

## Research Article

# Sources of Stress and Coping Strategies among Undergraduate Medical Students Enrolled in a Problem-Based Learning Curriculum

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**Background.** Medical education is rated as one of the most difficult trainings to endure. Throughout their undergraduate years, medical students face numerous stressors. Coping with these stressors requires access to a variety of resources, varying from personal strengths to social support. We aimed to explore the perceived stress, stressors, and coping strategies employed by medical students studying in a problem-based learning curriculum. **Methodology.** This is a cross-sectional study of randomly selected medical students that explored demographics, perceived stress scale, sources of stress, and coping strategies. **Results.** Of the 378 medical students that participated in the study, males were 59.3% and females 40.7%. Nearly 53% of the students often felt stressed, and a third felt that they could not cope with stress. Over 82% found studying stressful and 64.3% were not sleeping well. Half of the students reported low self-esteem. Perceived stress scores were statistically significantly high for specific stressors of studying in general, worrying about future, interpersonal conflict, and having low self-esteem. Coping strategies that were statistically significantly applied more often were blaming oneself and being self-critical, seeking advice and help from others, and finding comfort in religion. Female students were more stressed than males but they employ more coping strategies as well. **Conclusions.** Stress is very common among medical students. Most of the stressors are from coursework and interpersonal relationships. Low self-esteem coupled with self-blame and self-criticism is quite common.

## 1. Introduction

Stress is increasingly becoming a part of our daily lives. Historically, the Latin word “stress” has been in common language since the seventeenth century and was used to address hardship, adversity, or affliction. However, stress is best described as a situation where environmental demands exceed the capacity for effective response by the individual and can potentially have physical and psychological consequences [1, 2]. Coping with stress, on the other hand, is

important for human survival and can be defined as the process of managing external or internal demands that are perceived as taxing on personal capacities and resources [1]. Globally, the incidences of stress and stress-related illnesses such as anxiety and depression among students, trainees, and qualified physicians have increased and received significant attention in literature [3–7].

Academic stress, among college students in particular, has been a topic of interest for many years [8]. Indeed, there is evidence that medical students face unique academic

challenges that render them more vulnerable to stress and anxiety than students of other disciplines [9–11]. College students, especially freshmen, are particularly prone to stress due to the transitional nature of college life, where college life compels students to acquire entirely new social skills and also to take responsibility for their own personal needs [8, 12].

In addition to academic requirements, relations with faculty members and time pressures are yet further sources of stress [13]. On top of all, more strain comes from social adjustment, particularly adjusting to university life while separating one's self from family and friends [14]. In addition, tests, grades, competition, time demands, professional class environment, and concern about future careers were found to be major source of academic stress [15]. Academic pressures combined with emotional factors prevail during the first year, while reasons related to patient care and physical factors are more important in subsequent years. Additionally, there are long working hours, lack of peer support, lack of recreational activities, financial strains, life and death situations, and patient cultural and minority issues, which are all reasons for stress associated with medical education and training [16].

Another important point to consider is that stress is a matter of personal perception. Researchers have found that personality traits of medical students include being highly motivated and action oriented achievers, which helps them get high scores; yet same students cannot tolerate feelings of helplessness and dependency and therefore are more prone to stress or less capable of handling it [17, 18]. Reports have shown association of high level of stress among medical students with different types of academic stressors [19–27]. Studies related to stress in medical education in Arab countries have also confirmed that stress, depression, and anxiety are common among medical students [6, 28]. It has also been reported that student's perception of high stress levels may lead to poor academic performance, depression, attrition, and serious health problems [13]. A different study on stress management suggested that monitoring student-stress and the methods utilized to deal with it could have valuable implications for higher education administrators [29]. With all the evidence presented above on how the medical student life is burdened with stress, failure to resolve student stress in the long-term could have serious professional and personal consequences [30].

