STRESS AND COPING STRATEGIES AMONG UNDERGRADUATE HEALTH PROFESSIONS STUDENTS: A CROSS-SECTIONAL STUDY FROM A UNIVERSITY IN LEBANON

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Abstract

Introduction: Stress, whether real or perceived, is prevalent among young adults (18-24 years), with prevalence increasing. Previous research has identified and defined many coping mechanisms in response to stress among health professions students.

Aims: This study aims at measuring perceived stress and exploring both sources of stress and coping strategies in undergraduate health professions students.

Materials and Methods: A total of 427 (88.9% response rate) surveys were collected from the various faculties from across health professions faculties at Beirut Arab University (BAU). Surveys consisted of the Brief COPE Inventory (BCI) and the Perceived Stress Scale (PSS) and were distributed via the systematic sampling method.

Results: There was no significant difference between perceived stress scores across faculties, with stress levels falling within a moderate stress range. Females (M=22, SD=6) demonstrated higher stress means than males (M=18, SD=6) across faculties. Junior students, except for pharmacy students, were more likely to use both approach-based and avoidance-based stratagems in comparison to their seniors. However, the differences were insignificant. Stress did not seem to decrease with seniority with any significance across all faculties. Coping stratagems were consistent across all years, leaning towards approach-based mechanisms.

Conclusion: Moderate stress levels were observed across all health professions faculties at BAU, and stress levels did not seem to attenuate with passing academic years. It is imperative to optimize student support systems on campus, and encourage students to seek help whenever needed.

Keywords

stress; coping; medicine; dentistry; pharmacy; health sciences; students; Lebanon

Authors

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1. INTRODUCTION

Stress, from Latin roots, has been commonly used since the seventeenth century to express the experience of suffering, distress, or strain (Abdulghani, Alkanhal, Mahmoud, Ponnamperuma, & Alfaris, 2011). As such, it is a sequence of tortuous mental and physical reactions that evolve in response to demanding effort or stifling situations. In other words, it is the body's unconscious reaction to any physical or mental stimulus (Bauermeister, Youatt, Pingel, Soler, & Johns, 2018). Moreover, the fact that it is a personal perception cannot be ignored (Bramness, Fixdal, & Vaglum, 1991).

A relevant topic of discussion for contemporary times has to do with stress as it pertains to university academics among the young adult population (Burleson & Goldsmith, 1996). While the term *young adult* is debatable, studies by Bauermeister, Youatt, Pingel, Soler, & Johns (2018) and Cardigan, Lee, and Larimer (2018) from a psychosocial and mental health perspective, respectively, defined the young adult range from ages 18-24. Thus, today, amongst this specific population, an increasing trend has been observed, with overly stressed students quitting university. Therefore, it is imperative to view stress and the factors that promote it with seriousness. Otherwise, a significant cohort in our population will continue to suffer from anxiety, tension, and isolation in obscurity (Elias, Ping, & Abdullah, 2011).

According to a study by Abdulghani, Alkanhal, Mahmoud, Ponnamperuma, & Alfaris (2011), the prevalence of stress among medical students of different levels was around 63.8%, of which 25.2% suffered from severe stress. It was amongst first-year students that prevalence rates peaked (78.7%), proceeded by the second-year (70.8%), third-year (68%), fourth-year (43.2%), and fifth-year students (48.3%).

Further research has determined that individual traits of medical students are significant attributes when studying stress. Motivations and goal dependent actions help students strive for and achieve higher academic scores. Nevertheless, students with such traits are most likely to be incapable of acceptance when faced with failure. Thus, students of such caliber tend to be more susceptible to stress in the face of challenge (Goldman & Wong, 1997). In addition, as medical students increasingly focus on coping and creating stratagems to deal with the challenges of responsibility, levels of stress are similarly elevated. Conversely, it is students with the ability to escape reality while severing challenging moments that are less likely to deal with increased stress levels. There was no significant distinction in the perceived stress based on an individual's favored coping mechanism (Keil, 2004).

