Review Article

Prevalence and Correlates of Psychological Stress Among First-Year Undergraduate Students in South of Jordan

Ahmad Al-Rawashdeh[1], Rafi Alnjadat[2]*, Rasha S. Dabbour[3] and Mohammad Bani Younis[1]

[1]*Princess Aisha Bint Al–Hussein College for Nursing & Health Sciences, Al–Hussein Bin Talal University, Ma'an, Jordan*

[2]*Medical College, University of Sharjah, Sharjah, United Arab Emirate*

[3]*Lecturer, Princess Aisha Bint Al–Hussein College for Nursing & Health Sciences, Al–Hussein Bin Talal University, Ma'an, Jordan*

*Correspondence to: Rafi Alnjadat, Medical College, University of Sharjah, Sharjah, United Arab Emirate.

Tel: 00971522075320; E-mail: msncardio@gmail.com

Abstract

Background: There has been a growing interest regarding stressors that face undergraduate students as this may affect their cognitive functioning and learning abilities which, therefore, is going to affect their academic achievement.

Purpose: To explore the prevalence of psychological stress and demographic factors contributing to stress among first-year undergraduate students in the southern part of Jordan.

Method: A cross-sectional, exploratory design was conducted among 231 first-year undergraduate students from different faculties during the period of September 2018 to January 2019. Data were collected using an anonymous self-administered questionnaire and a self- reported stress score (The Perceived Stress Scale). For the analysis of demographic data, frequency, percentage, mean, and standard deviation were done through SPSS version 21. Spearman correlation was done for skewed age. Independent samples t-test was done to test the mean differences of stress and gender; ANOVA was performed to test the mean differences of stress and academic area; high school grade point average (GPA), students' residence and marital status.

Results: Two hundred and thirty-one students completed a self-reported questionnaire. The overall perceived psychological stress level among the participants was moderate (2.10). The results indicated significant differences in the mean stress level for age (p=0.023) and academic area (p=0.045). Students from the college of law reported the highest level of stress.

Conclusions: This study suggest that academic stakeholders at universities should pay attention to the students' psychological status. To avoid potential future stress-related academic and health problems, effective stress reduction strategies should be implemented by universities in Jordan.

Keywords: Stress level, undergraduate, first-year students, prevalence, factors

Introduction

Psychological stress refers to the emotional and physiological reactions experienced when an individual confronts a situation in which their internal demands exceed their ability to cope. Psychological stress can be induced by many situations such as a troubled marriage, medical problems, death of a loved person, financial crisis, moving to a new house, and going to college. This latter issue, concerning the transitional phase of students from secondary school to university, exposes students to several challenges that generate significant stress.

Psychological stress among undergraduate students may be induced by various sources. These sources could be related to academic, social, health, family, and/or emotional factors (Abdulghani et al. 2011). Stress among first-year undergraduate students was found to be induced by students' separation from their parents or close friends, having new relations, managing their time and budget, poor study methods, and practicing housekeeping activities (Al-Tarawneh & Kahtoon 2014; Bernstein & Chemaly 2017; Fawzy & Hamed 2017; Kulsoom & Afsar 2015; Raftu 2016; Shakthivel et al. 2017).   Difficulties in academic activities and clinical training were also found to increase stress level among students from the health colleges, i.e., medical, nursing, pharmacy, and dentistry (Abu-Ghazaleh, Sonbol, & Rajab 2016; Al Shawi et al. 2018; Shaban, Khater, & Akhu-Zaheya 2012; Thawabieh & Qaisy 2012; Yusoff et al. 2011). Baqutayan and Mai (2012) stated that students' accommodation, educational environment, attention of

teachers, university books, and tools are considered the most important causes of stress among students.

