ASSESSING SOURCES OF STRESS AND COPING STRATEGIES AMONG AL-GHAD COLLEGE STUDENTS-ABHA/KSA

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ABSTRACT

Background: Medical education can be highly stressful and students may face the same sources of stress and many challenges that could affect their performance and well-being. This study aimed to assess stressors as perceived by applied health sciences students and their coping strategies at Al-Ghad colleges.

Materials and Methods: A cross-sectional descriptive study was conducted during April-May 2019. The subjects of the study consisted of 123 undergraduate, who were selected by convenient sampling. Two tools were used to collect data, University Student Stress (USS) scale a 22-item questionnaire to assess stress, and COPE inventory scale to measure the relative helpfulness of various coping strategies.

Result: The main results revealed that the prevalence of predictive significant psychological distress (>=13) among Al-Ghad college students was found to be 90.2 %. The highest mean score of 38.00 + 12.93 was observed among female students with a significant difference between both genders. The top four stressors in the participants were: studying for examination, thinking about future, financial expenses, and waiting for results/grades. The least common stressor reported by participants was transportation. The top four coping strategies adopted by participants were: religious coping, positive reinterpretation and growth, planning, and active coping while substance use was the least coping strategy.

Conclusion: Al-Ghad college students do experience multiple types of bio-psychosocial stressors which affect their health and academic performance and use some helpful coping strategies. Exam schedules and patterns, intervention programs, self-awareness and counselling could certainly help a lot to reduce stress in applied health sciences students.

Keywords: Al-Ghad college students, coping strategies, stress, stressors, Kingdom Saudi Arabia (KSA).

1.0 Introduction

Every day, we are confronted with problems. If we believe that the problem is serious, and we also believe that we do not have the resources necessary to cope with the problem, we will perceive ourselves as being under stress. Stress can be defined as a process in which environmental demands strain an organism's adaptive capacity, resulting in both psychological as well as biological changes that could place a person at risk for illness (Kohn & Frazer, 1986). According to (Richard S. Lazarus & Susan Folkman, 1984) stress is a mental or physical phenomenon formed through one's cognitive appraisal of the stimulation and is a result of one's interaction with the environment. The existence of stress depends on the existence of the stressor. Feng (Feng, 1992) and Volpe (Volpe, 2000) defined stressor as anything that challenges an individual's adaptability or stimulates an individual's body or mentality. Stress can be caused by environmental factors, psychological factors, biological factors, and social factors. It can be negative or positive to an individual, depending on the strength and persistence of the stress, the individual's personality, cognitive appraisal of the stress, and social support.

Stressors are commonly noted among university students (Lynn C. Towbes & Lawrence H. Cohen, 1996) as they are required to juggle many things at the same time including maintaining good results and adjusting to a new social environment. Among the stressors include work overload, relationship with people, loneliness, and fear of failure and time management. Toward the end of their study, other issues like the need to land on good jobs adds to the existing ones, creating a higher level of stress (D'Zurilla & Sheedy, 1992). In addition to stress, the student's social, emotional and physical as well as family problems may influence their learning ability and academic performance (MOFIDA YOUNIS AL-BARRAK, MONA TALAT EL-NADY, & ELHAM ABDELKADER FAYAD, 2011; Sherina, Rampal, & Kaneson, 2004b). Higher levels of stress may have a negative impact on the students learning ability. Excessive stress may result in mental and physical problems and may diminish a student's sense of worth and might affect his/her academic achievement (Shaikh et al., 2004a; El-Gilany, Amr, & Hammad, 2008). This can affect student's performance and cause them to get lower grades. The academic impact might compound the anxiety. Students who cannot handle the stress often become exhausted and exposed to any health problems (Sharif & Masoumi, 2005).