Another point of consideration includes the diversity of stimuli for stress. Every individual has a unique stress stimulus (Rout, & Rout, 1993). For instance, amongst students in Nepal, an array of institutional, physiological, and health-related stressors was considered (Sreeramareddy, Shankar, Binu, Mukhopadhyay, & Menezes, 2007). Other studies emphasized the increased positive correlation between physical problems and stress; while downplaying the significance of the academic performance of students in the induction of stress (Abdulghani, Alkanhal, Mahmoud, Ponnamperuma, & Alfaris, 2011). However, studies continue to search for and define new stimuli of stress. For example, Elias, Ping, & Abdullah (2011) identified many unique stressors, including the starting of a new semester, course registration, making new and getting along with friends, lack of sleep, number of exams, concerns about appearances, among others.

Of equal importance is understanding the variety of coping mechanisms that manifest in the face of stress. The coping response is an advantageous variable in helping individuals habituate amidst stressful experiences (Rout, & Rout, 1993). Coping mechanisms encompass a broad spectrum of reactions, including routine and psychological practices. The utility of such mechanisms allows individuals to attenuate, accept, or master their responses to stressful life situations (Rout, & Rout, 1993). Coping strategies can take the form of one of the following six tactics: active coping, acceptance, planning, positive reframing, denial, or behavioral disengagement (Sreeramareddy, Shankar, Binu, Mukhopadhyay, & Menezes, 2007). The first four tactics are considered approach coping, with the latter two falling under avoidant coping (Eisenberg, Shen, Schwarz, & Mallon, 2012). Regarding approach coping, it is the behavioral action taken directly to resolve the stimulus behind the stress; while avoidance coping is the behavioral avoidance of the very same stimulus (Memmert & Canal-Bruland, 2009).

Precisely, coping mechanisms include appropriate time management, mutual support, positive reinforcement and encouragement, and the pursuit of hobbies. Beyond habitual and psychological measures, there are emotion-based mechanisms. Such mechanisms include the ability to accept one's responsibility for a situation. Such an action was observed to be the most effective amongst first-year medical students. However, habitual measures such as acceptance, as well as cognitive and problem-based planning tend to be most effective in later years (Walton, 2002). More so, previous studies evidenced differing coping standards for differing stressors. Nevertheless, emotion-based measures were observed to be favored by both males and females, over habitual measures (Walton, 2002; Saeed, Bahnassy, Al-Hamdan, Almudhaibery, & Alyahya, 2016).

The Lebanese population is already subject to stressors of varying types (Obeid et al., 2019). Specifically, Lebanese medical students cite depression and burnout as byproducts of stress experienced through medical education (Talih, Daher, Daou, and Ajaltouni, 2018). Thus, this study aims to measure perceived stress and explore both sources of stress and coping strategies in undergraduate health-professions students.

2. MATERIALS AND METHODS

Settings: This study focused on students enrolled in health professions faculties at Beirut Arab University (BAU) in Lebanon. Data collection was conducted between September 2019 and February 2020.

Sampling and Data Collection Instrument: Surveys, consisting of the Brief COPE Inventory (BCI) developed by Greenglass, Schwarzer, Jakubiec, Fiksenbaum, and Taubert (1999) and Perceived Stress Scale (PSS) by Cohen, Kamarek, and Mermelstein (1983) were distributed via the systematic sampling method. Every 5th student on the class roster was chosen in proportion to faculty size. If the student refused or was not available, the subsequent student on the roster (depending on whether they were in attendance) was selected instead.

The PSS, a 10-item tool measures the perception of stress specific to an individual by asking questions of a broad nature, relating to potentially stressful situations (Cohen, Kamarek, and Mermelstein, 1983). Regarding coping, the mechanism of choice (its frequency) is measured using the BCI, a 28-item tool (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, and Taubert, 1999). Both PSS and BCI are validated tools.

Participants: Participants included all undergraduate students of both genders, from all academic years, enrolled in health professions faculties: Medicine, dentistry, pharmacy, and health sciences (nutrition, medical lab, nursing, and physiotherapy departments).

A total of 427 surveys were collected from the various faculties according to the proportion of students in each faculty, with 141 from medicine, 82 from pharmacy, 84 from dentistry, and 120 from health sciences. Data from collected surveys were analyzed using SPSS version 25.

Ethical considerations: The study was approved by the Institutional Review Board at BAU. Furthermore, surveys were distributed after the receipt of permissions from the relevant faculties. More so, the utility of the Brief Cope Scale, Perceived Stress Scale, and Stressors inventory only took place after the reception of consent from their respective authors.

Response Rate: A response rate of 88.9% was observed in terms of surveys collected.