Several studies have been internationally conducted to explore the impact of stress and correlated factors on first-year undergraduate students' personality and academic achievement (Baqutayan & Mai 2012; Beddoe & Murphy 2004; Fawzy & Hamed 2017; Geng & Midford 2015; Rafidah et al. 2009; Shaban, Khater, & Akhu-Zaheya 2012). Researchers found that high-stress level among students decreases their attention, memory, and problem-solving skills. Additionally, stress was found to lower students' self-esteem, and negatively affect their academic achievement (Bernstein & Chemaly 2017; Waqas et al. 2015). Previous studies were extensively conducted among first-year undergraduate students from medical, nursing, or dental colleges (Abu-Ghazaleh, Sonbol, & Rajab 2016; Abu-Ghazaleh, Rajab, & Sonbol, 2011; Al-Tarawneh & Kahtoon 2014; Kulsoom & Afsar 2015; Rafidah et al. 2009; Shaban, Khater, & Akhu-Zaheya 2012; Thawabieh & Qaisy 2012; Waqas et al. 2015). However, few studies examined stress level among students in various university's colleges internationally (Beddoe & Murphy 2004; Cohen, Kamarck, & Mermelstein, 1983; Shakthivel et al. 2017; Yusoff, Rahim, & Yaacob 2010), as well as nationally (Al-Tarawneh & Kahtoon 2014; Gorter et al. 2008; Yusoff, Rahim, &Yaacob 2010).

A study conducted in urban universities of South Africa explored stress level among 287 first-year students; however, this study only examined the relationship between sex-role identity and students' stress

level (Beddoe & Murphy 2004). Another recent study was conducted by Denovan and Macaskill (Cohen, Kamarck, & Mermelstein, 1983) to investigate the characteristics that facilitate students' adjustment among university students. In this study, stress and subjective well-being were assessed among 192 first-year undergraduate students in the United Kingdom. Data were collected from the students in two different points (in week three and then after 6 months) of their first academic year. The researchers found no significant differences between the two study phases in means of stress level. In Malaysia, a cross-sectional study was done among university students from different levels to examine stress level. It was found that 18.6% of the students experienced a moderate level of stress, while 5.1% of them experienced severe level. Female were found to have a higher stress level (Shakthivel et al. 2017).

The most recent study conducted in Jordan included a convenient sample of 600 university students to assess their experienced depression, anxiety, and stress levels. Researchers found that university students have a moderate level of stress. Al-Tarawneh and Kahtoon (2014) studied the sources of stress among 200 Jordanian university students from one governmental university in South of Jordan (Mut'ah University in the governorate of Karak). They found that academic issues are the major stress source, followed by social, health and emotional issues. The results also showed that gender, living costs, high tuition fees, and political situations surrounding Jordan, civil wars in neighboring countries such as Syria and Iraq, statistically affect experienced stress among the students.

In another study conducted in the southern part of Jordan, Thawabieh and Qaisy (Shamsuddin et al. 2013) conducted a study to assess the level of stress and the associated factors among 471 randomly selected students from Tafila Technical University. The results indicated that the students experienced a moderate level of stress caused mainly by social factors, followed by academic factors; female students were found to have more stress level than males.

In an earlier study, Hamdan-Mansour and Dawani (2008) examined the relationship between social support and level of stress among 241 Jordanian private and governmental university students. Using the perceived stress scale, the researchers found that Jordanian students had a moderate perception of stress. They also concluded that students who receive the least social support from their families explain all the events they experience as stressful events. Female university students had a higher perception of stress and social support than male university students.

To the best of our knowledge, this is the first study to explore the prevalence of psychological stress and its correlates with selected demographic factors among first-year undergraduate university students in the South of Jordan. This current study was designed to answer the following two research questions:

1. What is the level of psychological stress among first-year undergraduate students in the South of Jordan?

2. Is there any association between selected demographic variables and stress level among first-year undergraduate students at Al-Hussein Bin Talal University, South of Jordan?

Methods

Study design

A cross-sectional, exploratory design was used to explore the prevalence of academic stress and its correlates with selected demographic factors among first-year undergraduate students in the South of Jordan. The dependent variable in this study was the perceived academic stress level, and the independent variables were some selected demographic variables including age, gender, marital status, high school grade point average (GPA), academic area (college), and residence.

Instrument

The Perceived Stress Scale (PSS) developed by Cohen, Kamarch, and Mermelstein (1983), is one of the most widely used psychological instruments to measure perceived stress, and it was used in this study. The PSS is a brief and easy-to-administer measure to evaluate the degree to which individuals believe their life has been unpredictable, uncontrollable, and overloaded during the previous month.

The PSS involves ten items that are easy to measure and understand. Each item was rated on a five-point -Likert scale ranging from never (0) to very often (4). PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8), and then summing across all scale items. The total score is 40; with higher scores indicating more perceived stress. The mean score for each student was calculated by dividing the student's score by 10 in order to calculate the mean score for each student. Scores ranging from 0 to 1.3 were considered low stress; scores ranging from 1.4 to 2.6 were considered moderate stress; scores ranging from 2.7 to 4.0 were considered high stress.

