 (66.47)	0.001*
*Statistically Significance when p value <0.05				

Table 3 presents the scores from the Utrecht Work Engagement Scale–Student Survey (UWES–SS) within the study context. A significant number of study participants achieved high scores across various subthemes, including Vigor (six items), Dedication (five items), and Absorption (six items). In both the preclinical and clinical phases, 94.6 % of students got a score in the high-mean score more than 60% of the total of the UWES–SS. Also, there was no statistically significant difference between these two groups in all subthemes.

Table 3. The Utrecht Work Engagement Scale–Student Survey (UWES–SS) scores among Preclinical and Clinical Years Medical Students (n=405)

	Scores	Engagement Vigor (six items), Dedication (five items), and Absorption (six items)			p-value
		Preclinical	Clinical	Total	
Vigor	Low < 60% mean score	14 (3.5%)	20 (4.9%)	34 (8.4%)	0.454
	High > 60% mean score	129 (31.9%)	242 (59.8%)	371 (91.6%)	
Dedication	Low < 60% mean score	5 (1.2%)	10 (2.5%)	15 (3.7%)	0.870

	High > 60% mean score	138 (34.1%)	252 (62.2%)	390 (96.3%)	
Absorption	Low < 60% mean score	14 (3.5%)	13 (3.2%)	27 (6.7%)	0.063
	High >60% mean score	129 (31.9%)	249 (61.5%)	378 (93.3%)	
Engagement Total	Low < 60% mean score	9 (2.2%)	13 (3.2%)	22 (5.4%)	0.572
	High >60% mean score	134 (33.1%)	249 (61.5%)	383 (94.6%)	
*Statistically Significance when p value <0.05					

Table 4 shows the correlations between the Maslach Burnout Inventory (MBI) and the Utrecht Work Engagement Scale (UWES–SS) in the context of the study. The correlations are indicated for each combination of subthemes and are accompanied by the corresponding p-values. Exhaustion (EX) has a statistically significant negative correlation with Vigor (-0.08 , $p = 0.001^*$) and Absorption (-0.038 , $p = 0.002^*$), but there is no significant correlation with Dedication ($r = -0.030$, $p = 0.553$). Cynicism (CY) also shows statistically significant negative correlations with Vigor (-0.139 , $p = 0.014^*$), Dedication (-0.228 , $p = 0.00^*$), and Absorption (-0.202 , $p = 0.00^*$). Professional Efficacy (EF) has a statistically significant positive correlation with Vigor (0.212 , $p = 0.000^*$), Dedication (0.142 , $p = 0.010^*$), and Absorption (0.156 , $p = 0.002^*$). The "Median" and "Range" values indicate the central tendency and the spread of the data for each subtheme.

Table 4. Correlation between The Utrecht Work Engagement Scale–Student Survey (UWES–SS) and The Maslach Burnout Inventory (MBI) score (n=405)

Maslach Burnout Inventory (MBI)		Utrecht Work Engagement Scale (UWES–SS)		
		Vigor r (sig.)	Dedication r (sig.)	Absorption r (sig.)
Exhaustion (EX)	Correlation in total group	-0.08 (0.001*)	-0.030 (0.553)	-0.038 (0.002*)

	Median	1	1	1
	Range	2	2	2
Cynicism (CY)	Correlation in total group	-0.139 (0.014*)	-0.228 (0.00*)	-0.202 (0.00*)
	Median	1	1	1
	Range	2	2	2
Professional Efficacy (EF)	Correlation in total group	0.212 (0.000*)	0.142 (0.010*)	0.156 (0.002*)
	Median	1	1	1
	Range	2	2	2
*Statistically Significance when p value <0.05				

Discussion:

The study was carried out in order to assess the prevalence of burnout syndrome among undergraduate medical students and to explore the relationship between students' academic engagement and burnout levels among undergraduate medical students in Jeddah, Saudi Arabia, with the hypothesis that these two factors have an opposing relationship. More than half of our study participants came from private medical schools. Ibn Sina National College had the highest frequency of responses. On the other hand, as for governmental medical schools, King Abdul-Aziz University received the highest number of responses.

Regarding the levels of burnout, the study revealed that for preclinical and clinical students, the highest number of students were categorized in the "high" group for all the three factors of burnout syndrome (exhaustion, cynicism, and professional efficacy). Our study found a notable difference in burnout levels between preclinical and clinical students, with preclinical students facing higher levels of exhaustion. This could be attributed to complex topics being studied in early medical education, they are very demanding and often require the students to reevaluate their study habits. These results are in alignment with the outcomes of Dos Santos Boni et al., who conducted a study involving the entire student body across all academic years at the Barretos School of Health Sciences. Their study found that students experienced burnout, with the highest prevalence occurring during the first year, which corresponds to the academic (preclinical) phase of the program. [11]

Regarding both the preclinical and clinical years, the highest percentage of students falls into the 'High' score category, however, there is no statistically significant difference between the two groups. This is in line with a national study done in 2017 on burnout and its relation to extracurricular activities among Saudi Arabia medical students which showed a similar level of burnout. These results are also similar to those from other international studies, in which the burnout prevalence was moderate to high. [12,13,14] In contrast, the results of another study that was done on medical students in Al Maarefa College in Riyadh in 2023 reported that there was only a low percentage of burnout prevalence among their students. [15]

Regarding student engagement, the current study's population demonstrated a notably high percentage, with the majority of this percentage observed among clinical years' students. A significant portion of students displayed elevated levels of engagement, especially in terms of dedication and absorption. This implies the students' profound commitment to their studies, indicating that they find the material absorbing. Additionally, the shift towards increased commitment to patients during clinical years suggests a heightened motivation to expand and deepen their knowledge in the field. These previous results are comparable with an international study, which was a study conducted at University Medical Centre in Amsterdam, Netherlands, on PhD students in medicine. This study also showed high results for engagement levels. [16]