Statistical Analysis: The responses of participants to the PSS and Brief Cope inventory of health professions students were analyzed via the one-way ANOVA. Also, one-way ANOVA was utilized to determine relationships between sociodemographic characteristics and PSS scores. Post hoc independent samples t-tests were run for further analysis of responses to the tools, as mentioned earlier. Concerning stressors, a Pearson Chi-Squared test was run to compare the variations between student's identifications of significant stressors.

3. RESULTS

3.1. Sociodemographic Characteristics

The distribution of students across all faculties under the health professions umbrella were medicine (N (%)= 141 (33), pharmacy (N (%)= 82 (19.2)), dentistry (N (%)= 84 (19.7), and health sciences (N (%)= 120 (28.1)) (Table 1). In terms of academic years, the following divisions were reported: first years (N (%)= 111(25.8)), second years (N (%)= 102 (23.7)), third years (N (%)= 95 (22.1)), fourth years (N (%)= 55 (11.6)), fifth years (N (%)= 50 (11.6)), and sixth years (N)%)= 17 (4)) (Table 1). Approximately half of students reported

Grade Point Average (GPA) in the range of 3-4 (N (%)=176 (54.2)), closely followed by 2-2.99 (N (%)= 147 (45.2)) (Table 1).

The mean age of all health professions students surveyed was 20.20 years (SD=2.219), of which almost two-thirds were female (N (%)= 278 (64.8)). The majority of students were single (N (%)= 416 (97.2)). Of all the students, a minority reported having part-time jobs while undertaking their academics (N (%)= 53 (12.6)). Furthermore, the majority of students reported living with their parents (N (%)= 288 (68.1)) (Table 1).

In answer to whether these students felt stressed, around 41% of students reported having stress, followed by those who believed they felt "a little bit" of stress (N (%)= 159 (37.1)) (Table 1). A minority of the students claimed they did not feel stressed at all (N (%)= 24 (5.6%)); all the while, on the other extreme, some reported having "too much stress" (N (%)= 69 (16.1)).

The majority of students surveyed identified as not being smokers (N (%)= 300 (69.8)). Of those who did identify as smokers (N (%)= 129 (30)), more than half exclusively partook in Arguileh (waterpipe) smoking (N (%)= 71 (57.7). Cigarettes (N (%)= 37 (30.1)) were the other mode of recreational smoking reported. A subset of these smokers admitted to partaking in both (N (%)= 15 (12.2) (Table 1). Concerning chronic disease, a vast portion of students reported suffering from none (N (%)= 397 (92.3)) (Table 1).

Table 1: Sociodemographic Characteristics of the Study Participants (N= 427)

Variables			N (%)
Age			20.20 (± 2.219)
Gender	**Male**		151 (35.2)
	Female		278 (64.8)
Marital status	**Single**		416 (97.2)
	Married		12 (2.8)
Faculty	**Medicine**		141 (33)
	Pharmacy		82 (19.2)
	Dentistry		84 (19.7)
	Health Sciences		120 (28.1)
Academic year	**1st**		111 (25.8)
	2nd		102 (23.7)
	3rd		95 (22.1)
	4th		55 (12.8)
	5th		50 (11.6)
	6th		17 (4)
CGPA	**0-1.99**		2 (.6)
	2-2.99		147 (45.2)
	3-4		176 (54.2)
Part time job	**Yes**		54 (12.6)
		Paid	50 (87.7)
		Unpaid	7 (12.3)
	No		372 (86.7)
Residence	**Parents' House**		288 (68.1)
	Dormitories		79 (18.7)
	Others		56 (13.3)
Known BMI	**Yes**		241 (57.2)
		<18.5	25 (10.4)
		18.5-24.9	152 (63.1)
		25-29.9	45 (18.7)
		30 or more	19 (7.9)
	No		179 (42.5)
Smoking	**Yes**		129 (30)
		Cigarettes	37 (30.1)
		Arguileh	71 (57.7)
		Both	15 (12.2)
	No		300 (69.8)
Chronic Disease	**Yes**		33 (7.7)
	No		397 (92.3)
Stress	**Not at all**		24 (5.6)
	A little bit		159 (37.1)
	I have stress		177 (41.3)
	I feel I have too much stress		69 (16.1)

3.2. Perceived Stress Scale (PSS) Scores

Inequivalence of academic years across faculties resulted in the partition of each respective faculty's students into juniors and seniors for more statistically relevant testing (Table 2).