Setting

This study was conducted at Al-Hussein Bin Talal University in Ma'an city in the governorate of Ma'an, South of Jordan. Approximately, there are 7000 students in this university distributed in nine colleges, which are: Princess Aisha Bint Al-Hussein College for Nursing and Health Sciences, College of Science, College of Art, College of Engineering, College of Education, College of Information Technology, College of Business Administration and Economics, College of Law, and Petra College for Tourism and Archaeology.

Participants

The target population for this study was newly enrolled students at Al-Hussein Bin Talal University in the first semester of the academic year 2018– 2019. The total sample size needed for this study was 231 students. This number was judged based on the G power software program (version 3.1.9.2). After obtaining the agreement from the research committee at Princess Aisha Bint Al-Hussein College for Nursing and Health Sciences, as well as the research committee in the university, a convenient sample of 231 students was contacted and informed about the purpose of the study. Detailed information about the study was explained by the researchers, and then the participants signed the consent form and filled the research questionnaires during sessions of some elective courses that can be studied by all first-year students in the university.

Data analysis

Data were analyzed using SPSS software version 21 (SPSS Inc., Chicago, IL, USA). Before data analysis, preliminary data screening for missing data and outliers was done, and statistical assumptions for all statistical tests were ensured. Descriptive statistics (frequencies, percentages, means, and standard deviations) were calculated for demographic variables. Mean PSS scores were calculated and then categorized as followed: mild, moderate, and severe. Spearman correlation was used to determine the association of age with stress level because it was skewed (skewness 4.29). Independent samples t-test was run to analyze the association between gender and stress

level; ANOVA was also done for the academic area; high school average; students' residence; and marital status. A p-value of <0.05 was considered significant.

Results

Two hundred and thirty-one students have participated in the study. Their mean age (ranging from 17 to 39 years) was 19.4 years (SD =2.3). The sample was predominantly female (59.7%, n = 138). The majority were single (94.8%). Nearly, half of them (47%) had a high school GPA between 70% and 79%. Almost one-fifth of the participants were from the college of nursing and health sciences (20.8%). Most of the participants (72.3%) were living in student residence facilities. The characteristics of the study participants are shown in Table 1. This table also shows the frequencies, percentages, standard deviation, and the mean score of stress for the study's demographic variables.

The mean score of the perceived stress scale (PSS) for all students was moderate (2.10; SD = .74). The stress level in males was 2.10, while in females it was 2.09 [t (230) = .037, p = 0.97]. The stress level was 2.11 in the participants who were single and 2.25 in the participants who were married [f (2, 229) = 2.06, p = 0.129]. For high school average, the lowest stress level (1.98) was in the participants who have an average between 60% and 70%, while the highest stress level (2.14) was in the participants who have an average between 80% and 90% [f (3,228) = .50, p = 0.68]. The highest stress level was found in participants living with their families (2.24), followed by participants who live alone (2.10), and then in the participants who live with other students (2.03). There were no significant differences in the mean stress level at α level of 0.05 for gender, marital status, high school average, and residence. However, there were significant differences in the mean stress level at α level of 0.05 for age and academic area (Table 2). The mean stress level was the highest among the law college students (2.43) while the lowest stress level (1.86) was among the students from the college of science (1.86) [f (6, 225) = 2.19, p = 0.045]. For age, [r (232) = .150, p=0.023]; older students experienced less stress than younger students.

Discussion

The objective of this study was to assess the prevalence and correlates of psychological stress among first-year undergraduate students at Al-

Hussein bin Talal University, South of Jordan. In the current study, the stress level among new university students was moderate (Abu-Ghazaleh, Sonbol, & Rajab 2016; Cohen, Kamarck, & Mermelstein, 1983), which is in consistence with earlier studies conducted in Jordan (Shamsuddin et al. 2013), but lower than other internationally conducted studies (Abdulghani et al. 2011; Abu-Ghazaleh, Rajab, & Sonbol, 2011; Hamdan-Mansour & Dawani 2008; Waqas et al. 2015)

In a study of psychological well-being among nursing students at an Australian regional university, the results showed a high level of perceived stress and a low level of psychological well-being (Hamdan-Mansour & Dawani 2008). In another study, it was also observed that the prevalence of stress was the highest among the Saudi first-year medical students (Abdulghani et al. 2011). Similar findings were found by Abu-Ghazaleh and colleagues study (Abu-Ghazaleh, Rajab, & Sonbol, 2011), which reported that dental students from the University of Jordan showed a high level of stress. On the contrary, other studies reported a low prevalence of stress among university students (He et al. 2018; Shakthivel et al. 2017). It is indicated that there are inconsistencies in the level of stress among undergraduate students in previous studies. This discrepancy might be attributed to different factors, including students' demographic variables, location of the university, academic areas studied in each university, teaching methodologies, students' achievements, variety of instruments being used, selection bias of medical or nursing students, and the competitive academic and social settings in the campus.