In a large USA study of over 4000 medical students, undergraduate medical students were found to be under psychological stress to the extent of burnout and suicidal ideation (Compton, Carrera, & Frank, 2008). In three British universities the prevalence of stress was 31.2% (Firth, 1986a). Globally, numerous studies have reported stress among undergraduate medical students to be 25.6% - 78% (Fares et al., 2016a; Arepalli Sreedevi et al., 2016; Firth, 1986b). Studies from developing countries like Thailand, Malaysia, Pakistan and India have reported stress among medical students and have underscored the role of academics as a source of stress (Sherina, Rampal, & Kaneson, 2004a; Saipanish, 2003; Shaikh et al., 2004b; Stewart, Lam, Betson, Wong, & Wong, 1999). Several studies conducted in Arab countries, such as Egypt (60%) (Fawzy & Hamed, 2017), Sudan (50%) (Mohamed Dafaalla et al., 2016), Lebanon (62%) (Fares et al., 2016b), and few studies in Saudi Arabia (72%) (M.H. Sani et al., 2012), (53%) (Abdel Rahman, Al Hashim, Al Hiji, & Al-Abbad, 2013a), and (63%) (Abdulghani, AlKanhal, Mahmoud, Ponnamperuma, & Alfaris, 2011a), showed high levels of stress among medical students. According to a study conducted at College of

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Medicine, King Khalid University, Abha, Saudi Arabia, the proportion of female students who experienced stress was higher than their counterpart males (Siddiqui, AlAmri, AlKatheri, & AlHassani, 2017).

College students are specifically more predisposed to stress. This is because college is a phase of change from high school life to stressful and demanding college/university life (Murphy & Archer, 1996).Thus, they should enhance their stress management abilities so as to live a healthy life after entering the society. College students face a variety of challenges as they transition from high school to higher education. This transition signifies a crossroads between adolescence and adulthood, a period of passage between the old and the new, and between relationships of the past and relationships of the present. The transition from high school to college involves significant academic, interpersonal, and intrapersonal changes (Shaver, Furman, & Buhrmester, 1985).

Folkman and Lazarus (Richard S.Lazarus et al., 1984) defined coping as the behavioural and cognitive efforts a person uses to manage the demands of a stressful situation. During medical school, students utilize various coping strategies to manage stress. According to Chew-Graham et al. (2003) (Chew-Graham, Rogers, & Yassin, 2003), it is important for students to develop different coping strategies in order to encounter and manage stressful conditions. These coping strategies determine the influence that stress has on psychological and physical well-being (Dyrbye, Thomas, & Shanafelt, 2005). If not handled well, the stressors that originated from financial problems, sleep deprivation, societal activities, and many more can affect student's ability to perform. However, coping behaviours are just as important to be studied. Some students may adopt healthy activities such as sports, exercise or creative pathways while others may lean towards smoking, drugs, alcohol abuse and other self-damaging activities. Therefore, it is quite important to find out the various coping activities of college students.

Studies conducted in the past for area of stress and coping among students have identified (Sreeramareddy et al., 2007a; Shah, Hasan, Malik, & Sreeramareddy, 2010a), however, in Saudi Arabia studies on psychological morbidities are very few in specifically in Aseer region, hence the objective of this study is to assess the stressors and coping strategies among undergraduate students at Alghad colleges.

Aim of the study: The study aims to:
Identify stressors as perceived by students & their coping strategies at Al-Ghad international colleges for applied medical sciences in Abha city.

Research Questions:
1- What are the stressors that are facing students at Al-Ghad colleges for applied medical sciences in Abha city?
2- What are the coping strategies that are used by Al-Ghad colleges' students when they are faced by stressors?

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2.0 Materials and Methods

The present cross-sectional study was undertaken in Alghad international colleges for applied medical sciences-Abha city during April-May, 2019. The study subjects consisted of 123 undergraduate students were selected from two branches of Alghad colleges by convenience sampling method. In Alghad colleges, student enrolled in the preparatory year and after successful completion of preparatory year, students will be distributed to four academic departments: Emergency Medical Services (EMS), Radiology, Nursing, and Clinical Laboratory Sciences (CLS). Previous studies have reported prevalence of stress among medical students as 53.0 % in Saudi Arabia(Abdel Rahman, Al Hashim, Al Hiji, & Al-Abbad, 2013b). Hence, based on 53.0 % prevalence of stress, at 95 % confidence interval and margin of error as 5 %, the target sample size was calculated as 130 students. The final sample was constituted by 123 students who returned completely filled- in questionnaires.

