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Empowering Minds: A Study of Mental Health Among Pharmacy Students

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Abstract: Pharmacy students are the next generation of frontline healthcare providers. However, the course itself is very challenging and requires students' ultimate commitment to keep track with learning in the ever-changing healthcare field. Therefore, it is vital to evaluate their current mental well-being and its associated factors for better planning student's support initiatives. This study aimed to assess psychologically distress and its associated factors among pharmacy students. A cross-sectional study was conducted among undergraduate pharmacy students in a tertiary university. Students were required to answer a self-administered questionnaire consisting of demographic questions and General Health Questionnaire-12(GHQ-12). Mean, standard deviation, Pearson chi-square test were used to find the association difference between various parameters using SPSS 26 software. A total of 243 out of 302 pharmacy students took part in the study. The overall response rate was 80.5%. The prevalence of psychologically distress students was 41.6%, based on the cut-off points 4 of GHQ-12. The factors that were found to be associated with mental health status are gender, pharmacy as first choice of study and satisfaction towards their relationship with family. A higher prevalence of psychologically distress students was found among female students, students who do not have pharmacy as first choice of study and students who do not have satisfying relationship with family. Year 3 has the highest prevalence of psychologically distress students compared to other year of study. Social and psychological support to improve mental health of pharmacy students is needed due to high prevalence of psychologically distress students found in this study in order to improve mental health of pharmacy students. Intervention that can be done include stress management, group counselling mentor-mentee program to cope with mental problem.

Keywords: mental stress; pharmacy; students; GHQ-12

1. Introduction

Mental health concerns continue to be a significant issue worldwide, and healthcare professionals are not immune to its effects. According to World Health Organization, mental wellbeing refers broadly to the individual capacity to maintain a state of feeling good and functioning well that is more than the outcome of treating or preventing mental illness[1]. Pharmacy students face unique academic pressures that can take a toll on their mental well-being. Rigorous academic curriculum requiring extensive memorization and knowledge of complex pharmaceutical concepts contributes to the stress level[2].

Moreover, multiple tasks, such as coursework, lab assignments and clinical rotations can lead to time management challenges and increased stress[3]. These factors, combined with the overall stigma around mental health issues, can make it challenging for pharmacy students to seek help and support when they need it. Studies show that mental health problems are prevalent among pharmacy students. In a recent study conducted among 304 pharmacy students, 30% of the students self-reported having clinically significant anxiety symptoms and 22% of the students self-reported having clinically significant depressive symptoms[4].

Additionally, the COVID-19 pandemic has also contributed a significant effect to an increase in stress and anxiety among students worldwide. This was due to uncertain university education delivery, technological concerns regarding online courses, social isolation, and decreased family income, many experience elevated stress, anxiety, and depressive symptoms[5,6].

It is crucial to identify mental health problems early among pharmacy students to prevent them from escalating and negatively impacting academic performance and overall well-being. Research has highlighted the negative impact on poor mental health among university students during this challenging time, demonstrated as facing academic difficulties and increased levels of mental distress[7]. This negative impact could be further amplified to suicidal attempt if coupled with living and socioeconomic challenges[8].

Assessing mental wellbeing among pharmacy students holds significant importance as they are a future pool of health care professionals. Studies have been performed on the similar issue in different settings and on other health professions such as among medical students in North America[9], in Iran[10] and among nursing staff in China[11]. However, according to our best knowledge there is lack of studies in assessing mental health among pharmacy students in Malaysia private university, Therefore, this current study aimed to measure the prevalence of mental health status and its associations among this population.

2. Methodology

2.1 Study Design

The study was conducted as a cross-sectional study at Taylor's university in Malaysia from August to December 2022.

2.2. Study Population

The study population consisted of all full-time undergraduate students registered for the pharmacy course in the university.

2.3 Sample Size

Total population sampling method was applied in this current study. All pharmacy students from year 1 till year 4 of academic year were approached for their participation the study.

2.4 Inclusion and Exclusion Criteria

The inclusion of the participants was based on being a first to fourth year pharmacy student and given the consent to participate in the study. Those who were not willing to complete were excluded.

2.5 Data Collection Method

The timing for data collection was prioritized among pharmacy students because their stress level fluctuates during the academic year. A potential source of bias might be excessive stress close to or during the exam period, so data were collected in mid-semester in order to reduce this type of bias. Aim of the study and confidentiality issues were explained to the students. Followed by getting a verbal consent from the participants. A self-administered questionnaire was given to the students who volunteered to take part.