In fact, the study's findings reveal that Exhaustion has a statistically significant negative correlation with Vigor as well as Absorption. On the other hand, the negative correlation with dedication was not statistically significant. This could be explained by the fact that when students are more immersed in their studies, exhaustion will not be as prominent. These results are consistent with other studies which aimed to explore the relationship between engagement and burnout. One of them is a study done on undergraduate hospitality and tourism students at the Eastern Mediterranean University in Northern Cyprus, and it also reported a significant negative correlation between exhaustion and Vigor as well as Absorption. However, it also reported a statistically significant negative correlation between exhaustion and dedication, unlike this study's results. [17]

The observed statistically significant negative correlations between Cynicism and the dimensions of Vigor, Dedication, and Absorption in medical students suggest a meaningful relationship. Cynicism, as a component of burnout, involves a detached or negative attitude toward one's work or studies. When individuals experience high levels of Cynicism, it may indicate a sense of disillusionment, disengagement, or detachment from their academic pursuits. On the other hand, Vigor, Dedication, and Absorption are dimensions associated with positive engagement. Vigor relates to high levels of energy and mental resilience in approaching tasks, Dedication reflects a sense of significance, enthusiasm, and pride in one's work, whereas Absorption involves being fully engrossed and immersed in the learning process.

The negative correlations suggest that as Cynicism increases, these positive aspects of Engagement—Vigor, Dedication, and Absorption—tend to decrease. This could be explained by the idea that when medical students feel more dedicated and have positive relationships with their

studies, they are less likely to experience the kind of detachment and negative outlook associated with Cynicism.

Moreover, the mention of "objectification" in the statement may imply that when students have a more positive and engaged relationship with their studies, they are less likely to view their academic pursuits as mere tasks or objects to be completed. Instead, they may develop a more holistic and meaningful connection with their learning experience, fostering a sense of purpose and reducing the likelihood of burnout.

The results of this study are similar to those of Schaufeli et al., 2002, who carried out a study on undergraduate university students at the University of Castellón, Spain, and reported a negative correlation between Cynicism and Dedication. [5]

Indeed, the statistically significant positive correlations between Professional Efficacy and the dimensions of Vigor, Dedication, and Absorption indicate a meaningful and positive relationship between these constructs among professionals, such as those in the medical field.

Professional Efficacy involves individuals' beliefs in their ability to perform effectively in their professional roles. Such confidence and competence are likely to contribute to a higher level of energy, mental resilience, and enthusiasm, which are the components of Vigor. [18]

Similarly, the positive correlation between Professional Efficacy and Dedication suggests that as medical students perceive themselves as more effective in their professional roles, they are more likely to feel a sense of significance, enthusiasm, and pride in their work. [19]

Also, Professional Efficacy's positive correlation with Absorption indicates that medical students who strongly believe in their professional capabilities and abilities are more likely to become fully immersed in their work, enjoying a state of flow and concentration. [20]

It is worth mentioning that these correlations align with the broader literature on job engagement and Professional Efficacy. The Job Demands-Resources (JD-R) model, for example, suggests that job resources, including self-efficacy, contribute positively to work engagement. Bandura's work on self-efficacy also emphasizes the impact of individuals' beliefs in their abilities on their motivation and performance. Understanding and enhancing Professional Efficacy can, therefore, be a valuable strategy for promoting positive work attitudes and behaviors, such as increased energy, dedication to tasks, and absorption in the professional role.

Conclusion:

This study concluded that the majority of the medical students in this study were experiencing burnout. In addition, there was a high percentage of academic engagement among clinical years' students. Overall, Student Engagement was found to be negatively correlated with Burnout in relation to Exhaustion and Cynicism, this result highlights the crucial significance of enhancing Student Engagement as a proactive measure to mitigate the risk of future Burnout. Investing in strategies that foster academic engagement could serve as a valuable approach to promote the well-being of medical students and preventing the adverse effects of Burnout.

Recommendations:

Burnout is a prevalent syndrome, particularly in demanding professions like medicine. It is recommended to leverage the findings of this study as a foundation for enhancing academic engagement among medical students. This can be achieved by implementing varied active learning techniques and innovative student-centered methods, particularly during the preclinical years. This can help address and mitigate burnout, ultimately fostering a more resilient and engaged medical student community.

Study Limitations:

While this study provides beneficial insights into the relationship between student engagement and burnout among medical students, several limitations should be acknowledged. The study's cross-sectional design restricts the ability to establish causality. Self-report measures, while commonly used, could lead to response bias. Finally, the study's focus on a single geographic region, such as conducting the study on a sample of medical students in Jeddah, may limit the generalizability of the study findings.

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Authors' Contributions

The study was conceptualized and overseen by Asmaa Abdelnasser, who also played a crucial role in drafting the final version of the manuscript. Adebah Khan, Sara Alharbi, and Sara Alamri were responsible for developing and administering the online survey. Adebah Khan, Engy Abdelaziz, Sarah Alamri, Sara Alharbi, and Hawraa Alsayrafi were involved in the data collection process. Engy Abdelaziz, and Adebah Khan contributed to the initial draft of the discussion section. Sara Alharbi and Hawraa Alsayrafi took charge of the results section including interpretation where Engy Abdelaziz was also involved. Throughout the entire process, Asmaa Abdelnasser supervised all authors, providing critical reviews and ensuring the cohesiveness of the various components. Finally, Asmaa Abdelnasser and Hanan Abdullah Alterazi played a pivotal role in reviewing, editing, and approving the final version of the manuscript.

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