Coping has been viewed as a stabilizing factor that may assist an individual in psychosocial adaptation during stressful events [31]. Coping methods often used by students, to reduce level of stress include, effective time management, social support, positive reappraisal, and engagement in leisurely pursuits. There is also emotion-based coping that involves accepting responsibility and self-blame, and this type of coping is more useful in the first year of the medical school, while in later years the trend shifted towards confronting, cognitive, and planned problem solving [32–35]. It has also been found that students with engagement strategy of coping are able to modify situations, resulting in a more adaptive outcome, and also have reported fewer symptoms of depression [20, 33].

Studies on stress and coping strategies among medical students in Saudi Arabia are few and far in between. The aim

of this study is to identify common sources of stress among medical students and to determine the coping strategies employed by the students. We also explored the associations between sociodemographic, stress sources, and perceived stress.

## 2. Materials and Methods

**2.1. Study Design and Settings.** This cross-sectional survey study was conducted in the College of Medicine, King Saud Bin Abdul Aziz University for Health Science (KSAU-HS), Riyadh. All undergraduate medical students during the academic year 2012-2013 were included in the study. The college adopts problem-based learning medical education curriculum split into three phases (premedical, medical, and clinical), each of two years duration.

**2.2. Ethical Considerations.** The study was approved by the Institutional Review Board (IRB) of King Abdullah International Medical Research Centre. Written informed consent forms were distributed to the students. Only those agreed to participate in the study were enrolled. Students were assured that participation would not affect their academic progress. Incomplete questionnaires were not included in the study.

**2.3. Data Collection Instrument.** A self-administered questionnaire consisting of 34 items was manually distributed to the students. The data collection instrument included 6 sociodemographic variables: age, gender, enrollment year, marital status, smoking, and family income. Three additional sections were added on perceived stress, common stressors, and coping strategies.

The Perceived Stress Scale (PSS-10) of ten items, measuring occurrence by “never,” “almost never,” “sometimes,” “fairly often,” and “very often,” rated on a scale from 0 to 4, respectively, assessed the stress perception. Scores were reversed for questions 4, 5, 7, and 8. A total score ranging from 0 to 40, with higher score meaning higher perceived stress by the medical student [33, 36].

The sources of stress section consisted of 17 questions [37], with response choices of “strongly disagree,” “disagree,” “agree,” and “strongly agree,” scored from 1–4, respectively.

Coping strategies were assessed using the Brief COPE scale, which is an abbreviated version of the COPE Inventory [38]. It consists of 28 items and the answer choices were on how frequently each of these coping mechanisms were applied by the student, that is, “never,” “sometimes,” “often,” and “mostly,” scored from 1 to 4, respectively.

To estimate sample size we assumed that nearly half (with 5% margin of error) of the students would feel stressed, and this yielded a sample size of 384, based on 95% confidence interval. Using the rule of 10 participants per item a sample size of 340 was considered optimum, which was rounded up to 350 for possible data losses.

**2.4. Statistical Analysis.** Descriptive statistics were used to summarize data, including frequencies, percentages, means,

TABLE 1: Forms of stress as perceived by students.

	Perceived stress	Never N (%)	Almost never N (%)	Sometimes N (%)	Fairly often N (%)	Very often N (%)
1	Upset on unexpected	18 (4.8)	58 (15.4)	194 (51.5)	68 (18)	39 (10.3)
2	Unable to control	33 (8.8)	84 (22.3)	124 (33)	94 (25)	41 (10.9)
3	Felt stressed	7 (1.9)	40 (10.6)	131 (34.7)	106 (28)	94 (24.9)
4	Felt confident	4 (1.1)	29 (7.7)	141 (37.4)	120 (31.8)	83 (22)
5	Going your way	6 (1.6)	70 (18.6)	186 (49.3)	97 (25.7)	18 (4.8)
6	Could not cope	18 (4.8)	90 (24.1)	146 (39)	91 (24.3)	29 (7.8)
7	Able to control	7 (1.9)	50 (13.3)	171 (45.4)	117 (31)	32 (8.5)
8	On top of things	19 (5.1)	69 (18.4)	166 (44.4)	106 (28.3)	14 (3.7)
9	Angered	15 (4)	82 (21.7)	138 (36.5)	99 (26.2)	44 (11.6)
10	Difficulties piling	36 (9.6)	90 (24.1)	141 (37.7)	72 (19.3)	35 (9.4)

TABLE 2: Specific stressors of students.