An interesting finding in our analysis was that both male and female students were equally likely to experience stress. This result is consistent with Waqas and colleague (Skead & Rogers 2014) study, who found no significant association between gender and stress level in a sample of medical students in Pakistan. However, it is contradictory to other studies which found that female students experienced a higher stress level than male students (Abdulghani et al. 2011; Abu-Ghazaleh, Rajab, & Sonbol, 2011; He et al. 2018). Despite previous studies that showed both marital status and residence were considered important contributing factors for developing stress (Abdulghani et al. 2011; Hamdan-Mansour & Dawani 2008; Skead & Rogers 2014), the results of this current study reported no significant difference in the stress

Table 1. Sociodemographic characteristics of the participants and mean score of stress

Item	Category	Frequency	Percentage	Mean score of stress	SD
Gender	Male	93	40.3	2.10	.78
	Female	138	59.7	2.09	.70
Marital status	Single	219	94.8	2.11	.73
	Married	4	1.7	2.25	.48
	Other	8	3.5	1.58	.82
High school GPA	60 – 69%	65	28.1	2.14	.77
	70 – 79%	109	47.2	2.12	.74
	80 – 89%	54	23.4	1.98	.70
	> 90%	3	1.3	2.06	.08
Academic area (college)	College of Nursing and Health Sciences	48	20.8	1.99	.58
	College of Science	28	12.1	1.86	.79
	College of Engineering	26	11.3	2.03	.80
	College of Education	44	19	2.11	.65
	College of Information Technology	23	10	1.97	.95
	College of Business Administration and Economics	30	13	2.24	.66
	College of Law	32	13.9	2.43	.73
Residence	With the family	53	22.9	2.24	.61
	With students	167	72.3	2.03	.76
	Alone	11	4.8	2.10	.86
Total mean				2.10	.74

Table 2. Effects of selected demographic factors on the students' perceived psychological stress level

Factor	r	t	f	*p*-value
Age	.150			.023*
Gender		.037		.971
Marital status			2.06	.129
High school average			.50	.680
Academic area			2.19	.045*
Residence			2.10	.125

levels for these two factors. These findings might be attributed to the social circumstances that the students live. In the current study, the majority of the participants, from both genders, are living the same social circumstances and receiving support from their colleagues. However, students who live with their families showed a higher level of stress than students who live with their colleagues; this finding might be attributed to parental pressure performed on students who live with their parents to demonstrate better efforts in their study.

Academic area (college) was one of the most important stressors among the respondents of the current study. This result was consistent with results of previous studies conducted in Jordan which reported that academic area plays a big impact on stress level (Al-Tarawneh & Kahtoon 2014; Gorter et al. 2008; Salam et al. 2015).

In the current study, stress level was reported the highest among students from the college of law compared with students from other academic areas. This is consistent with Skead and Rogers study (Shamsuddin et al. 2013), which reported that students from the college of law have a high level of stress as sense of belongingness (or social connectedness) is central to mental health and well-being among law students; but it is contradictory with many previous studies which showed that students from medical or health sciences colleges have a higher risk of physical or mental stressor than students from non-medical or non-health sciences colleges. Fawzy and Hamedin (2017) concluded that students from medical college interchange between non-clinical placements and clinical placements, as well as they have many concerns about their career paths, such as future enrollments in residency program or seeking jobs. In the current study, the researchers suggest that students from the college of law have a high level of stress because law program is a newly established college at Al-Hussein Bin Talal University, and the students are concerned about the difficulty of the program and their academic achievement. Additionally, law students might have special concerns for their social positions and the ability to make decisions in the future.

Limitations and recommendation for future research

This study has some limitations. The use of a convenience sample of students, and therefore, the numbers of participants from the different academic areas varied. However, this concern was treated by testing the effect of the academic area on the students' stress level. The use of self-reported questionnaire might result in response bias. The participants might respond in a way that does not reflect the correct answer to questionnaire items.