There were no differences in mean perceived stress scores for medicine (M=20.12, SD=0.5); pharmacy (M=21.22, SD=0.65); dentistry (M=20.04, SD=0.66); and health sciences (M=20.05, SD=0.57), with all means hovering around the central line of the standard curve. According to the scoring metric indicated by the PSS inventory, these respective mean scores fell within the 14-26 range of the perceived stress scale, indicating moderate levels of stress across all faculties.

As an entirety, the seniors and juniors of the health professions student body did not show significant differences in mean levels of perceived stress (F (3,411) = 0.723, p=0.539). However, independent samples t-tests between each faculty's juniors and seniors were conducted for the sake of scientific diligence.

Medical juniors showed a negligibly greater perceived stress score means (M=20.14, SD=0.67) when compared to their senior (M=20.10, SD=0.78) counterparts (t (136) =0.039, p=0.969) (Table 3). Even though insignificant, the dentistry and health sciences faculties showed the same trend as well. Junior dentistry students showed greater mean stress scores (M=20.36, SD=0.81) relative to their senior (M=19.61, SD=1.13) counterparts (t (81) =0.535, p=0.594). Similarly, health science juniors (M=20.35, SD=0.66) scored greater mean PSS scores relative to their seniors (M=19.04, SD=1.15) (t (113) =0.910, p=0.365). Pharmacy students showed a negligible difference between juniors and seniors in relation to the three other faculties. The juniors scored with lower stress levels (M=21.12, SD=0.78) when compared to the seniors (M=21.45, SD=1.21) (t (77) =-223, p=0.824) (Table 3).

Nonetheless, seniority-based mean perceived stress scores, demonstrating moderate perceived stress across all years of every respective faculty, were observed.

A significant relationship between gender and perceived stress score means was found (F (1, 415) =34.433, (p<0.01)). Females were found to have significantly higher mean PSS scores (M=22, SD=6) when compared to males (M=18, SD=6) across all faculties (Table 2).

Another relationship of note found was one between the extent students felt stress and mean perceived stress scores (F (3, 413) =70.105, p<0.01) (Figure 1). Students who acknowledged feeling no stress at all had the lowest mean PSS scores (M=12, SD=6). Those who admitted feeling a little bit of stress had the second-lowest mean PSS scores (M=18, SD=5). Students who answered having stress scored the second-highest mean PSS scores (M=22, SD=5), while those who acknowledged feeling too much stress scored the highest mean PSS scores (M=26, SD=5) (Table 2).

There were no correlations of significance found between PSS mean scores and smoking habits, Body Mass Index (BMI), GPA, or chronic disease amongst participants (Table 2).

Table 2: Sociodemographic Characteristics of the Study Participants in
Relation to Total Perceived Stress Scale (PSS)

		Total PSS		
		Mean	**Standard Deviation**	**P-value**
Gender	**Male**	18	6	<0.01
	Female	22	6	
Marital Status	**Single**	20	6	0.841
	Married	20	5	
Faculty	**Medicine**	20	6	0.539
	Pharmacy	21	6	
	Dentistry	20	6	
	Health sciences	20	6	
Academic Year	**1st year**	21	6	0.432
	2nd year	20	7	
	3rd year	20	6	
	4th year	21	7	
	5th year	19	6	
	6th year	19	7	
Seniority	**Junior**	20	6	0.494
	Senior	20	6	
CGPA	**0-1.99**	17	6	0.683
	2-2.99	20	6	
	3-4	20	6	
Do you have a part time job?	**Yes**	21	6	0.4
	No	20	6	
Is it paid or unpaid?	**Nonpaid**	22	7	0.473
	Paid	21	6	
Where do you currently live?	**Parents house**	20	6	0.196
	Dormitories	21	6	
	Relatives House	22	7	
	Shared apartment	21	7	
Do you know your BMI?	**Yes**	20	6	0.077
	No	21	6	
Range of BMI	**<18.5**	19	5	0.497
	18.1-24.9	20	7	
	25-29.9	19	6	
	30 or more	20	7	
Do you smoke?	**Yes**	20	6	0.154
	No	21	6	
What do you smoke?	**Cigarette**	19	6	0.526
	Arguileh	20	6	
	Both	18	8	
Do you have any chronic disease?	**Yes**	22	7	0.164
	No	20	6	
To which extent do you feel you are under stress?	**Not at all**	12	6	<0.01
	A little bit	18	5	
	I have stress	22	5	
	I feel I have too much stress	26	5	