The study used anonymous self-administered questionnaire. The questionnaire included general information of students. The socio-demographic information such as age, gender, academic year, department, marital status, father and mother occupation, family monthly income, history of chronic illness, mental illness, smoking, and type of residence were also obtained. University Student Stress (USS) scale a 22-item questionnaire was used to assess stress (Burge, 2009). This instrument has been used widely in population- based epidemiological studies to the degree to which each of the categories had caused them stress in the previous month. The overall reliability of the test items was assessed by calculating Cronbach's alpha (0.78), which indicates significant internal consistency. Students were asked to respond to the questionnaire items on a four-point Likert scale as: (0= "not stressful at all", 1= "somewhat stressful", 2= "frequently stressful" and 3="constantly stressful". For clarity and the purpose of data analysis the questionnaire items were categorize into three domains: academic-related stress (ARS), time- related stress (TRS) and social environment-related stress (SERS) items. Scores of the 22 responses are added up and the total score is calculated. Scores range from 0 to 66. The total score is interpreted as follows: a score of equal or more than 13 is predictive of significant psychological distress while score less than 13 is considered not to represent stress of any level.

Carver C.S (2013) (Carver, 2013) developed the Coping Orientation for Problem Experiences (COPE) inventory scale that was used to measure the relative helpfulness of various coping strategies.The items in the cope scale are phrased to elicit usual behaviors encountering stress. The helpfulness of each coping strategy is rated on 1-4 point likert scale.The COPE scale comprising of 60 items, categorized into 15 subscale of coping responses to stress which was included; positive reinterpretation and growth, mental disengagement, focus on and venting of emotions, use of instrumental social support, active coping, denial, religious coping, humor, behavioral disengagement, restraint, use of emotional social support, substance use, acceptance, suppression of competing activities, and planning. The choices for rating helpfulness of coping strategies were as follows: (1= I usually don't do this at all; 2= I usually do this a little bit; 3= I usually do this a medium amount; and 4= I usually do this a lot). The most helpful and least helpful coping strategies were identified by analysis of the likert scale responses. The high score on each subscale shows more use of that particular coping strategy and vice versa.

The principal investigator translated the English version into Arabic with the help of English lecturers. It was further checked and modified by the two senior bilingual faculty members

(Arabic and English). In Saudi Arabia, the medium of teaching in medical colleges is English; therefore, the researchers assumed that the students can understand the questionnaire in English, but to improve its comprehension each question was translated into Arabic as well. Moreover, to know the language and understanding of the questionnaire, it was pretested on 20 students, and the internal consistency of this questionnaire was calculated by Cronbach's alpha to be .87.

The study was conducted consequent to ethical approval by ethical review committee.Permission to conduct the study was obtained from the responsible authorities. Each group of students (in the academic level) was briefed about the purpose and objective of the study. Using a convenient sampling procedure, those students who agreed to participate were included in the study. Verbal consent was sought to participate in the study. The students were assured about anonymity and confidentiality of the responses given in the questionnaire and handed out the instrument. The questionnaires after completion were collected on the same day.

IBM SPSS statistics 24.0 was used for analysis. Descriptive results were presented as frequencies and percentages, while stress score was described as mean ± standard deviation. Independent samples t-test and one-way ANOVA were used to study the relationship of stress with various social and demographic factors. Chi-square test (χ^2) was used to base line data, comparison between 4 academic years. The data reported by students were summarized coded and computerized to identify the stressors perceived by undergraduates nursing students and their coping strategies. All results were considered significant at ($p<0.05$).

3.0 Results

The results of this study were discussed below
3.1 Characteristics of study participants

Table 1: Characteristics/Demographics of the Study Sample (N=123)

Variable		Frequency (%)
Age ± SD		23.41±3.82 (Max 35: Min 18)
Gender	Male	63 (51.2)
	Female	60 (48.8)
Study Year	1st year	34 (27.6)
	2nd year	13 (10.6)
	3rd year	22 (17.9)
	4th year	54 (43.9)
Department	Preparatory	41 (33.3)
	Paramedic	18 (14.6)
	Nursing	31 (25.2)
	Radiology	14 (11.4)
	Clinical Laboratory sciences	19 (15.4)

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Marital Status	Single	102 (82.9)
	Married	18 (14.6)
	Divorced	3 (2.4)
Occupation of Father	Gov. Employee	60 (48.8)
	Non.Gov Employee	15 (12.2)
	Not Working	48 (39.0)
Occupation of Mother	Gov. Employee	37 (30.1)
	Non.Gov Employee	8 (6.5)
	House Wife	78 (63.4)
Monthly income in SAR	< 5000 SAR	37 (30.1)
	5000-10000 SAR	45 (36.6)
	>10000 SAR	41 (33.3)
Type of Residence	Living in Hostel	6 (4.9)
	Living with Parents	89 (72.4)
	Others	28 (22.8)
Family History of Mental Illness	Yes	11 (8.9)
	No	112 (91.1)
Family History of Chronic Illness	Yes	32 (26.0)
	No	91 (74.0)

