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# Causes of Stress and Management Approaches Among Undergraduate Pharmacy Students: Findings From a Malaysian Public University

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## Abstract

**Background:** Stress is one of the psychological problems that affect one's mental and physical condition. In today's era, students seem to be in stress continuously, which affects their academic performance as well as participation in non-academic activities. The aims of the current research are to explore the different causes of stress among pharmacy students and identify the different ways of management of stress. **Materials and Methods:** This is a cross-sectional study design, in which all the undergraduate pharmacy students of International Islamic University Malaysia, registered in semester 1, 2013/2014 were recruited. A total of 300 students from 1<sup>st</sup> professional to 4<sup>th</sup> professional participated in the study. The survey instrument was designed based on previously published research and subjected to face validity and content validity. Cronbach alpha computed and found to be 0.68. Data analyzed using International Business Machine Statistical Package for the Social Sciences Statistic version 21 (IBM SPSS Inc., Chicago, IL, USA), and descriptive and inferential statistics applied. **Results:** In the current research, majority of students ( $n = 258$ ; 89%) reported quizzes as the leading cause of stress. We observed a significant correlation between age range ( $P = 0.009$ ) and year of study ( $P = 0.006$ ) to quizzes. On the contrary, inadequate support from teachers stated as the minimal cause of stress ( $n = 22$ ; 7.3%). Most of the respondents agreed (210 students; 70%) that sleeping is the best way to relief stress. **Conclusion:** Keeping in view the competitive environment among students, the management of stress cannot be sidelined. Counseling programs can be instituted in each semester, which is expected to inculcate stress management approaches in daily life activities of students.

**Keywords:** Coping mechanism, malaysia, pharmacy students, stress

## INTRODUCTION

Over the years, stress has attracted attention in undergraduate healthcare training worldwide.<sup>[1,2]</sup> Undergraduate healthcare students, especially medicine, pharmacy, and nursing students are subjected to more levels of stress than their non-healthcare counterparts during undergraduate training.<sup>[3-5]</sup> Stress does arise as a result of an individual perceived inability to handle a situation which he or she considers insurmountable.<sup>[6]</sup> As in the case of other undergraduate healthcare students, the huge demand, and expectations of academic work followed by acclimatizing oneself to a new environment, social life and culture away from home, coupled with the management of time and financial resources are stressful issues.<sup>[7-9]</sup> Academic issues are the most common stressors among healthcare

students, and this can range from wanting to have high grades in class tests and exams, inability to manage time, numerous class assignments and tests followed by getting a low grade than expected.<sup>[9,10]</sup> Also, being female and early years in college have been identified as predictors of stress among healthcare students.<sup>[11]</sup> The exposure to these stressors or the perception that they exist do have untoward physical and mental health implications for students, and subsequently exert

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an adverse impact on school performance.<sup>[12-14]</sup> Studies conducted in Malaysia have indicated that exam preparation, competition among students, financial difficulties, not knowing what the future holds, living away from home, self-blame, and absence of emotional support are some common stress triggers among Malaysian pharmacy and medical students.<sup>[7,15]</sup>

Previously published research highlighted that efficient management approaches to stress are to simply reduce stress and promote positive well-being<sup>[16]</sup> through engagement or disengagement strategies. Engagement approaches may include taking concrete actions, or steps aimed at counteracting the cause of the stress. Whereas discernment (avoidant) coping strategies involve a denial that the stressor exists and involve oneself in adverse social activities such as smoking, substance abuse, and withdrawal from the society all geared toward avoiding the triggers of the stress. The former is considered to be an effective management approach, while the latter is ineffective and leads to adverse physical and mental health problems.<sup>[17]</sup> Studies conducted among medical students in Malaysia and Saudi Arabia indicated that they employed active coping strategies such as acceptance, planning reframing religious activities and, thus, interact with friends and family to manage their stress during their training.<sup>[15,18]</sup>