No.	Stressors	Strongly not agree N (%)	Not agree N (%)	Agree N (%)	Strongly agree N (%)
1	Study in general	21 (5.6)	45 (12.1)	169 (45.4)	137 (36.8)
2	Financial difficulties	115 (30.7)	114 (30.5)	106 (28.3)	39 (10.4)
3	Family problems	81 (21.7)	91 (24.3)	123 (32.9)	79 (21.1)
4	Sleeping disorders	47 (12.7)	85 (23)	143 (38.8)	94 (25.5)
5	Future worrying	22 (5.9)	59 (15.9)	158 (42.6)	132 (35.6)
6	Away from family	147 (40.2)	85 (23.2)	89 (24.3)	45 (12.3)
7	Trouble with parents	127 (34.1)	74 (19.9)	78 (21)	93 (25)
8	Trouble with teachers	113 (30.3)	113 (30.3)	111 (29.8)	36 (9.7)
9	Trouble with friends	114 (30.6)	87 (23.4)	130 (34.9)	41 (11)
10	Interpersonal conflict	64 (17.8)	90 (25.1)	134 (37.3)	71 (19.8)
11	No parental support	125 (33.6)	100 (26.9)	90 (24.2)	57 (15.3)
12	Hearing bad news	37 (10)	79 (21.3)	185 (49.9)	70 (18.9)
13	Appetite change	100 (27.1)	140 (37.9)	100 (27.1)	29 (7.9)
14	Low self-esteem	78 (21.3)	99 (27)	129 (35.1)	61 (16.6)
15	Roommate conflict	158 (44.5)	110 (31)	69 (19.4)	18 (5.1)
16	Transport trouble	83 (22.4)	79 (21.4)	125 (33.8)	83 (22.4)
17	Searching life partner	126 (34.2)	109 (29.6)	89 (24.2)	44 (12)

and standard deviations for each item of the questionnaire. Total mean (sd) scores for perceived stress, sources of stress, and coping strategies were computed. An independent sample *t*-test and ANOVA was used to compare continuous data. Stressors' responses were further grouped into two categorical responses: "agreeing" or "disagreeing" that a stressor was of concern to the student. Similarly coping strategies were further grouped into two categorical responses of "rarely" or "frequently" used coping method. The association between specific stressors and coping strategies were explored using chi-squared test. Odds ratios (OR) with 95% (CI) of using a particular strategy under a particular stressful situation were estimated. Relationships were explored between scores using simple linear regression. Principle Component Analysis was carried out to explore the common themes of 17 stressors and fewer dimensions of 28 coping strategies. *p* values < 0.05 were considered statistically significant. Data were analyzed using

the Statistical Package for the Social Sciences (SPSS), version 20.

### 3. Results

**3.1. Demographics.** From a total of 400 medical students who received the questionnaire, 378 completed the survey, yielding an overall response rate of 94.5%. Male students were 224 (59.3%) in the study sample. Majority of students were single (97.3%). Over 40% of the respondents were from the premedical year, 26% from preclinical year, and 33% from the clinical years, while 81 did not document their batch year.

Tables 1, 2, and 3 show forms of stress as perceived by students, stressors, and coping strategies, respectively. Over half of the students (53%) often felt stressed, yet 53.8% often felt confident as well. A third (32.1%) often felt that they could not cope with stress, 35.9% were unable to control, and 37.8%

TABLE 3: Coping strategies used by students.