2.6 Measurement Tool

The questionnaire consists of 2 parts; the first part includes questions of the demographic information and the second part consisted of 12 questions of General Health Questionnaire (GHQ-12**)**. GHQ is a screening tool used to assess the overall psychological well-being of students which is defined as a state of being in which a student is balanced both emotionally and intellectually. GHQ was developed by Goldberg and has been widely used in various cultures as a screening tool to determine whether an individual is at risk of developing a psychiatric disorder[12]. It is extensively used by researchers and found to be reliable and well validated. Each item is scored by four responses, typically being 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. There are two

recommended methods for scoring the GHQ. The first scoring method ranges from 0 to 3 respectively: with the least symptomatic answer scores 0 and the most symptomatic answer scores 3. The second scoring method, also known as binary method, ranges from 0 to 1: with the two least symptomatic answers score 0 and the two most symptomatic answers score 1. As mentioned by Goldberg & Williams (1998), the GHQ scoring method (0-0-1-1) should be chosen over the simple Likert scale of 0-1-2-3, as this particular method is believed to help eliminate any biases which might result from the respondents who tend to choose responses 1 and 4 or 2 and 3, respectively. Hence, in this study binary method was chosen to avoid bias. The scores were summed up by adding all the items on the scale ranging from 0 to 12[13]. For this study GHQ-12 was used as it is simple, easy to understand, short and straightforward to complete.

As for cut-off point, recommendation a threshold of 3/4 (or 75%) should be used when the population-mean is greater than 2.7[12]. This study obtained the mean value of 3.53. Hence, this study used cut-point of 4. Hence the students who obtained cut-off point lower than 4 is considered of having no psychological distress or good mental health while students who obtained score of 4 and above are considered having psychological distress or poor mental health.

2.7 Data Analysis

Data was recorded and analyzed using the statistical package of social sciences SPSS for Windows, Version 26.0. All calculations were performed at 95% confidence intervals, and alpha error of 0.05. The results were tabulated, grouped, and statistically analyzed using the following tests: mean and standard deviation (SD) for parametric numerical (quantitative) data, frequency and percentage for non-numerical (qualitative) data, and Pearson Chi square was used to study the association between demographic factor and mental health status. A p value of < 0.05 was considered statistically significant.

2.8 Ethical Approval

The study has been approved by the Research Ethics Review Committee at Taylor's university with approval number HEC 2022/143. The questionnaire has been examined and ethically approved which ensures that the questionnaire did not have any conflict with the interests of the participants.

3. Results

A total of 243 out of 302 pharmacy students took part in the study. The overall response rate was 80.5%. The mean (SD) age of respondents was 21.47(2.03) with age ranged between 18 to 34 years old. Majority of the students were female 189 (77.8%) which

indicated the pharmacy course was dominated by female students. For academic year of study, the distribution showed that the percentage was almost the same for year 1, year 2 and year 3 with percentage of 21.4% (n=52), 20.2% (n=49), 22.6% (n=55) respectively except for year 4 which is slightly higher compared to the other year of study which is 35.8% (n=87). Most of respondents in this study were Malays with a total of 158 (65%) and the remaining 85(35%) of respondents consist of Indians, Chinese and other ethnics. Based on residence area, 89.3%(n=217) of the students were staying in hostel and rental house while only a minority 10.7%(n=26) of the students reported that they stay at home with family. Almost more than half of the students reported that pharmacy was not their first choice of study. Looking into their social life, only a small population were smoker, 18(7.4%) while their satisfactory lifestyle showed a total of 189(77.8%) having satisfying relationship with family.

Table 1. Frequency and percentage of students' demographic data

Demographic data		Frequency(n)	Percentage (%)
Age	<20 years old	35	14.4
	20-24 years old	197	81.1
	>25 years old	11	4.5
Gender	Male	54	22.2
	Female	189	77.8
Year of study	Year 1	52	21.4
	Year 2	49	20.2
	Year 3	55	22.6
	Year 4	87	35.8
Ethnicity	Malay	158	65
	Non-Malay	85	35
Parents' Financial Income	Less than RM2000	43	17.7
	RM2001–RM5000	70	28.8
	RM5001–RM10000	77	31.7
	More than RM10000	53	21.8
Current place of residence	Hostel & rental house	217	89.3
	Home	26	10.7
First choice of study	Yes	113	46.5
	No	130	53.5
Satisfying relationship with family	Yes	189	77.8
	No	54	22.2

The mean (SD) score of GHQ-12 obtained in this study was 3.53(3.31). Therefore, present study uses cut-off point of 4. Students who score <4 were considered as not psychologically distress while student scoring ≥4 were considered as psychologically distress. In this study more than half of the students (58.4%) score lower than cut-off point 4, indicating not feeling distress, however, a significant portion of students (41.6%) score above cut-off point 4, indicating distress condition.