A review of the literature revealed that most studies on stress are among medical, nursing, and dental students with only few conducted among pharmacy students.<sup>[15,19-22]</sup> In Malaysia, most studies on stress among pharmacy students have looked at the prevalence and sources of stress and perceived stress and their relationship to their quality of life and academic performance. For example, a study conducted at the Universiti Malaya indicated that pharmacy students stress levels were not significantly higher than the general public; although their perceived stress was very much higher.<sup>[9]</sup> In another study conducted among the graduate pharmacy and non-pharmacy students, a negative correlation was found to exist between perceived stress and quality of life among pharmacy students.<sup>[23]</sup> Furthermore, results of a comparative study between public and private universities showed that exams, financial issues, pressure among peers to excel, and not knowing what the future holds were the common stressors found among pharmacy students in both types of universities.<sup>[7]</sup> In all these above-mentioned studies, the coping strategies employed by pharmacy students were not properly investigated and thus, remain an area that needs an extensive research in Malaysia. Therefore, this study examined the causes of stress and management approaches among undergraduate pharmacy students in a public university of Malaysia.

## MATERIALS AND METHODS

### Study design and survey instrument

A cross-sectional study was conducted among all the registered undergraduate pharmacy students of International Islamic University Malaysia (IIUM) Kuantan Campus. All the undergraduate students registered at the School of Pharmacy, IIUM during the 1<sup>st</sup> semester of 2013/2014 academic year were

contacted to participate in the study. The study was conducted as a classroom survey to strengthen the response rate and to minimize the non-response. Participation in the study was entirely voluntary. Agreeing to respond to the questionnaire was considered as consent. Students were also assured that their responses would be kept strictly confidential and be used strictly for research purposes with no effect on their academic progress. A permission to conduct the study was obtained from the Dean, Kulliyah of Pharmacy, IIUM. A self-administered questionnaire was administered which constitutes three main domains, that is, respondent demographics, causes of stress, and managing approaches toward stress. Previously published studies informed the questionnaire design.<sup>[2,4,18-20]</sup> A total of thirty-one questions were used to assess the causes of stress using a “Yes” or “No” option, whereas management approaches were evaluated using 20 items (See Table 1 for the list of questions). Each question in this section utilized a five-point Likert scale with point descriptors ranging from “strongly disagree” to “agree” and “strongly agree.” The face validity and content validity of the study instrument were performed by sending the instrument to five pharmacy academics, who published extensively in the area of psychosociology. A pilot study was conducted with 30 participants to ascertain reliability coefficient, which was found to be 0.68. The pilot sample was chosen based on 10% of the project sample size and was excluded from the parent sample.

### Statistical analysis

All data obtained from the survey were analyzed using International Business Machine Statistical Package for the Social Sciences Statistic version 21 (IBM SPSS Inc., Chicago, IL, USA). Descriptive statistics was used to describe respondent’s sociodemographic profile. Chi-square and wherever applicable, Fisher’s exact tests were employed to assess an association between the two outcome variables (causes of stress and coping strategies) and respondent demographic characteristics. Statistical significance value was set at  $P$  value  $<0.05$ .

## RESULTS

### Demographic profile of respondents

A total of 300 IIUM pharmacy students (all the 4 years) participated with a response rate of 66.2%. Table 2 shows that the age distribution of students is almost equal for both age ranges, that is, 19–21 years old ( $n = 163$ ; 54.3%) and for 22–24 years old ( $n = 137$ ; 45.7%). There were more females (67.3%) than males (32.7%). A total of 189 students (63%) lived on campus while the rest lived off campus (37%). Nearly half of them experienced stress regularly ( $n = 140$ ; 46.7%).

