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Assessing Academic Stress Level Among Undergraduate Pharmacy Students in Malaysia during COVID-19 Pandemic

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Abstract: Novel coronavirus disease-2019 (COVID-19) causes worldwide disruption affecting most of the university students. A sudden shift to e-learning worsens the academic stress faced by pharmacy students. The impact this change on pharmacy students stress level is not well studied. This study aims to examine the severity of academic stress among pharmacy students and the factors associated with it. A descriptive cross-sectional study was conducted among undergraduate pharmacy students in a tertiary university. An online validated self-administered questionnaire which has two sections: demographic data and academic stress level was distributed to the students' personal emails. All the data collected were analyzed using SPSS version 26.0. Out of 102 pharmacy students participated in this study, 63.8% of the pharmacy students experienced moderate stress level followed by 23.5% of severe stress and 12.7% of mild stress. Students in year 1, as well as smoking, were two independent significant factors causing academic stress among students (p-value < 0.05). This study highlights the high level of academic stress among pharmacy students especially first year students. Therefore, school management need to develop an effective counseling module to help students alleviate academic stress.

Keywords: academic; COVID-19; pharmacy; stress

1. Introduction

Stress can have both physical and psychological effects on individuals ranging from headaches, gastrointestinal discomfort, poor memory and difficulty with concentration[1]. University students have a higher tendency to be the victims of mental stress in general, especially when the demands are mainly due to assessment deadlines and pressure to achieve

desired academic performance[2]. A study was conducted among 320 undergraduate students in the University of Botswana which shows that academic stress could arise from many aspects, including overloaded assignments (48.4%), poor motivation and academic performance (14.0%), fear of academic failure (9.3%) and uncertainty of landing a job after graduating (3.1%)[3].

Surprisingly, fear of academic failure can help to motivate students but at the same time can generate unhealthy stress when in excess[4]. The severity of stress among the students differs across their sociodemographic characteristics and educational background in which the researchers revealed the fact that students from science background have a higher stress level than the students from Arts background[5]. From previous study, there are multiple reasons of stress such as personal factors such as failure to catch up with assignments, lack of motivation to study, financial constraint, poor time management[6] besides institutional and parental factors[7]. As a result, these students may become disorganized and distracted from their tasks and hence unable to cope which leads to failure to achieve academic goals[8].

With the global development of the coronavirus (Covid-19) outbreak, it has brought about tremendous impacts to the world. This ongoing Covid-19 pandemic, the students experienced increased stress and anxiety mainly due to health concerns, unable to concentrate on academics, sleeping disruptions and decreased social connection[9]. As a precautionary measure to ensure the health and well-being of the students, tertiary education institutions all around the world have shifted to online learning in accordance with the enforcement of social distancing. These drastic changes alongside other measures may or may not have further exacerbated academic stressors which could possibly impact the mental health status of university students due to heightened distress[10]. Most of the students are highly concerned with their assessment and grades, as well as uncertainty of the final exams and whether the lecturers are skillful with the utilisation of online platforms[11].

Though online learning has become a necessity, it is highly associated with several issues such as downloading errors, login issues and unclear audio and video. Some students find e-learning uninteresting and unengaging due to lack of self-discipline which leads to poor understanding of the module content and hence poor academic results[12]. Studies on assessing the academic stress level especially among undergraduate pharmacy students in Malaysia is poorly available. This study was designated to examine the severity of academic stress among undergraduate pharmacy students and investigate the factors associated in influencing the students stress level.

2. Methods

2.1 Study Population

A cross-sectional study facilitated by convenient sampling technique was conducted among undergraduate pharmacy students in Taylor's university, Malaysia. The study population includes all full-time undergraduate pharmacy students who registered under School of Pharmacy (SOP). This study excluded students who are not willing to participate and with a history of psychiatric disorder.