Table 3: Response of Participants to Perceived Stress Scale (PSS)

	Mean PSS	Seniority Mean PSS		P-value
Medicine	20.12 (±.5)	Senior	20.10 (±.78)	0.969
		Junior	20.14 (±.67)	
Pharmacy	21.22 (±.65)	Senior	21.45 (±1.21)	0.824
		Junior	21.12 (±.78)	
Dentistry	20.04 (±.66)	Senior	19.61 (±1.13)	0.594
		Junior	20.36 (±.81)	
Health Sciences	20.05 (±.57)	Senior	19.04 (±1.15)	0.365
		Junior	20.35 (±.66)	

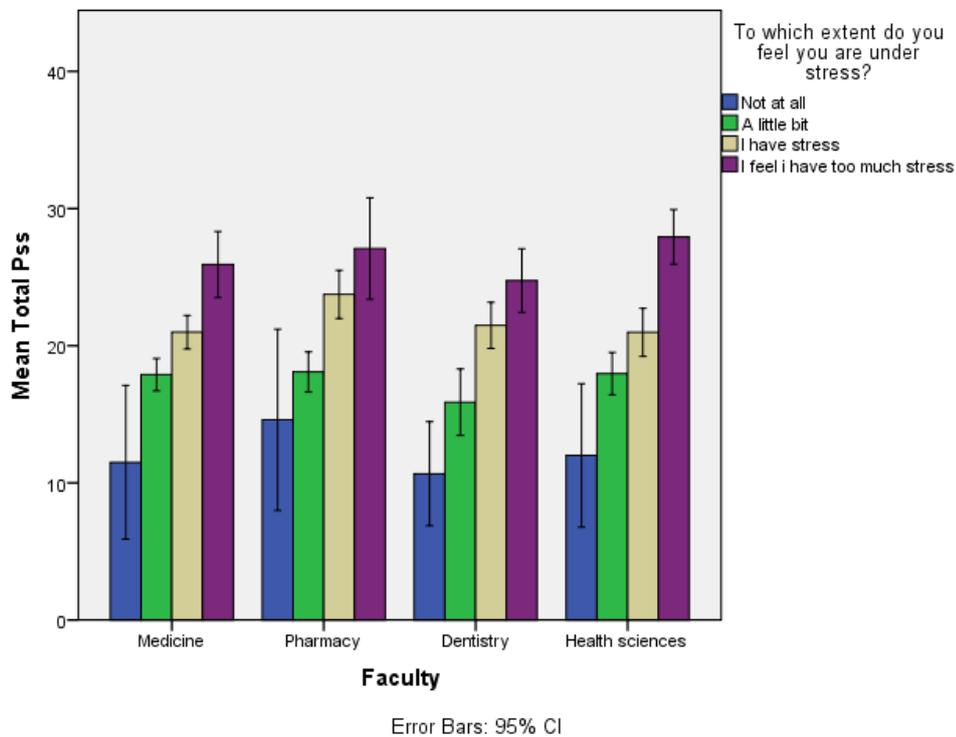*Note:* Analysis of Variance *(*ANOVA) for PSS, P-value = 0.539

Fig.1: Comparison of general stress perception vs PSS across all health professions faculties

3.3. Stressors

All students belonging to health professions faculties at Beirut Arab University found studying to be the most significant stressor, with insignificant variation between the total responses of each respective faculty (X^2 (df=3, N=425) = 1.545, p=0.672). Contrarily, troubles with roommates were the least cited stressor across all individual faculties (X^2 (df=3, N=425) = 1.876, p=0.598), with no significant variation found between the frequency of their responses.

However, specific stressors were identified by some faculties as more relevant than others. For instance, there was a significant gap between health sciences (N (%)= 57(47.5)) students and medical (N (%)=45(31.9)) students when it came to the stressor concerning troubles with the parents (X^2 (df=3, N= 426)= 8.134, p=0.040).

Furthermore, health sciences students were significantly more likely to agree (N (%)= 63 (52.5)) with the lack of support from parents as a significant stressor in life when compared with medical (N (%)=50 (36)) and dentistry (N (%)= 21 (25.3)) students (X^2 (df=3, N= 423) =16.268, p= 0.001) (Table 4).