### Causes of stress

Most of the students ( $n = 258$ ; 86%) indicated that their main stressor is quizzes. A significant association between age range ( $P = 0.009$ ) and year of study ( $P = 0.006$ ) to quizzes

**Table 1: Labels of management approaches**

Q1	Most days, I have at least a few thoughts that I feel I cannot control my stress.
Q2	I frequently tell friends and family members how exactly stressed I am.
Q3	When I become overwhelmed with responsibilities, I tend to stop doing things for myself, for example, I stop exercising, preparing healthy meals, or spending time with friends.
Q4	I feel sleep is the best way to relief my stress.
Q5	I self-motivate myself every morning to avoid stress.
Q6	I always write down everything that is tangling in my head on a paper.
Q7	I frequently eat unhealthy foods such as fast food when I am feeling stressed out.
Q8	Overeating can relieve my stress.
Q9	When I feel burden, I have a tendency to release my angers on others by acting irritably, annoying, or impatient.
Q10	I do not believe that any special action is needed to manage my stress.
Q11	My colleagues are very supportive whenever I feel sad.
Q12	I usually prepare myself by studying at early time to prevent examination stress.
Q13	I simply stay at the corner of my room and cry alone if I cannot control my stress.
Q14	When I get stressed, I always think positively and being confident in whatever I do.
Q15	I believed that smoking can calm my mind.
Q16	I always practice to breathe deeply to relieve my stress.
Q17	I paste a lot of motivational quotes on my bedroom walls.
Q18	I tend to manage my stress by mindfulness-based stress reduction methods such as walking and meditation.
Q19	I would rather to take medication pills (i.e., anti-depressant, sleeping pill) to manage my stress.
Q20	Usrah helps me to go through stressful coursework and tight timetable.

**Table 2: Demographic profile of pharmacy students**

Characteristics		Frequency (N)	Percentage (%)
Age range	19–21	163	54.3
	22–24	137	45.7
Gender	Male	98	32.7
	Female	202	67.3
Marital status	Single	292	97.3
	Married	8	2.7
Race	Malay	295	98.3
	Indian	1	0.3
	Others	4	1.3
Year of study	Year 1	90	30.0
	Year 2	82	27.3
	Year 3	85	28.3
	Year 4	43	14.3
Residential status	On campus	189	63.0
	Off campus	111	37.0
Transportation	Bicycle	5	1.7
	Motorcycle	72	24.0
	Car	111	37.0
	No vehicle	112	37.3
Frequency of stress per week	Never	7	2.3
	Seldom	128	42.7
	Regularly	140	46.7
	All the time	25	8.3

fall in the age range of 19–21. The second highest cause of stress among pharmacy students ( $n=237$ ; 79%) was schedule or class timetable. There was also a strong association between gender ( $P=0.025$ ) and year of study ( $P=0.008$ ) toward schedule or class timetable with stress found to be more common among females. In contrast, the least cause of stress was inadequate support from teacher ( $n=22$ ; 7.3%). A detailed result of the causes of stress is shown in Table 3.

### Management approaches to stress among pharmacy students

Concerning management approaches to stress, majority ( $n=210$ ; 70%) of the students strongly cited that “sleeping” is the best way to relieve stress; although there was no significant association between independent variables and the outcome variable. On the contrary, majority disagreed ( $n=266$ ; 88.7%) that smoking can calm their mind. In terms of coping strategies, a significant association ( $P=0.000$ ) between age group and pasting a lot of motivational quotes on the bedroom wall was noted. Such coping strategies were common among females than males [Table 4].

### DISCUSSION

Although some Malaysian studies investigated the issue of stress among pharmacy students, this study is unique in the sense that it does not only focused on the causes of stress but also probed different management approaches to relieve stress. The college environment is often known to be a stressful environment for students because they should keep pace with the enormous demands of academic

was noted. This relationship tends to show an inclination among those studying in the first year and second year and