2.2. Study Instrument

A self-administered questionnaire was used to collect data. The questionnaire composed of 2 sections: the first section explored the sociodemographic information of the pharmacy students such as gender, ethnicity, year of study, smoking status, alcohol status, parent's educational background and household monthly gross income. While the second section collects the examines the academic-related factors using the student stress academic factors. There was a total of 10 items which were derived from the student stress inventory (SSI). Each item was rated formally based on a four-point Likert scale (1= never, 2 = somewhat frequent, 3 = frequent and 4 = always) to ensure its relevance in assessing students' sources of academic stress. The score was added up with a cumulative score of 40. Each student was categorized into mild (10-18), moderate (19-29) and severe stress (30-40). The validity has been tested by a panel of experts with Cronbach's $\alpha = 0.842$. Hence, the reliability of the data was assured[13].

2.3. Data Collection

Data collection started right after permission was granted by the Pharmacy Head of School. Participant information sheet and informed consent were sent to the students to ensure that they were fully aware of the research protocol and their participation was entirely voluntary. The survey questionnaire were distributed to all students email using Google forms. The students were given time to complete the survey. Received completed questionnaire were analyzed as per study objectives.

2.4 Ethical Consideration

All procedures performed in studies was reviewed and approved by the University Human Ethics Committee with reference number: HEC 2021/062.

2.5. Data Analysis

All data retrieved from Google drive were imported to SPSS software, version 25.0 (IBM SPSS Inc., Chicago, IL) for analysis with statistical significance set at $p < 0.05$. The sociodemographic characteristics of the respondents and student academic stress factors were analysed using descriptive statistics. As the data were normally distributed, general liner model test was used to determine if there are statistically significant factors influencing the students' academic stress.

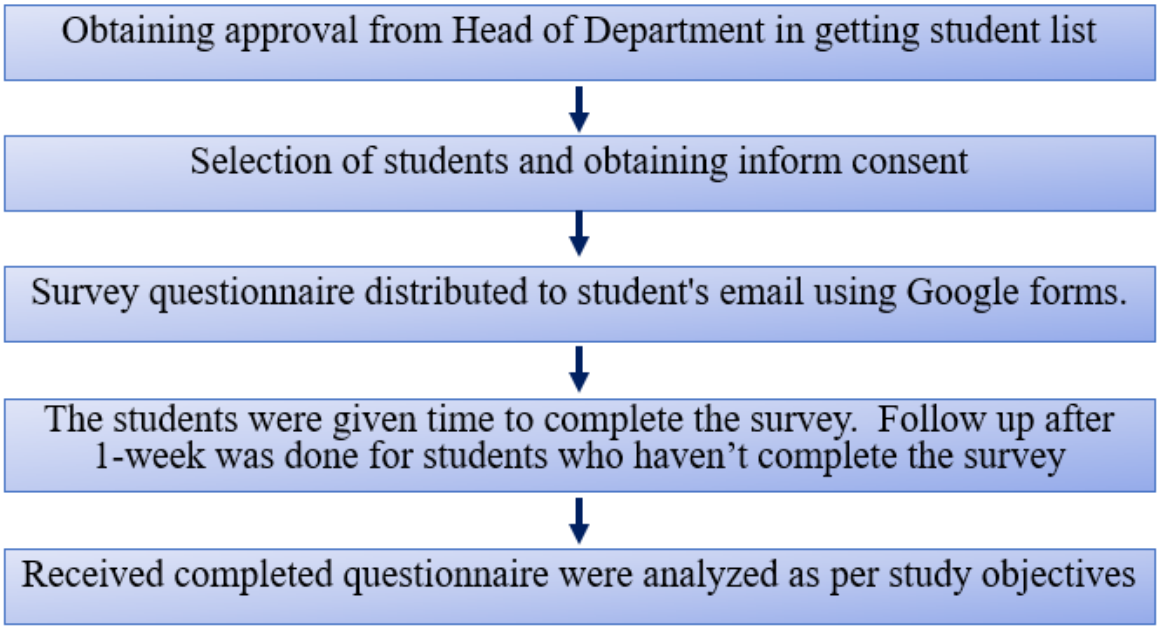

Figure 1. Snapshot of research workflow

3. Results

3.1 Demographic Data

Overall, 102 pharmacy students participated in this study. Majority of the students were female (n = 78, 76.5%) and from Chinese ethnicity (n = 88, 86.3%).