The data in our study were collected at a single point in time, and therefore, would not pick up the variations in stress that students may be exposed to at different times of the year. Rafidah and colleagues (2009) found that stress increased at the end of the semester due to students' belief that midterm exams and quizzes are not counted in the final score, but the final exam is the most important criterion to determine their grade as they are used to this during school. Thus, it is recommended in the future to follow the student during their first year to determine any change in their stress level throughout the year.

Conclusion

The results of this study indicate a moderate level of stress among first-year undergraduate student at Al-Hussein Bin Talal University. There were no significant differences in the mean stress level for the gender, marital status, high school average, and residence. On the other hand, there were significant differences in the mean stress level for age and academic area. Further research, with a triangulation methodology, should be conducted to identify the stressors, specific ways to cope, and the effectiveness of stress reduction strategies among undergraduate students. Steps to ease the academic pressures, improve curriculum activities, and construct friendly faculties can decrease the degree of stress among undergraduates. Training in stress management as a part of the curriculum can be of use. This study also highlights the necessity of using academic advising and counseling as an integral part of routine students' services for undergraduate students.

References

1. Abdulghani, H. M., AlKanhal, A. Mahmoud, E., Gominda G., & Alfaris, E., (2011). Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. *Journal of Health, Population, and Nutrition,* 29 (5): 516.

2. Abu-Ghazaleh, S. B., Sonbol, H. N., & Rajab, L. D. (2016). A longitudinal study of psychological stress among undergraduate dental students at the University of Jordan. *BMC Medical Education*, 16 (1), 1–7. https://doi.org/10.1186/s12909-016-0612-6

3. Abu-Ghazaleh, SB., Rajab, LD., & Sonbol, HNl., (2011). Psychological stress among dental students at the University of Jordan. *Journal of Dental Education*, 75 (8): 1107-1114.

4. Al Shawi, A. F., Abdullateef, A. N., Khedher, M. A., Rejab, M. S., & Khaleel, R. N. (2018). Assessing stress among medical students in Anbar governorate, Iraq: A cross-sectional study. *Pan African Medical Journal*, 31, 1–7. https://doi.org/10.11604/pamj.2018.31.96.16737

5. Al-Tarawneh, A., & Kahtoon, N., (2014). Sources of stress among Jordanian college students: A case study of Mutah University. *Indian Journal of Health & Wellbeing, 5* (6), 735-737.

6. Baqutayan, Shadiya, M., & Mai, M., (2012). Stress, strain and coping mechanisms: an experimental study of fresh college students. *Academy of Educational Leadership Journal*, (1), 19-30.

7. Beddoe, A. E., & Murphy, S. O. (2004). Does mindfulness decrease stress and foster empathy among nursing students? *The Journal of Nursing Education, 43* (7), 305-312

8. Bernstein, C. & Chemaly, C. (2017). Sex Role Identity and Academic Stress and Wellbeing of First-Year University Students. *Gender and Behaviour*, 14 (3), 7547–7573.

9. Besser, Avi, Zeigler-Hill, & Virgil. (2014). Positive Personality Features and Stress among First-year University Students: Implications for Psychological Distress, Functional Impairment, and Self-esteem. *Self and Identity, 13* (1), 24-44.

10. Cohen, S, Kamarck, T, Mermelstein, R. (1983). A global measure of perceived stress. *J Health SocBehav*, 24:385-96.

11. Denovan, A., & Macaskill, A. (2017). Stress and Subjective Well-Being Among First Year UK Undergraduate Students. *Journal of Happiness Studies*, 18 (2), 505–525. https://doi.org/10.1007/s10902-016-9736-y

12. Fawzy, M. & Hamed, S. A. (2017). Prevalence of academic stress, depression, and anxiety among medical students in Egypt. *Psychiatry Research*, 255: 186-194.

13. Geng, G., & Midford, R. (2015). Investigating First Year Education Students' Stress Level. *Australian Journal of Teacher Education, 40* (40). https://doi.org/10.14221/ajte.2015v40n6.1

14. Gorter, R., Freeman, R., Hammen, S., Murtomaa, H., Blinkhorn, A., & Humphris, G. (2008). Psychological stress and health in undergraduate dental students: Fifth-year outcomes compared with first-year baseline results from five European dental schools. *European Journal of Dental Education*, *12* (2), 61–68. https://doi.org/10.1111/j.1600-0579.2008.00468.