Table 4: Student Responses of Participants to Stressors

Stressors	N_Agree(%)				P=value
	Medicine (N=141)	Pharmacy (N=82)	Dentistry (N=84)	Health Sciences (N=120)	
Studying	107 (76.4)	68 (82.9)	64 (76.2)	92 (77.3)	0.672
Finances	78 (55.7)	52 (64.2)	48 (57.1)	75 (62.5)	0.529
Family	66 (47.1)	52 (63.4)	39 (46.4)	70 (58.3)	0.40
Sleep Disorder	92 (66.2)	44 (54.3)	43 (51.2)	64 (54.2)	0.089
Future	121 (85.8)	67 (81.7)	70 (83.3)	91 (76.5)	0.267
Homesickness	55 (39)	40 (49.4)	38 (45.2)	63 (52.9)	0.140
Parents	45 (31.9)	36 (44.4)	29 (34.5)	57 (47.5)	0.040
Teachers	31 (22.3)	22 (26.8)	18 (21.4)	27 (22.5)	0.838
Friends	54 (38.3)	39 (47.6)	31 (36.9)	49 (40.8)	0.487
Interpersonal Conflicts	76 (53.9)	58 (60)	39 (46.4)	71 (60.2)	0.201
No Support from Parents	50 (36)	33 (40.7)	21 (25.3)	63 (52.5)	0.001
Bad News	91 (64.5)	67 (82.7)	62 (74.7)	92 (76.7)	0.019
Eating Habits	58 (41.1)	38 (46.3)	35 (42.2)	37 (30.8)	0.123
Self-Esteem	57 (40.4)	40 (49.4)	32 (38.6)	48 (40)	0.468
Roommates	31 (22.1)	14 (17.3)	13 (15.5)	25 (20.8)	0.598
Boy/Girlfriend	45 (31.9)	34 (42)	36 (43.4)	50 (41.7)	0.230
Finding Life Partner	35 (25)	38 (46.3)	22 (26.5)	38 (31.9)	0.007

3.4. Brief COPE Inventory

The results for both approach (F (3, 410) = 0.227, p=0.878) and avoidance (F (3, 404) = 1.785, p=0.149) based coping mechanisms found no differences between juniors and seniors of any significance (Table 5).

A significant difference between medical junior approach scores (M=38.38, SD=7.855) and seniors (M=35.09, SD=7.855) (t (135) =2.723, p=0.007), demonstrated medical juniors on average to be more likely practitioners of approach-based coping methodologies (Table 5).

Despite the differences between seniors and juniors being negligible and insignificant, with regards to approach-style coping mechanisms, dentistry (M=37.49, SD=7.555) (t (81) =0.997, p=0.322), and health sciences (M=36.67, SD=6.128) (t (113) =1.089, p=0.279) juniors scored higher than their seniors. Only pharmacy juniors (M=36.17, SD=7.639) scored less than their seniors (M=37.10, SD=7.063) (t (77) =-0.484, p=0.630).

With regards to avoidance coping mechanisms, medical juniors scored higher on average (M=21.24, SD=5.230) when compared to their seniors (M=19.58, SD=4.553) (t (133) =1.935, p=0.055). Conversely, pharmacy, dentistry, and health sciences juniors scored lower means than their senior counterparts.

The difference between pharmacy juniors (M=21.25, SD=6.155) and seniors (22.61, SD=5.458) was minute (t (77) =-0.409, p=0.684). Likewise, dentistry juniors scored lower avoidance means (M=20.22, SD=4.807) than their seniors (M=21.25, SD=6.101), health sciences juniors (M=21.05, SD=4.781) followed the same trend when compared to their respective seniors (M=21.28, SD=5.071) (t (110) =-0.213, p=0.832).

However, both juniors and seniors across all respective faculties appeared to score higher in terms of approach coping. The means for each faculty were: medicine (M=36.99, SD=7.159), pharmacy (M=36.42, SD=7.457), dentistry (M=36.80, SD=7.244), health sciences (M=36.34, SD=5.897), when compared to avoidance coping strategies medicine (M=20.51, SD=20.51), pharmacy (M=22.16, SD=4.997), dentistry (M=20.67, SD=5.402) &health sciences (M=21.10, SD=4.825).