In terms of social history, out of 102 pharmacy students, 97 (94.2%) were non-smokers whereas 99 respondents (97.1%) were reported as non-alcohol drinkers. On top of that, the parent's educational background of each student was collected with a considerable proportion of them having an undergraduate degree, diploma or equivalent (n = 52, 51.0%). This was consistent with the household monthly gross income (RM) as the majority of them reported to have >RM 5000 (n = 55, 53.9%). As pharmacy course has a total study duration of 4 years, the first-year students were the most (n = 37, 37.3%) among the 102 pharmacy students. Detailed results of the socio-demographic characteristics are shown in Table 1.

Table 1. Frequency and percentage of respondents' demographic data (*N* = 102)

Characteristics	Category	School of Pharmacy (SOP)	
		Frequency (*n* = 102)	**%**
Gender	Male	24	23.5
	Female	78	76.5
Ethnicity	Malay	3	2.9
	Indian	8	7.8
	Chinese	88	86.3
	Others	3	2.9
Year of study	Year 1	38	37.3
	Year 2	23	22.5
	Year 3	17	16.7
	Year 4	24	23.5
Smoking status	Yes	5	4.9
	No	97	94.2
Alcoholic status	Yes	3	2.9
	No	99	97.1
Parent's educational background	Below Secondary Level	9	8.8
	Secondary Level	33	32.4
	Undergraduate (Diploma, Degree or equivalent)	52	51.0
	Postgraduate (Master,PhD)	8	7.8
Household Monthly Gross Income (RM)	<RM1000	2	2.0
	RM1000 – <RM3000	17	16.7
	RM3000 – <RM5000	28	27.5
	>RM5000	55	53.9

Majority of the students face a moderate level (64%) followed by severe stress (23%) and mild stress (13%). The higher the mean score of the academic factor, the greater the stress exerted on the students. As shown in Table 2, summary of the response in academic stress, Item No.8 had the highest mean score (2.8333 ± 0.9129). The second leading academic stress factors were Item No.3, Item No.6, Item No.7 and Item No.10. This indicates, all participating students in this study experienced stress to some extent which might contribute to the poor academic performance being impacted by the pandemic.

Table 2. Mean and standard deviation of academic stress scores among respondents

No.	Student Stress Academic Factors	School of Pharmacy	
		Mean	**Std. Deviation**
1	I have a financial problem due to the expenses of the university (exp: tuition fees)	1.9902	0.8731
2	I find difficult to juggle time between study and social activity during Covid-19 pandemic	2.4412	0.8274
3	I feel extreme fatigue due to long online lecture hours	2.5882	0.8939
4	I feel nervous when delivering class presentation via Zoom/Microsoft Teams/Google Meets	2.3333	0.8482
5	I have lost interest in studying during Covid-19 pandemic	2.1961	0.8792
6	I feel stressed to sit for online examination during Covid-19 pandemic	2.6275	0.9639
7	I feel stressed due to high academic workloads during Covid-19 pandemic	2.7353	0.8892
8	I feel stressed when dealing with difficult subjects via online learning during Covid-19 pandemic	2.8333	0.9129
9	I feel difficult to handle my academic issues during Covid-19 pandemic	2.5	0.8872
10	I feel stressed when submission deadline is approaching	2.7255	0.9663

General linear model test was used to find the sociodemographic factors that might affect the academic stress level among the students. The year of study and smoking have shown to be statistically significant with p value of 0.001 and 0.032 respectively. The mean (SD) of academic stress among the year 1 students was shown to be the highest 32.44(2.4) followed by other year of study. Besides that, students who are smoking showed highest level of stress 31.93±3.0 compared to non-smokers 26.8±2.2. Logistic regression was done to identify the association between academic stress level and smoking behavior. The odds of student who smoke among those who experienced moderate stress is 31.5(95% CI 7.708, 128.730, $P < 0.05$) times higher compared to those who experienced mild stress which was the reference point from the statistic result. The association of sociodemographic factors of the students with stress score were shown in Table 3.