No.	Coping strategy	Never N (%)	Sometimes N (%)	Often N (%)	Mostly N (%)
1	Concentrating efforts	15 (4.3)	137 (38.9)	105 (29.8)	95 (27)
2	Think up strategy	12 (3.3)	85 (23.1)	141 (38.3)	130 (35.3)
3	See things differently	38 (10.5)	106 (29.2)	121 (33.3)	98 (27)
4	Accepting reality	21 (5.8)	112 (31.1)	128 (35.6)	99 (27.5)
5	Making jokes	110 (30.6)	134 (37.3)	68 (18.9)	47 (13.1)
6	Comfort in religion	21 (5.8)	95 (26.5)	113 (31.5)	130 (36.2)
7	Support from others	66 (18.3)	142 (39.3)	104 (28.8)	49 (13.6)
8	Advice from others	62 (16.9)	147 (40.2)	91 (24.9)	66 (18)
9	Distracting by work	65 (17.9)	152 (41.9)	82 (22.6)	64 (17.6)
10	Calling it unreal	250 (68.5)	82 (22.5)	20 (5.5)	13 (3.6)
11	Saying things	96 (26.4)	171 (47)	68 (18.7)	29 (8)
12	Using alcohol/drugs	335 (91.8)	16 (4.4)	6 (1.6)	8 (2.2)
13	Giving up	159 (43.8)	140 (38.6)	50 (13.8)	14 (3.9)
14	Self-criticizing	78 (21.5)	150 (41.4)	70 (19.3)	64 (17.7)
15	Learning to live with it	22 (6)	163 (44.8)	122 (33.5)	57 (15.7)
16	Taking action	15 (4.1)	106 (29.2)	148 (40.8)	94 (25.9)
17	Thinking hard	17 (4.7)	95 (26.2)	138 (38.1)	112 (30.9)
18	Looking for good in it	20 (5.5)	132 (36.4)	131 (36.1)	80 (22)
19	Making fun of it	118 (32.3)	150 (41.1)	59 (16.2)	38 (10.4)
20	Praying/meditating	21 (5.8)	123 (34.1)	100 (27.7)	117 (32.4)
21	Comfort from others	67 (18.6)	159 (44)	92 (25.5)	43 (11.9)
22	Help from others	65 (18)	163 (45)	95 (26.2)	39 (10.8)
23	Distracting activity	40 (10.9)	122 (33.3)	108 (29.5)	96 (26.2)
24	Denying it happened	217 (59.3)	115 (31.4)	27 (7.4)	7 (1.9)
25	Expressing negative	75 (20.8)	208 (57.6)	54 (15)	24 (6.6)
26	Using chemicals	331 (91.2)	22 (6.1)	3 (0.8)	7 (1.9)
27	Giving up to cope	165 (45.3)	149 (40.9)	40 (11)	10 (2.7)
28	Blaming oneself	79 (21.6)	147 (40.2)	74 (20.2)	66 (18)

felt angered. The mean (sd) of total perceived stress score was 32.2 (4.1), range between 10 and 45. Female students had slightly higher perceived stress score compared to male students ( $p = 0.018$ ).

Over 82% found studying stressful, nearly two thirds (64.3%) were not sleeping well, over three quarters (78.2%) worried about the future, and more than half (57.1%) were stressed by interpersonal conflicts, reported low self-esteem as stressing (51.7%), or had challenges with transport (56.2%). Total stressors were 17, with mean (sd) stressor score 41.4 (9.6) and range between 17 and 68. Female students had higher specific stressor score compared to male students ( $p < 0.001$ ).

Total coping strategies applied by medical students were 28, with mean coping score of 64.6 (9.1) and range between 29 and 102. Female students had higher coping strategies mean score compared to male students with mean score of  $t$ -test = 3.46,  $p = 0.001$ .

When stressors were grouped into “agree” and “disagree” only, perceived stress mean scores were found to be significantly different for stressors “study in general” (mean difference = 2.46,  $t$ -test = 4.40,  $p < 0.001$ ), “worrying about future” (mean difference = 1.77,  $t$ -test = 3.36,  $p = 0.001$ ),

“interpersonal conflict” (mean difference = 1.07,  $t$ -test = 2.3,  $p = 0.017$ ), and “low self-esteem” (mean difference = 1.22,  $t$ -test = 2.77,  $p = 0.006$ ).

When stressors were grouped into “agree” and “disagree” only, coping strategies mean scores were found to be significantly different for stressors “trouble with friends” (mean difference = 2.6,  $t$ -test = 2.4,  $p = 0.015$ ) and “interpersonal conflict” (mean difference = 2.2,  $t$ -test = 2.01,  $p = 0.046$ ).