One hundred and twenty three students voluntarily participated in the current study. The mean age of the students was 23.41 years (standard deviation (SD) = 3.82), with a range of 18–35 years. Many of them 66 (53.7 %) belonged to the age category of more than 22 years. There were 51.2 % males and 48.8 % females enrolled in the present study. Department of students varied from preparatory (33.3 %), paramedic (14.6 %), nursing (25.2 %), radiology (11.4 %) and clinical laboratory sciences (15.4 %). Students hailed from different study years with (43.9 %) from year four and above. The majority of the students (82.9 %) were single. The most common occupation of the fathers of the respondents was government employee (48.8 %) followed by not working (39.0 %) and small percentage of non-government employee (12.2 %). Most of the mothers of the respondents were housewives (63.4 %) followed by government employees (30.1 %). Regarding monthly income status, 30.1 % had income less than 5000 SAR, 36.6 % had income between 5000 to 10000 SAR and 33.3 % had income more than 10000 SAR. The majority of the study sample (72.4 %) lived with parents. The details of the participants' demographic characteristics were summarized in Table 1.

3.2 Degrees of student stress and type of stress

Table 2: Mean scores for different statement in the university stress scale (USS) (n=123).

Major stressor description items		Mean/SD	Rank
Academic related stress (ARS)		10.16 $\pm$ 4.48	II
1	Sitting examinations.	1.74	6
2	Studying for examinations.	1.98	1
3	Oral presentations.	1.40	15
4	Essays/assignments.	1.64	10
5	Expectations from self to do well.	1.50	12

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6	Waiting for results/grades.	1.90	4
Time related stress (TRS)		9.36 $\pm$4.45	III
7	Lack of time for family and friends.	1.67	9
8	Lack of free/leisure time.	1.74	7
9	Time pressures/deadlines.	1.83	5
10	Academic workload.	1.51	11
11	Amount to learn.	1.46	13
12	Unclear coursework requirements.	1.15	19
Social-Environment related stress (SERS)		14.25 $\pm$7.67	I
13	Transportation.	1.04	22
14	Using campus facilities.	1.07	21
15	Socializing on campus.	1.12	20
16	Using technology.	1.33	16
17	Working with peers.	1.32	17
18	Expectations from others to do well.	1.30	18
19	Learning new skills.	1.44	14
20	Attending classes.	1.72	8
21	Thinking about the future.	1.97	2
22	Financial expenses.	1.95	3
Overall perceived stress (OPS)		33.77$\pm$ 14.54	

Table 2 showed mean scores of different stressors in the USS as perceived by the students. Considering the subscales of the USS, stress from social- environment related subscale (M=14.25), followed by stress from academic related subscale (M= 10.16) were ranked the highest among all the perceived stress subscale mean scores, while stress from time related subscale (M= 9.36) was ranked the lowest. Individual items of analysis revealed that the most frequent student stressors were item number 2 "studying for examinations" (M=1.98), item number 21 "thinking about the future" (M=1.97), item number 22 "financial expenses" (M=1.95), item number 6 "waiting for results/grades" (M=1.90), and item number 9 "time pressures/deadlines" (M=1.83). The lowest reported scores were item number 15 "socializing on campus" (M=1.12), item number 14 "using campus facilities" (M=1.07), and item number 13 "transportation" (M=1.04).

3.3 Relationship between stress and student demographic characteristics

Table 3: Relationship of student characteristics with their overall perceived stress and subscales of stress (N=123)

Variables (Mean Scores)		(OPS)	(ARS)	(TRS)	(SERS)
Gender	Male	29.27	8.71	8.32	12.71
	Female	38.00	11.68	10.45	15.87
	p value	.001*	.000*	.007*	.022*
Age	<= 22 years	34.84	10.44	9.30	15.11
	>22 years	32.85	9.92	9.41	13.52