Table 5: Response of Participants to Brief Cope (BCI)

	Approach			P-value	Avoidance			P-value
	Mean Score	Seniority Mean Score			Mean Score	Seniority Mean Score		
Medicine	36.99 (±7.159)	Senior	35.09 (±7.855)	0.007	20.51 (± 4.997)	Senior	19.58 (±4.553)	0.055
		Junior	38.38 (±6.295)			Junior	21.24 (±5.230)	
Pharmacy	36.42 (±7.457)	Senior	37.10 (±7.063)	0.63	22.16 (±6.155)	Senior	22.61(± 5.458)	0.684
		Junior	36.17 (±7.639)			Junior	21.98 (±6.457)	
Dentistry	36.80 (±7.244)	Senior	35.89 (±6.815)	0.322	20.67 (±5.402)	Senior	21.25 (±6.101)	0.394
		Junior	37.49 (±7.555)			Junior	20.22 (±4.807)	
Health Sciences	36.34 (±5.897)	Senior	35.26 (±5.02)	0.279	21.10 (±4.825)	Senior	21.28 (±5.071)	0.832
		Junior	36.67 (±6.128)			Junior	21.05 (±4.781)	

Note: Analysis of Variance (ANOVA) for avoidance BCI between faculties, P-value = 0.149; ANOVA for approach BCI between faculties, P-value = 0.878

4. DISCUSSION

Of all sociodemographic data gathered, two specific variables were noteworthy. When students were asked "to which extent do you feel under stress?", a majority identified as feeling some level of stress. Another 16% of students identified as experiencing too much stress. When compared to mean perceived stress scores, there was a significant correlation, indicating the reliability of the Perceived Stress Scale (PSS) as a tool. However, no matter the degree of stress students referenced concerning the question "to which extent do you feel you under stress?", when compared to the PSS, all answers fell within the 14-26 range, indicating moderate levels of stress as observed in a study of college students by Pierceall and Keim (2017). The only answer to this question, which fell outside of the PSS's moderate range of stress, was "not at all," which fell in the low-stress range (<14), corroborating those students low perceived stress levels.

Upon further analysis, it was determined that female students were more likely to be stressed when compared to males of the same sample. Female students had significantly higher mean PSS scores (M=22) when compared to the males (M=18); however, both still fell within the moderate stress range indicated by the PSS. Bamuhair et al. (2015) reported such a difference in stress levels between the two genders. This gender difference in PSS scores may be attributed to gender bias since females are more likely to respond to negatively phrased questions and statements within the framework of the PSS reported by Taylor (2015); yet, it should not be a complete account for the difference between mean scores (Taylor, 2015). Nonetheless, both genders of health professions students felt moderate stress levels.

About stress levels and academic seniority, Abdulghani, Alkanhal, Mahmoud, Ponnamperuma, & Alfaris (2011) determined stress levels decreased with increasing seniority of medical students. Later studies by Saeed, Bahnassy, Al-Hamdan, Almudhaibery, & Alyahya (2016) also observed the same trends.

When the pattern of stress attenuation was observed, it was found not to be the case among medical students at BAU. On the contrary, stress levels, as measured by the perceived stress scale, showed scores consistent throughout all years, hovering between scores of 14-26 and thus indicating moderate stress levels. These congruent stress levels, across all years, maybe due to external factors beyond the purview of academics (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, and Taubert,1999). Indeed, Obeid et al. (2019), listed many stressors prevalent in the Lebanese community, including the unstable political climate, unclean water, lack of consistent electricity, and high unemployment rates. Yet, the most agreed upon stressor, by all students of health professions, was studying.

However, the current study expanded on the scope of Abdulghani, Alkanhal, Mahmoud, Ponnamperuma, & Alfaris' (2011)research, including students from all relevant faculties underneath the health professions umbrella, and yet, other faculties showed similar patterns of stress to those observed in the medical faculty.

Even though insignificant, medical juniors did show slightly higher stress scores when compared to their seniors, which is more in line with the studies performed by Abdulghani, Alkanhal, Mahmoud, Ponnamperuma, & Alfaris (2011). and Saeed, Bahnassy, Al-Hamdan, Almudhaibery, & Alyahya (2016). This reduction in stress levels can be attributed to reflective writing training amongst senior year medical students (Lutz, Scheffer, Edelharuser, Tauschel, & Neumann, 2013), which serves as a medium for students to directly address the stimuli of stress involved with their education (Mirlashari, Warnock, and Jahanbani, 2017). Furthermore, juniors of the dentistry and health sciences faculties also seemed to show the same general trend when compared to their seniors, albeit statistically insignificant. This trend has generally been documented, with dentistry seniors feeling less stress as they progress through the academic years, as observed in a longitudinal study concerning dental students by Polychronopoulou & Divaris (2010).