**Table 3: Causes of stress among pharmacy students**

Questions	Label (causes of stress)	Yes [N (%)]	No [N (%)]	Gender (P value)	Age range (P value)	Year of study (P value)
Q1	Schedule time	237 (79%)	63 (21%)	0.025	0.283	0.008
Q2	Core subject	207 (69%)	93 (31%)	0.043	0.256	0.145
Q3	Elective subject	105 (35%)	195 (65%)	0.171	0.220	0.002
Q4	Relationship lecturer	38 (12.7%)	262 (87.3%)	0.005	0.822	0.006
Q5	Relationship friends	89 (29.7%)	211 (70.3%)	0.772	0.550	0.047
Q6	Relationship with roommates	59 (19.7%)	241 (80.3%)	0.822	0.549	0.212
Q7	Special relationship	45 (15%)	255 (85%)	0.030	0.426	0.056
Q8	Responsibility with club	67 (22.3%)	233 (77.7%)	0.071	0.002	0.001
Q9	Peer pressure	76 (25.3%)	224 (74.7%)	0.021	0.380	0.304
Q10	Going back home	57 (19%)	243 (81%)	0.078	0.137	0.337
Q11	Return from holiday	56 (18.7%)	244 (81.3%)	0.175	0.288	0.048
Q12	Family problem	39 (13%)	261 (87%)	0.924	0.780	0.120
Q13	Extracurricular	32 (10.7%)	268 (89.3%)	0.157	0.370	0.209
Q14	Cost of living	107 (35.7%)	193 (64.3%)	0.070	0.350	0.021
Q15	Meeting deadline	140 (46.7%)	160 (53.3%)	0.097	0.019	0.019
Q16	Classroom environment	72 (24%)	228 (76%)	0.670	0.001	0.000
Q17	Inadequate support	22 (7.3%)	278 (92.7%)	0.701	0.642	0.077
Q18	Lower grade	198 (66%)	102 (34%)	0.024	0.279	0.018
Q19	Start new semester	49 (16.3%)	251 (83.7%)	0.045	0.147	0.114
Q20	Internet access	174 (58%)	126 (42%)	0.834	0.003	0.020
Q21	Kulliyah facilities	80 (26.7%)	220 (73.3%)	0.752	0.518	0.001
Q22	Hostel facility	120 (40%)	180 (60%)	0.291	0.142	0.251
Q23	Transportation	118 (39.3%)	182 (60.7%)	0.001	0.000	0.000
Q24	Study workload	218 (72.7%)	82 (27.3%)	0.002	0.014	0.005
Q25	Financial standing	90 (30%)	210 (71%)	0.132	0.781	0.204
Q26	Cafeteria	92 (30.7%)	208 (69.3%)	0.000	0.613	0.007
Q27	Traffic jam	39 (13%)	261 (87%)	0.119	0.033	0.054
Q28	Sleep disturbances	75 (25%)	225 (75%)	0.477	0.841	0.777
Q29	Physical appearance	59 (19.7%)	241 (80.3%)	0.481	0.077	0.091
Q30	Results and CGPA	167 (55.7%)	133 (44.3%)	0.720	0.219	0.389
Q31	Quiz	258 (86%)	42 (14%)	0.129	0.009	0.006
Q32	Final exam	211 (70.3%)	89 (29.7%)	0.000	0.018	0.000
Q33	Having exam	206 (68.7%)	94 (31.3%)	0.053	0.817	0.365
Q34	Dialect	46 (15.3%)	254 (84.7%)	0.002	0.519	0.129
Q35	Final week	142 (47.3%)	158 (52.7%)	0.021	0.972	0.006
Q36	Campus rule	43 (14.3%)	257 (85.7%)	0.299	0.001	0.000
Q37	Talking in front of class	75 (25%)	225 (75%)	0.201	0.160	0.414
Q38	Time demand	103 (34.3%)	197 (65.7%)	0.012	0.015	0.001
Q39	None of the above	2 (0.7%)	298 (99.3%)	0.042	0.122	0.165

CGPA, cumulative grade points average.

work usually away from home together with the issue of time and financial management. For a healthcare student such as student pharmacist, this is an everyday reality due to the nature and content of their training. From the current research, it was ascertained that nearly half of the pharmacy students regularly experience stress during their undergraduate training, which is not necessarily surprising since previous studies have posited that health care students are usually more stressful than their non-healthcare counterparts.