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		p value	.451	.528	.891	.253
Study Year	1st year	36.74	10.74	9.88	15.85
	2nd year	29.62	10.15	7.92	11.54
	3rd year	30.91	10.41	7.82	12.68
	4th year	34.24	9.70	10.0	14.54
	p value	.374	.760	.134	.252
Department	Preparatory	33.46	9.90	9.15	14.41
	Paramedic	28.33	7.72	8.56	12.06
	Nursing	32.39	10.26	9.42	12.71
	Radiology	35.00	11.07	8.57	15.36
	Clinical Laboratory	40.95	12.21	11.05	17.68
	p value	.107	.037*	.429	.143
Marital Status	Single	34.54	10.42	9.44	14.68
	Married	34.67	10.28	10.22	14.17
	Divorced	2.33	0.67	1.33	0.33
	p value	.001*	.001*	.005*	.005*
Occupation of Father	Gov. Employee	34.52	10.42	9.58	14.52
	Non.Gov Employee	33.47	11.07	8.73	13.67
	Not Working	32.94	9.56	9.27	14.10
	p value	.853	.439	.794	.917
Occupation of Mother	Gov. Employee	34.41	10.38	9.54	14.49
	Non.Gov Employee	26.75	7.63	8.38	10.75
	House Wife	34.19	10.32	9.37	14.50
	p value	.371	.255	.800	.413
Monthly income in SAR	< 5000 SAR	33.65	10.70	9.30	15.65
	5000-10000 SAR	32.89	9.89	9.44	13.56
	>10000 SAR	33.05	9.98	9.32	13.76
	p value	.646	.682	.987	.416
Type of Residence	Living in Hostel	30.33	8.5	10.33	11.50
	Living with Parents	34.38	10.42	9.48	14.48
	Others	32.57	9.71	8.75	14.11
	p value	.714	.503	.648	.653

* Variables significant at p value < 0.05

The prevalence of predictive significant psychological distress (≥ 13) among Al-Ghad college students was found to be 90.2 % (111/123) with an overall mean perceived stress score 33.77$\pm$ 14.54. The highest mean stress score was observed among female (38.00$\pm$ 12.93), first year students (36.47$\pm$13.69), and clinical laboratory department (40.95$\pm$14.82).The relationship between the overall stress and subscales stress scores with student demographic characteristics were examined by using the t test and one-way ANOVA. Examination of the relationships between the demographic variables collected and overall stress and subscales stress scores of ARS, TRS, and SERS did not result in significant relationships associated with age interval, study year, occupation of father, occupation of mother, monthly income and type of residence. In contrast to this finding, the examination of the relationship between gender, marital status with overall stress and subscales stress scores of ARS, TRS, and SERS was significant (p<.05). The result showed that there was a significant relationship between students' department and ARS (p<.05), while there was no

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significant relationship between students' department with overall stress and subscales stress scores of TRS and SERS. The detailed results were described in table 3.

3.4 Coping strategies used by the respondents

Table 4: Mean scores of coping strategies used by Al-Ghad undergraduate students (n=123).

Coping Strategies		Mean/SD	Rank
1	Positive reinterpretation and growth	10.37	2
2	Mental disengagement	9.06	9
3	Focus on and venting of emotions	8.80	10
4	Use of instrumental social support	9.62	5
5	Active coping	10.11	4
6	Denial	8.72	11
7	Religious coping	11.77	1
8	Humor	8.61	12
9	Behavioral disengagement	7.66	14
10	Restraint	9.41	7
11	Use of emotional social support	8.35	13
12	Substance use	6.62	15
13	Acceptance	9.28	8
14	Suppression of competing activities	9.47	6
15	Planning	10.36	3

Table 4 shows the mean score of various coping strategies used by the respondents to overcome stress were measured by using COPE. It contains 60 items under 15 domains. The most used frequently coping strategies among students was the self-sufficient strategy (M=79.40, SD=20.98), followed by the avoidant coping strategy (M=34.72, SD=9.36). Socially-supported strategy (M=26.76, SD=7.67) was the least used coping strategy. Among the most commonly used coping strategies were religious coping (M=11.77), positive reinterpretation and growth (M=10.37), planning (M=10.36), and active coping (M=10.11). On the other hand, humour (M=8.61), use of emotional social support (M=8.35), behavioural disengagement (M=7.66), and substance use (M=6.62) were the least reported coping strategies among students.