Regressing to coping strategies the score on total stressor score did not yield any significant relationship. Perceived stress score showed a marginal positive association with total stressor score, with  $R = 0.11$  ( $F = 3.7$ ,  $p = 0.052$ ). Coping strategies score showed a mildly positive association with the perceived stress score, with  $R = 0.27$  ( $F = 21.8$ ,  $p < 0.001$ ), suggesting that the higher the perceived stress is, the more the coping strategies were applied (see Figure 1).

No statistically significant difference was found between stressors and coping strategies mean scores of premedical, preclinical, and clinical years. However, the perceived stress mean score increased as the students progressed from 31.1 to 33.8 ( $F = 7.2$ ,  $p < 0.001$ ) through the medical school years, with premedical mean score being significantly less

TABLE 4: Coping strategies (28 Items): rotated orthogonal matrix factor loading.

No.	Coping strategy	1	2	3	4	5	6	7	8	9
	Eigenvalue	2.71	2.49	2.31	1.96	1.88	1.87	1.87	1.86	1.56
	% of variance	9.69	8.91	8.25	6.99	6.70	6.67	6.68	6.63	5.56
7	Support from others	.709								
8	Advice from others	.774								
21	Comfort from others	.783								
22	Help from others	.861								
1	Concentrating efforts		.726							
2	Think up strategy		.729							
16	Taking action		.714							
17	Thinking hard		.647							
14	Self-criticizing			.775						
25	Expressing negative			.580						
27	Giving up to cope			.524						
28	Blaming self			.709						
13	Giving up			.520	.435					
10	Calling it unreal				.821					
24	Denying it happened				.831					
3	See things differently					.470				
4	Accepting reality					.649				
15	Learning to live with					.781				
18	Looking for good in					.461				
12	Using alcohol/drugs						.906			
26	Using chemicals						.906			
5	Making jokes							.905		
19	Making fun of it							.906		
6	Comfort in religion								.864	
20	Praying/Meditating								.828	
9	Distracting by work									.867
23	Distracting activity									.768

KMO sampling adequacy 0.715, Bartlett Chi-Sq. = 2541.7, and  $p$  value < 0.001. The coping strategies could be grouped into nine themes: being self-critical, denial, distracting oneself, humorizing it, solace in religion, use of chemicals, acceptance, making personal effort, and seeking support from others.

TABLE 5: Specific coping strategies likely (or unlikely) to be applied by students for stressors.

No.	Stressors	No	Coping strategies used	Chi square	p value	Odds ratio	95% CI
1	Study in general	1	Concentrating efforts	8.6	0.003	0.4	0.2–0.7
2	Financial difficulty	5	Making jokes	9.9	0.002	2.1	1.4–3.3
3	Family problems	9	Distracting by work	8.6	0.003	1.9	1.2–3.0
4	Sleeping disorders	10	Calling it unreal	4.7	0.029	2.9	1.1–7.7
5	Future worrying	13	Giving up	3.9	0.048	2.2	1.0–4.8
6	Away from family	9	Distracting by work	3.6	0.056	1.5	1.0–2.4
7	Trouble with parents	17	Thinking hard	4.3	0.038	0.6	0.4–0.9
8	Trouble with teachers	6	Comfort in religion	8.4	0.004	2.0	1.2–3.3
9	Trouble with friends	6	Comfort in religion	6.9	0.009	1.8	1.2–2.9
10	Interpersonal conflict	3	See things differently	7.3	0.007	1.8	1.2–2.9
11	No parental support	1	Concentrating efforts	4.2	0.041	1.6	1.1–2.5
12	Hearing bad news	7	Support from others	6.8	0.009	1.9	1.2–3.1
13	Appetite change	11	Saying things	6.4	0.011	1.9	1.1–3.0
14	Low self-esteem	8	Advice from others	6.2	0.012	1.7	1.1–2.7
15	Roommate conflict	1	Concentrating efforts	7.2	0.007	2.1	1.2–3.6
16	Transport trouble	8	Advice from others	5.0	0.025	0.6	0.4–0.9
17	Searching life partner	13	Giving up	3.9	0.049	1.8	1.0–3.1