The causes of stress among pharmacy student have been investigated extensively over the years, and is known to range from academic, social to financial. In this study, the frequent

cause of stress among student was quizzes followed by scheduling of time and study workload, and these seem to be all academic related. Our result is in line with most studies, which have highlighted academic work to be the primary cause of stress among pharmacy students,<sup>[9]</sup> medical students<sup>[24]</sup> in Malaysia and pharmacy students in Pakistan.<sup>[24]</sup> However, it is in contrast with studies, in which the key stressors were reported to be non-academic in nature. Such was the case among medical students in Malaysia,<sup>[15]</sup> Nepal<sup>[25]</sup> and third-year Pharm.D students in the USA.<sup>[8]</sup> Family and relationship issues, worries of the future coupled with financial problems, and living away from home were the common causes of stress. Because academic life is filled with stressful events, it is inevitable that health



**Table 4: Management approaches to stress among pharmacy students**

Question	Strongly disagree [N (%)]	Disagree [N (%)]	Neutral [N (%)]	Agree [N (%)]	Strongly agree [N (%)]	Gender (P value)	Age range (P value)	Year of study (P value)
Most days, I have at least a few thoughts that I feel I cannot control my stress.	20 (6.7)	73 (24.3)	84 (28.0)	87 (29.0)	36 (12.0)	0.053	0.384	0.001
I frequently tell friends and family members how exactly stressed I am.	31 (10.3)	74 (24.7)	78 (26.0)	87 (29.0)	30 (10.0)	0.001	0.851	0.081
When I become overwhelmed with responsibilities, I tend to stop doing things for myself, for example, I stop exercising, preparing healthy meals, or spending time with friends.	20 (6.7)	54 (18.0)	48 (16.0)	123 (41.0)	55 (18.3)	0.217	0.439	0.056
I feel sleep is the best way to relief my stress.	9 (3.0)	27 (9.0)	54 (18.0)	104 (34.7)	106 (35.3)	0.330	0.460	0.185
I self-motivate myself every morning to avoid stress.	14 (4.7)	28 (9.3)	109 (36.3)	87 (29.0)	62 (20.7)	0.997	0.513	0.064
I always write down everything that is tangling in my head on a paper.	70 (23.3)	89 (29.7)	64 (21.3)	44 (14.7)	33 (11.0)	0.018	0.000	0.002
I frequently eat unhealthy foods such as fast food when I am feeling stressed out.	41 (13.7)	73 (24.3)	76 (25.3)	68 (22.7)	42 (14.0)	0.359	0.018	0.155
Overeating can relieve my stress.	47 (15.7)	71 (23.7)	76 (25.3)	67 (22.30)	39 (13.0)	0.553	0.017	0.134
When I feel burden, I have a tendency to release my angers on others by acting irritably, annoying, or impatient.	38 (12.7)	76 (25.3)	73 (24.3)	81 (27.0)	32 (10.7)	0.001	0.872	0.594
I do not believe that any special action is needed to manage my stress.	74 (24.7)	108 (36.0)	61 (20.3)	34 (11.3)	23 (7.7)	0.005	0.134	0.027
My colleagues are very supportive whenever I feel sad.	11 (3.7)	39 (13.0)	65 (21.7)	123 (41.0)	62 (20.7)	0.004	0.364	0.773
I usually prepare myself by studying at early time to prevent examination stress.	15 (5.0)	64 (21.3)	102 (34.0)	82 (27.3)	37 (12.3)	0.248	0.045	0.231
I simply stay at the corner of my room and cry alone if I cannot control my stress.	89 (29.7)	50 (16.7)	42 (14.0)	76 (25.3)	43 (14.3)	0.000	0.704	0.099
When I get stressed, I always think positively and being confident in whatever I do.	8 (2.7)	24 (8.0)	82 (27.3)	118 (39.3)	68 (22.7)	0.116	0.031	0.031
I believed that smoking can calm my mind.	249 (83.0)	17 (5.7)	6 (2.0)	9 (3.0)	19 (6.3)	0.012	0.103	0.164
I always practice to breathe deeply to relieve my stress.	14 (4.7)	41 (13.7)	84 (28.0)	114 (38.0)	47 (15.7)	0.117	0.195	0.229
I paste a lot of motivational quotes on my bedroom walls.	60 (20.0)	83 (27.7)	82 (27.3)	55 (18.3)	20 (6.7)	0.000	0.001	0.075
I tend to manage my stress by mindfulness-based stress reduction methods such as walking and meditation.	17 (5.7)	43 (14.3)	100 (33.3)	108 (36.0)	32 (10.7)	0.533	0.172	0.164
I would rather to take medication pills (i.e., anti-depressant, sleeping pill) to manage my stress.	211 (70.3)	48 (16.0)	18 (6.0)	7 (2.3)	16 (5.3)	0.001	0.220	0.074
Usrah helps me to go through stressful coursework and tight timetable.	22 (7.3)	18 (6.0)	108 (36.0)	98 (32.7)	54 (18.0)	0.380	0.575	0.787