3.5 Coping strategies which were significantly different among subgroups of respondents

Table 5: Relationship between coping strategies and selected student demographic characteristics

Coping Strategies	Group of Respondents	Mean Score	p. Value
Mental disengagement*	Age <= 22 years	8.47	.035
	Age >22 years	9.56	
Positive reinterpretation and growth*	Male	9.49	.003
	Female	11.30	
Active coping*	Male	9.44	.015

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	Female	10.82	
Religious coping*	Male	10.81	.003
	Female	12.78	
Planning*	Male	9.65	.019
	Female	11.10	
Substance use*	Male	7.62	.000
	Female	5.57	
Substance use*	Preparatory Dept	6.37	.018
	Nursing Dept	8.17	
	Paramedic Dept	5.58	
	Radiology Dept	8.36	
	Laboratory Dept	6.11	
Acceptance*	Preparatory Dept	8.76	.029
	Nursing Dept	8.94	
	Paramedic Dept	8.68	
	Radiology Dept	10.21	
	Laboratory Dept	10.05	

* Variables significant at p value < 0.05

Table 5 showed coping strategies which were significantly different among subgroup of respondents p<.05. Mental disengagement was slightly used by students whose age was more than 22 years (M= 9.56). Positive reinterpretation and growth, active coping, religious coping, and planning strategies were higher among female respondents (M=11.30, M=10.82, M=12.78, M=11.10) respectively. Substance use was more commonly used by males and radiology department students (M=7.62, M=8.36) respectively. Acceptance strategy was more widely used by radiology department students (M=10.21).

3.6 Relationship between stress and coping

Table 6: Correlation between coping and stress

Scale/subscales	OPS	ARS	TRS	SERS
Positive reinterpretation and growth	.185*	.191*	.126	.167
Focus on and venting of emotions	.244**	.118	.297**	.221*
Denial	.239**	.183*	.280**	.183*
Religious coping	.192*	.200*	.176*	.144
Restraint	.246*	.191*	.221*	.226*
Suppression of competing activities	.303**	.213*	.282**	.286*
Planning	.192*	.135	.168	.188*
Self sufficient Emotional Focus	.236**	.193*	.211*	.212*
Avoidant Coping	.227*	.176	.233**	.192*
Socially Supported	.167	.036	.174	.194*

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Using a Pearson test to examine the correlation between stress and coping, the result showed a low positive significant relationship between self-sufficient focus coping strategy subscale

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and the total OPS, ARS, TRS, and SERS scores (r=236, p=.009; r=.193, p=.032; r=.211, p=0.19; r=.212, p=.018) respectively. Moreover, there was also a low positive significant relationship between avoidant coping strategy subscale and total OPS, TRS, and SERS scores (r=.227, p.011; r=.233, p=.010; r=.192, p=.033) respectively. In addition, there was a low positive significant relationship between socially supported coping strategy subscale and SERS score (r=.194, p=.031). This provides evidence that the students who used self-sufficient, avoidant coping, and socially supported coping strategies experienced high levels of stress. The results of correlation between total stress, stress subscales, and selected coping behaviours were presented in table 6.

4.0 Discussion

Applied medical science program at Alghad colleges is a stressful program to study. However, applied medical science students are likely to experience more stress than their friends and colleagues enrolled in other programs. This study conducted at Alghad international colleges for applied medical science that showed a high prevalence of stress (90.2 %) among undergraduate consistent with a study done in Kolkatta by Gupta et al showed prevalence of moderate and high stress among the participants to be 55.7% and 35.4% respectively and the overall prevalence of stress was estimated as 91.1%(Gupta, Choudhury, Das, Mondol, & Pradhan, 2015). Various studies done across the world had consistently shown that there is high prevalence of stress in medical students ranging between 40-70 % (Satheesh B.C, Renuka Prithviraj, & P.Siva Prakasam, 2015; Shah, Hasan, Malik, & Sreeramareddy, 2010b; Krutarth Ramanlal Brahmbhatt, Nadeera V P, Prasanna K S, & Jayram S, 2013; Gazzaz et al., 2018).