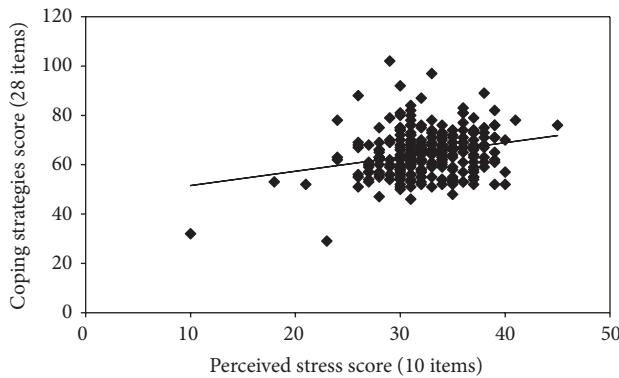


FIGURE 1: Regression of coping strategies score on perceived stress score.

than the scores of all other years on Bonferroni posthoc test. Age of participants was not significantly associated with scores of perceived stress, stressors, or coping strategies. No significant difference of age was noted between genders.

On grouping the 17 stressors using the principle component analysis (Table 4), it was found that the stressors could be grouped into four areas of stress: social issues, personal challenges, somatic impact, and studying in general, with eigenvalues of 4.9, 1.8, 1.4, and 1.3 and with percent of variance of 29.1%, 10.9%, 8.2%, and 7.6%, respectively. Social issues included the stressors: financial difficulties, family problems, being away from family, trouble with parents, no parental support, trouble with teachers, trouble with friends, roommate conflict, and interpersonal conflicts.

Personal challenges included the stressors: hearing bad news, low self-esteem, and searching for a life partner; “somatic impact” grouped sleeping disorder and appetite change. Studying in general remained a major stress factor. KMO sampling adequacy was 0.899, of Bartlett Chi-Sq. = 1628.2, and of  $p < 0.001$ . Students were noted to use different coping strategies for different stressors (Table 5).

#### 4. Discussion

According to a WHO report, medical students are more susceptible to stress as they encounter the highly competitive medical education environment. Different levels of stress including burnout have been reported among medical students and health care professionals in different countries [16, 25–28]. Studies have reported high level of stress particularly in students of medicine [5, 19, 39, 40], dentistry [41], pharmacy [42], and physiotherapy [43] programs. The majority of students face high level of stress in the medical college [24, 25, 28]. In two earlier studies the overall prevalence of stress in medical students was found to be 41.9% [37] and 29.6% [35], respectively, and in Saudi Arabia the figure reported is 57% [22].

It is notable that different studies used different tools to measure stress and this may account for the wide range of prevalence obtained. In current study, medical students that “felt stressed” (PS-Q3), “fairly often” and “very often,” were nearly 53% of the participants.

An earlier study from Malaysia identified five significant predictor items for stress, namely, gender, family income, marital status, study program, and smoking [37]. We found that female students scored higher on all three scales, suggesting that they perceived more stress than their male counterpart, and they have more stressors in their lives. Accordingly female students used more coping strategies to overcome the stress. This finding is similar to a previous study from Pakistan [26]. We speculated that the deeply conservative nature of Saudi society could be the reason for the high score of stress among Saudi females, as women are not usually involved in a wide range of social activities, compared to males. However, data were insufficient in other variables such as family income, smoking, and marital status to allow further analysis, but only age was found not to be a significant factor.

Our study has also found the perceived stress score of students in the medical years to be higher than that of students in the premedical years. This is not unexpected and is similar to the finding of an earlier study where the level of stress was reported to increase gradually from premedical through medical years [38]. This may attribute to the fact that premedical students have fewer study courses compared to those in medical years where students can hardly find time within a congested schedule to deal with the resulting stress. Other studies have reported that students found the medical course more stressful during the first year of study, but less so in subsequent years [22, 40].