care students, including pharmacy students, will obviously experience stress during their training. However, what is important is how they cope with such challenging situations in a bid to maximize their full academic

potential including their psychosocial well-being. Coping mechanisms usually adopted by students in the healthcare domain can either be active or passive or a mixture of both.<sup>[16]</sup> In our study, majority advocated sleeping as the best remedial measure for stress. Also, self-motivation and social support from friends followed by deep breathing measures were the next leading stress management approaches adopted by students. These above-mentioned measures are active coping approaches toward stress and are in concordance with the ones practised among medical students in Malaysia,<sup>[15]</sup> Nepal,<sup>[25]</sup> and Saudi Arabia<sup>[18]</sup> as well as among nursing students in Iran.<sup>[26]</sup> Another striking feature in this current research was the disagreement among pharmacy students toward smoking as a coping strategy for stress. This finding resonates with results of similar studies among medical<sup>[15]</sup> and management studies students<sup>[27]</sup> in Malaysia and that of Pakistan.<sup>[28]</sup> In contrast, it is different from the findings in the UK and Lebanon, where healthcare undergraduates used tobacco, alcohol, and other substances as a coping mechanism.<sup>[29-31]</sup> The rejection of smoking as a coping strategy for stress might be due to their religious and cultural beliefs that forbid the act of smoking.

Knowing the stressors that affect student academic performance and general well-being is fundamental to designing the stress prevention and management interventions within the university that aim to remove or minimize these stressors. Simultaneously, it is better to provide tools and the environment to better cope with the ones that are inherently a part of the academic environment. The establishment of student personal tutor, counseling centers, changes in assessment criteria, different student learning styles inviting more student centered learning approaches are expected to be good contributors in alleviating their perceived stress. For example, an elective stress reduction course offered to medical student at an institution in the USA proved to be effective in reducing their anxiety, which they had prior to taking the course.<sup>[32]</sup> Also, the use of mind-body stress reduction technique has proven to be an effective stress management approach.<sup>[33]</sup>

A key limitation of this study is that only pharmacy students of one public university were included, and, therefore, the results cannot be generalized for all Malaysian pharmacy students. Also, their perceived reported stressors might be subjective to the individual and may not reflect the actual stress, he or she is experiencing. In addition, the effects of these stressors on student academic performance was not considered in this study, and these areas need further investigation.

## CONCLUSION

Pharmacy students at the IIUM mainly suffered from academic related stressors with quizzes being the most common. To address these stressors, most students employed active stress management strategies with sleeping being the most common. Stress prevention and management programs are needed to effectively respond to

student needs, all geared to maximize their academic performance as well as their psychosocial well-being. Further studies should look at the link between stress and academic performance as well as the quality of life among these students.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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