15. Hamdan-Mansour, Ayman M., & Dawani, Hania, A. (2008). Social Support and Stress Among University Students in Jordan. *International Journal of Mental Health and Addiction, 6* (3), 442-450.

16. He, FX., Turnbull, B., Kirshbaum, MN., Phillips, B., & Klainin-Yobas, P., (2018). Assessing stress, protective factors and psychological well-being among undergraduate nursing students. *Nurse Education Today*.68:4-12. doi: 10.1016/j.nedt.2018.05.013

17. Kulsoom, B. & Afsar, N. A. (2015). Stress, anxiety, and depression among medical students in a multiethnic setting. *Neuropsychiatric Disease and Treatment*, 11: 1713.

18. Langtree, E. M., Razak, A., & Haffejee, F. (2018). Factors causing stress among first-year students attending a nursing college in KwaZulu-Natal, South Africa. *African Journal of Health Professions Education*, *10* (2), 90. https://doi.org/10.7196/ajhpe.2018.v10i2.993

19. Maynor, L., & Carbonara, G. (2012). Perceived stress, academic self-concept, and coping strategies of pharmacy students. *International Journal of Pharmacy Education & Practice*, *9* (1), 1–10.

20. Rafidah, Kamarudin, Azizah, Aris, Norzaidi, Mohd Daud, Chong, Siong Choy, Salwani, Mohamed Intan, & Noraini, I., (2009). Stress and academic performance: empirical evidence from university students. *Academy of Educational Leadership Journal* (1), 37-51.

21. Raftu, G. (2016). Assessment of the Stress Factors Among, *Romanian Journal Of Experimental Applied Psychology* RJEAP Special Issue - PSIWORLD 2016 Proceedings www.rjeap.ro. 188–194.

22. Salam, A., Mahadevan, R., Abdul Rahman, A., Abdullah, N., Abd Harith, A. A., & Shan, C. P. (2015). Stress among First and Third Year Medical Students at University Kebangsaan Malaysia. *Pakistan Journal of Medical Sciences, 31 (1*), 169-173.

23. Shaban, I. A., Khater, W., and Akhu-Zaheya, L., (2012). Undergraduate nursing students' stress sources and coping behaviors during their initial period of clinical training: A Jordanian perspective. *Nurse Education in Practice*, 12 (4): 204-209.

24. Shakthivel, N., Amarnath, V. M., Ahamed, F., Rath, R. S., Sethuraman, A. R., & Suliankatchi, R. A. (2017). Level of perceived stress and coping strategies prevailing among 1st-year medical undergraduate students: A cross-sectional study from South India. *International Journal of Medicine and Public Health*, *7* (2), 111–115.

25. Shamsuddin, K., Shamsuddin, Kh., Fadzil, F., WanIsmail, W., AzharShah, Sh., Khairani, O., Muhammad, N., Jaffar, A., Ismail, A., & Mahadevan, R., (2013). Correlates of depression, anxiety, and stress among Malaysian university students. *Asian Journal of Psychiatry*, 6 (4): 318-323.

26. Skead, N. & Rogers, S. L. (2014). Stress, anxiety, and depression in law students: How student behaviors affect student wellbeing. *Monash UL Rev.* 40: 565.

27. Thawabieh, A., & Qaisy, L. (2012). Assessing stress among university students. *American International Journal of Contemporary Research*, *2* (2), 110–116.

28. Waqas, A., Waqas, A., Khan, S., Sharif, W., Uzma, K., & Asad, A., (2015). Association of academic stress with sleeping difficulties in medical students of a Pakistani medical school: A cross-sectional survey. *PeerJ* 3: e840, DOI: 10.7717/peerj.840

29. Yusoff, M. S. B., Yee, L. Y., Wei, L. H., Meng, L. H., Bin, L. X., Siong, T. C., & Rahim, A. F. A. (2011). A study on stress, stressors and coping strategies among Malaysian medical students. *International Journal of Students' Research*, 1(2), 45–50.

30. Yusoff, M., Rahim, A. F. A., &Yaacob, M. (2010). Prevalence and sources of stress among medical students in Universiti Sains Malaysia and Universiteit Maastricht. *Malaysian Journal of Medical Sciences*, *17* (1), 30–37. https://doi.org/10.5959/eimj.v5i4.190