The main stressors in the current study for medical students were related predominantly to medical training and social and personal problems. A combination of academic, physiological, and health related stressors was also reported among students in Nepal [27]. The significant stressors perceived by our students were “study in general,” “worrying about the future,” “interpersonal conflicts,” and “low self-esteem.” The finding of “study in general” as a significant stressor was similar to previous finding in which academic/exams were common sources of stress and unsatisfaction among medical students [27, 43, 44]. Worrying about future was identified as important stressor among medical students in Malaysia [37] and health-profession students in the Emirates [41]. In earlier studies “low self-esteem” has been claimed to result from the high stress affecting student’s academic achievement [18, 19, 21].

The widely employed original COPE questionnaire containing 14 domains of coping strategies [37] in our study were found to have 9 underlying domains of 28 item coping strategies (Table 4). Some strategies were used more often than others for a variety of stressors, while some coping mechanisms seemed less likely to be used when experiencing specific stresses. Also, multiple coping methods were used for a specific stressor. Blaming self-coping strategy was commonly employed in six different stressors. Seeking support from others was used in four different stressful situations, finding comfort in religion was also used for three stressors, while “concentrating effort,” “distracting by work,” “giving up,” “being self-critical,” “getting advice from others,” “distraction in another activity,” and “giving up to cope” were utilized more than once for specific stressors.

Earlier studies in Malaysia [37], United Arab Emirates [41], and Jordan [42] reported similar findings. Alcohol or drugs were hardly mentioned as a coping method in our study, as alcohol is prohibited in Saudi Arabia for religious reasons, and this is in line with the findings in study on stress of Malaysian medical students [37]. In contrast, medical students in the United Kingdom used alcohol, tobacco, and drugs as common coping strategies [40, 43].

## 5. Limitations

This survey was a cross-sectional and subject to recall bias. Moreover, the study was limited to one university campus in Saudi Arabia; hence, the results may not be generalizable to other institutions. Also, perceived stress and its causes were self-reported by students and that may have resulted in some reporting bias. Although confidentiality was assured, students may have exaggerated or underreported stress or coping strategies because of fear of being singled out. Lastly, the relationship between different levels of stress and outcomes such as academic performance was not explored.

## 6. Conclusions

The findings of this study led us to conclude that female students perceived stress more, faced more stressors, and applied more coping strategies than male students. Stress is very common among our medical students as stress was prevalent among over half of the participating students, and a third found it difficult to cope with it. The effect of stress on medical students well-being was far reaching, as nearly two thirds were not sleeping well, and half were stressed by interpersonal conflicts. Half were reporting low self-esteem as a reason. Self-blame and self-criticism were often the reactions to stressful situations. Distraction by work or other activity featured in specific stress conditions. As religious faith runs deeply in the Saudi society, refuge in religion was frequently sought; as a coping measure, some looked for advice and help from others, while use of alcohol or other drugs was rare. When the stresses perceived by the student were high as in studying in general, worrying about future, interpersonal conflict, and having a low self-esteem, the applied coping strategies were also high as a result. Interpersonal conflict triggered coping strategies significantly. Premedical students perceived less stress than medical students. Stressors could be grouped into four domains of social issues, personal challenges, somatic impact, and studying in general. Coping strategies could be grouped into nine themes: being self-critical, denial, distracting oneself, humoring it, solace in religion, use of chemicals, acceptance, making personal effort, and seeking support from others. Stressors that required at least four different coping mechanisms were worrying about future, trouble with friends, room-mate conflict, hearing bad news, and low self-esteem. Coping strategies that were significantly applied more often were blaming self or being self-critical, seeking advice and help from others, finding comfort in religion, concentrating effort, distracting by work or activity, and giving up.

## 7. Recommendations

More attention should be paid to improve the methods of teaching and the quality of study environment within our college campus. Some form of student support should be available in the form of mentoring and guidance to help in coping with stress and to educate the students about unhealthy consequences of stress. Moreover students should construct an effective time management program for studying and pleasure activities during their study years, in addition to adopting a healthy life-style in the context of physical, psychological, and spiritual well-being. Establishing a wellness clinic within campus might help reduce some types of stress and its consequences.

## Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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