Conversely, pharmacy students challenged the trend observed among students of the other three faculties. Seniors demonstrated greater PSS mean score, although statistically insignificant when compared to their juniors. This study's observation of increasing perceived stress as academic years progressed, ran contrary to findings in previous studies, such as the one by Zoriah & Sun (2015), concerning undergraduate pharmacy students.

Regarding stressors, the vast majority were statistically insignificant. Even though trivial, studying was the most agreed upon stressor across all tested faculties, with roommate conflict considered the lowest source of stress. Nevertheless, some stressors weighed heavily on some faculties more so than others.

Regarding trouble with the parents, students from the faculty of health sciences were more likely to view it as a stressor when compared with medical students. Additionally, health sciences students reinforced this notion by being more likely to cite the lack of support as a significant stressor respective to medical students. However, there was no correlation between the place of residency, including living with parents and perceived stress. With "trouble with the parents" and "no support from parents in solving problems" as significant stressors, this becomes an interesting statistical paradox, which seems to imply that parent-related stressors were independent of proximity to said parents. Moreover, it seems to coincide with health professions students of all faculties citing roommate conflict as the least likely stressor, further augmenting the role of parents as a significant stressor. As such, further study of this phenomenon is required. Possibly, the value placed on the medical profession earns medical students greater attention and support from the parents, when compared to other healthcare related professions. For instance, a study by Creed, Searle, and Rogers (2010) documented the prestige associated with the medical profession, be it from the viewpoint of the student or the common citizen. However, whether such a link between parent support and prestige of the major of study, or not, needs to be studied and clarified.

With regards to coping mechanisms, and based on studies by Stern, Norman, & Komm (1993) and Walton (2002), senior students are more likely to utilize approach-style coping mechanisms when dealing with stress. However, this study yielded results running contrary to this point. For instance, medical, dental, and health sciences juniors were more likely to utilize approach-like coping methods to combat stress than their seniors. Only pharmacy students followed the general trend of the senior's increased utility of such approach-like methods.

Nevertheless, under the purview of this study, only medical juniors were more likely to utilize this coping method than their seniors with any statistical significance. Other faculty's juniors did not see any significant differences from their seniors. However, such results are not aberrant, with Sreeramareddy, Shankar, Binu, Mukhopadhyay, & Menezes (2007) reporting on medical students more likely to utilize approach-style throughout all academic years, and in some cases, a mix of approach and avoidant-style coping mechanisms.

5. LIMITATIONS

The scope of this study only covered the health professions students at BAU. As such, this data is indelibly skewed towards this specific subset of Lebanese health professions students. For the sake of variation, in the future, this study should be expanded to include other relevant universities for a better view of Lebanese health professions students as a whole.

6. CONCLUSION

Across all health professions faculties at BAU, moderate stress levels were observed. Females tended to score higher when tested, yet remained within the range of moderate stress. Moderate stress levels were also observed through all years, regardless of seniority. Further study is required for this point; however, habituation to external stressors found in Lebanon may have prepped students to combatting stress.

The recognition of stressors varied depending on faculty. Studying was the most cited stressor across all faculties, while some faculties viewed specific stressors more often than did the others. These variations in stress recognition indicate the multitude of stressors that can come into play in the lives of students.

In response to stress, there were no general differences between juniors and seniors concerning coping strategies used. However, medical juniors were also more likely to utilize avoidant-based coping stratagems, seeming to indicate the mixed-coping identified by Sreeramareddy, Shankar, Binu, Mukhopadhyay, & Menezes (2007). All faculties, irrespective of seniority, seemed to prefer approach coping strategies.

Therefore, stress levels did not seem to attenuate with passing academic years, and even though there was a preference for approach coping strategies, it was more so mixed than hypothesized. As for stressors, studying was the most cited stressor with little variation between faculties. However, external, non-academic stressors came into play as well. The role of these external stressors should be scrutinized further. It is imperative to optimize student support systems on campus, and encourage students to seek help whenever needed. Larger scale studies including health professions students from other universities in Lebanon as well as in the region are recommended to help establishing effective culture oriented solutions.

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