In this study stress mean was higher in females (38.00) compared to males (29.27) which is consistent with Shubhada Gade et al (2019) study (Shubhada Gade, Suresh Chari, & Madhur Gupta, 2014). This is in agreement also with study conducted in Pakistan where mean Perceived Stress Scale (PSS) for females was 31.94 against males' score of 28.60 (Shah M et al., 2010). Higher stress in females could be because of their sensitive nature and the way of reacting to stressful situations. Different geographical area, college environment and regional socio-cultural factors might have been the reasons for this difference. The finding of this study proved that applied medical science students were more frequent victims of social-environment related stress, and academic related stress as evident from table 2. Students in pursuit of higher professional education in a highly competitive environment such as that found in applied medical science program are more overloaded with their curriculum, personal issues, and family life issues as causes of stress were almost reported by undergraduate students at different academic years with no statistical difference.

In Alghad colleges, that is one-way didactic sessions in large classrooms with a teacher-student ratio of one to thirty or more. This situation not provides opportunity for teacher-student interaction during classes. Moreover, there have been frequent anecdotal reports from students that use of a foreign language (English) as a medium of instruction enhances their academic stress. It is well known that comprehension and learning of a subject is best and most satisfying when conveyed through the native language. Also, they found that the top four stressors for them were studying for examination, thinking about future, financial

expenses and waiting for results/grades. The current findings are similar to those of several studies reported that studying for examination is the most prevalent source of academic stress for medical students (Hegge & Larson, 2008b; Sharifirad, Marjani, Abdolrahman, Mostafa, & Hossein, 2012). The findings of Evan & Kelly supported this result (Evans & Kelly, 2004). In addition Abdulghani (2011) (Abdulghani, AlKanhal, Mahmoud, Ponnamperuma, & Alfaris, 2011b), found that main source of stress in Saudi medical students was their studies, and less than two third of the students experienced stress due to assignment and workload. This is an indicator to educationalist and policy makers to revise the examination process to make it less stressful.

Effective and appropriate coping strategy may minimize the impact of stressful situation on one's well being. Coping strategies refer to specific efforts, both behavioural and psychological, that people employ to master, reduce, tolerate, or minimize stress due to undesired events. 'Active coping' means taking action or exerting efforts to remove or circumvent the stressor, while 'Acceptance' means accepting the stressful event, 'Planning' consists of thinking about how to confront the stressor, 'Positive' reinterpretation means making best of the situation by growing from it and 'Denial' is an attempt to reject the reality of stressful event and 'Behavioural disengagement' means giving up or withdrawing efforts to attain goal. Regarding coping strategies used by Alghad college students, the present study proved that the most frequently coping strategy, religious coping was most used by the applied health science students followed by positive reinterpretation and growth, while the least of coping strategies were substance abuse and behavioural disengagement. This result is an agreement with previous studies (Shubhada Gade et al., 2014; Shankar, Cox, Leon, Kumaresan, & Dakubo, 2019b) that showed medical students generally adopt active coping strategies rather than avoidant strategies like alcohol and drug abuse. This is indicated to the turning to religion and social support of the adapted helpful coping strategies to promote positive learning outcomes for students and to meet their academic goals,and this may return to the attitude and values of the Saudi cultures of the study subjects. This result supported by Hegg (2008) (Hegge & Larson, 2008a) who observed that, those with low stress reported higher levels of helpfulness of turning to religion than those with high stress. Results of coping strategies congruent with other studies (Shubhada Gade et al., 2014; Shankar, Cox, Leon, Kumaresan, & Dakubo, 2019a; Sreeramareddy et al., 2007b) concluded that the coping strategies commonly used by students in their institution were positive reframing, planning, acceptance, active coping, use of instrumental social support.

5.0 Conclusion and recommendation

This study confirms the findings of previous studies that the prevalence of stress is high among health sciences students. The present study provided information about sources of stress and coping strategies, it can be concluded that applied medical science students at Al-Ghad colleges do experience multiple types of bio-psychosocial stressors which affect their health and academic performance and use some helpful coping strategies.

Based on the findings of this study**,** it can be recommended that:

1- It would be worthwhile to consider the student's level of stress prior to entrance into Alghad colleges.
2- Before embarking on applied medical curriculum, students should be prepared themselves by self-awareness programs to orient them with their actual or potential capabilities and limitations which will improve coping in their reactions to stressors.
3- Regular workshops and seminars should be conducted for the faculty members and clinical instructors to provide enough training on how to develop and improve their own and students' coping strategies skills.
4- Longitudinal studies are needed to examine changes in perceiving stressors and coping strategies of undergraduate students prior to entrance into Alghad colleges and then every year until they obtain their bachelor degree.

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