Table 3. Association between respondent's sociodemographic characteristics and stress academic score

Socio- demographic factors	Category	School of Pharmacy (SOP)	
		Mean ± SD	***p*-value**
Gender	Male	28.38±2.5	0.151
	Female	30.35±2.4	
Ethnicity	Malay	28.87±3.7	0.870
	Indian	30.74±2.6	
	Chinese	28.79±2.3	
	Others	29.08±3.8	
Year of study	Year 1	32.44 ±2.4	0.001*
	Year 2	28.93±2.6	
	Year 3	29.99±2.6	
	Year 4	26.10±2.4	
Smoking status	Yes	31.93±3.0	0.032*
	No	26.8±2.2	
Alcoholic status	Yes	29.9±3.6	0.762
	No	28.8±1.8	
Parent's educational background	Below Secondary Level	28.4±2.9	0.877
	Secondary Level	29.8±2.5	
	Undergraduate (Diploma, Degree or equivalent)	30.1±2.4	
	Postgraduate (Master,PhD)	29.1±2.9	
Household Monthly Gross Income (RM)	<RM1000	28.50±4.3	0.546
	RM1000 – <RM3000	31.1±2.6	
	RM3000 – <RM5000	29.2±2.5	
	>RM5000	28.7±2.4	

General linear model, SE = standard error, **p*-value < 0.05, statistically significant

4. Discussions

Academic stressors often top the list as compared to other non-academic related stressors[2,13]. This is expected among pharmacy students as they are subjected to increasing academic workload alongside with drastic change in education delivery structure due to Covid-19 pandemic. In the present study, the top leading factors contributed to overall student academic stress were dealing with difficult subjects through online learning in addition to multiple assignments and submission deadlines. A study found that the majority

of the Malaysian students were unprepared with the sudden leap to e-learning which has adversely affected their self-confidence and motivation, causing the worsening of stress level[14]. Besides the transition to online classes, next biggest perceived challenge was the quality of the classes which was conducted online make the difficulty in learning and understanding[9]. A qualitative study highlighted that many students felt performance pressure as they do not have sufficient recreational time of their own due to hectic academic schedule[15].

Based on the result, student stress level differed significantly across year of study whereby year 1 students experience the highest stress level. This is similar to another study done in Ghana, which indicated that first-year undergraduate students perceived higher level of academic stress as they need to cope up with few challenges such as insufficient time to adapt with pharmacy curriculum framework, exploring university life and not given the social support in order to cope[16]. Besides that, first year is one of the challenging years for students given the transition to a new school environment especially during this pandemic era where all classes are conducted online and the increased independence students experience[17,18]. Over the years of study, the students would be able to familiarise themselves and figure out the best coping strategies which render them less susceptible to stress.

Moreover, students who are smoking tends to experience more stress than non-smoking group. Study found that, students who smoke have higher level of perceived stress and smoking becomes an act of motivation to alleviate distress[19,20]. However, this is a wrong assumption by the students as nicotine effects could disrupt the brain neurological activity which may further reduce their learning capability[21].

This study provides an effective channel of intervention for school of pharmacy to revolutionize the curriculum framework to reduce student academic stress. For instance, the academicians are advised to make e-learning more interactive with proper planning especially for difficult subjects, to be consistent with new assessment methods and grading and to provide appropriate workload with sufficient time for completion after taking into consideration the abrupt shift to online learning. On the other hand, the students also need to have proper time management and effective ways to reduce their stress such as listening to music, leisure activities and having small group discussions. One of the limitations in this study is time constraint as the research was conducted solely on the students from Taylor's Faculty Health and Medical Science with small population size and hence the study result may not be generalized. Future study needs to determine the academic stress level after the pandemic.

5. Conclusion

As supporting evidence, it was detected that during COVID-19 pandemic most of the undergraduate pharmacy students experienced moderate stress. Student stress was affected significantly by year of study and smoking behavior. Thus, it is necessary for the tertiary universities to initiate some strategies to ameliorate the effect of stress on the quality of life among health sciences students.

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Conflict of Interest: The authors declare no conflict of interest.

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