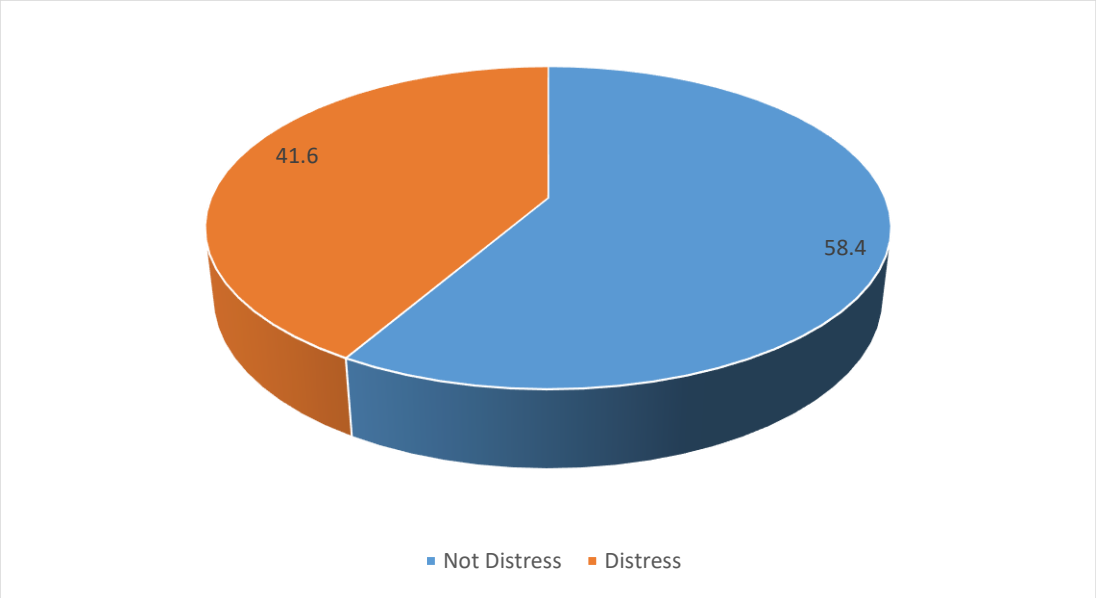

Figure 1. Prevalence of students that are psychologically distress.

Table 2. Mean of GHQ-12 scores of all respondents.

	Mean	**Standard Deviation**
GHQ-12 scores (0-12)	3.53	3.31

3.1 Factors Associated with Psychological Distress Among Pharmacy Students

The study examined the factors associated with psychological distress among pharmacy students. The study analysed the association between age, gender, year of study, ethnicity, residency, preferred course of study and relationship with family. Person chi square test were used to find the associated factors. The results showed that age was not a determinant of mental health status among university students, showing no significant association between mental health and age (p = 0.949). However, gender was significantly associated with mental health status, with female students having a higher prevalence of psychological distress compared to male students. Academic year of study did not show any significant association with mental health status, although students in year 3 and year 4 had a higher prevalence of psychological distress compared to students in year 1 and year 2. Besides that, the study concludes that different ethnic groups do not influence student's

mental health status with no significant association between mental health status and ethnicity (Malay vs. Non-Malay) found in the study (p= 0.928). Moreover, it was noted that the prevalence of psychologically distress students was higher among students living away from home compared to students living at home, however, it was not statistically significant. While for students who do not have pharmacy as their first choice of study have significantly higher prevalence of psychological distress (50.8%) compared to students who have pharmacy as their first choice (31%). (p=0.003). This shows that studying in a course other than their preferred choice have negative effect on student's mental health. Additionally, there were significant association between satisfying relationship between family and mental health status with p=0.018 and p=0.002 respectively. Higher portion of psychologically distress students were seen among pharmacy students not having satisfying relationship with family compared to students having good relationship with family.

Table 3. Association between age and mental health status.

Factors	Group	Mental Health Status n(%)		X^2 statistics (df)	p-value[a]
		Not Distress	Distress		
Age	<20 years old	21(60.0)	14(40.0)	0.104(2)	0.949
	20-24 years old	115(58.4)	82(41.6)		
	>25 years old	6(54.5)	5(45.5)		
Gender	Male	38(70.4)	16(29.6)	4.071(df)	0.044*
	Female	104(55.0)	85(45.0)		
Year of Study	Year 1	36(69.2)	16(30.8)	6.993(3)	0.072
	Year 2	33(67.3)	16(32.7)		
	Year 3	28(50.9)	27(49.1)		
	Year 4	45(51.7)	42(48.3)		
Ethnicity	Malay	92(58.2)	66(41.8)	0.008(1)	0.928
	Non-Malay	50(58.8)	35(41.2)		
Parents Financial Income	Less than RM2,000	23(53.5)	20(46.5)	2.245(3)	0.529
	RM2,001-RM5,000	42(60.0)	28(40.0)		
	RM5,001-RM10,000	42(54.5)	35(45.5)		
	More RM 10,000	35(66.0)	18(34.0)		

Factors	Group	Mental Health Status n(%)		X^2 statistics (df)	*p*-value[a]
		Not Distress	Distress		
Current Place of Residence	Away from home	124(57.1)	93(42.9)	1.397(1)	0.237
	Home	18(69.2)	8(30.8)		
Pharmacy as first choice of study	Yes	78(69.0)	35(31.0)	9.754(1)	0.003*
	No	64(49.2)	66(50.8)		
Satisfying Relationship with Family	Yes	118(62.4)	71(37.6)	5.596(1)	0.018*
	No	24(44.4)	30(55.6)		

4. Discussion

The finding of other study with the difference of only 0.03% done in Malaysia among medical students with the prevalence of 41.9% of psychologically distress students[14]. A study among medical students in Nigeria found lower prevalence of respondents had traits of poor mental health (39.2%)[15]. The significant portion of pharmacy students that were found to be psychologically distress in this study showed that there is a need to give attention to this population.

The current study found that age was not factor that influence the mental status among the pharmacy students. The finding was in line with a study done in Japan among university students also found that there were no age-based differences in GHQ-12 scores or the prevalence of poor mental health status[16]. This conclude that age is not a determinant of mental health status among university students possibly due to age gaps between all the respondents were small and the students were all in the young adult category. Female students have significantly higher prevalence of psychologically distress students compared to male students which may attributed to differences in the rates of exposure to biological and environmental risk factors[17]. This suggests that attention must be dedicated to the mental health of female students, and that a system for providing mental health care for students must be established based on the actual conditions at each university[18].

Despite insignificant result, higher percentage od psychological distress were found among year 3 and year 4 pharmacy students. This show that the students in year 3 and year

4 were more stressful due to more tough syllabus and compacted schedule worsen with clinical rotations and professional responsibilities. However, our finding was different from other study that found a higher prevalence of psychological distress among first year students compared to students in other years of study due experiencing stress related to adjusting to the demands of a new program[19]. The difference might be due to different pharmacy programs may have different curricula, expectations, and demands on students, which could contribute to varying levels of stress across different years of study. Furthermore, difference coping mechanisms and personal characteristics among pharmacy students could also play a role in the level of stress experienced[20]. Although, current place of residence was not a contributing factor to the mental health status among pharmacy students, but this study found that student living away from home experience slightly higher psychological distress than those living at own home. A study found that leaving one's family and making a new start elsewhere also led to stress as many students place great value on social and familial support, a change in environment can disrupt this support[21].

Our present study shows studying in a course other than their preferred choice have negative effect on student's mental health. This finding was similar to another study reports that students who study in the program of not their first choice have higher risk of getting mental illness[22]. This could be due to a general feeling of dissatisfaction from being in a course that was not their top choice, leading to low tolerance for personal behavior and a lack of interest in the subjects[23]. Additionally, the choice of a course may also be influenced by factors such as the opinions of family members, aspirations to work in a highly regarded profession, and the impact of peer pressure[24]. Moreover, findings on satisfying relationship with family, was supported by another study which states difficult relationship as a source of stress[17]. In order to reduce the stress associated with loneliness, social segregation and personal conflict, programmes aimed to improve students' relationships may be effective since healthy relationships have been reported to protect against stress[25]. This show that satisfying relationship with family is a protective factor for mental health.

The high prevalence of psychological distress among pharmacy students suggests the need for targeted interventions that could address the specific risk factors. Pharmacy program curriculum can be redesigned in way that could reduce the distress level among the pharmacy students, such as group works than individual assignments[26], field base learning and teaching time management skills. Furthermore, mentor-mentee programs and monthly counselling service can help for students who are not prepared for pharmacy course as their first as well as help in resolving their loneliness. In addition, broader policies from the institution to support the mental health and well-being of pharmacy students can be implemented. This can start with incorporating mental health education into the current

pharmacy curriculum. Though this, pharmacy student will have a better understanding about stress, ways to build coping skills, has the potential to increase the awareness, and make them feel more comfortable to speak to lecturers or counsellors.

5. Limitation

The study was conducted in one private university in Malaysia. Hence the findings of this present study cannot be generalized as the interplay between mental stress may be different in the other institutions. Secondly, our study did not objectively assess the academic performance using the grade points with students' mental stress. The association between these variables may merit further investigation. Lastly, using GHQ-12 can only be used to quantitatively assess psychological disturbance, and not to diagnose clinical psychological disorders. It is useful to detect psychological distress but not the actual disorders which would involve a more thorough psychological assessment to be diagnosed.

6. Recommendation for Future Research

For future research, it is recommended to do study which is multi-centered instead of single centered study in order for the result to be able to be generalized as a whole, which should include both private and public university. Probability sampling should be used to be able to avoid bias in the whole population. Besides that, future study should include open ended question since it is impossible to list out all the possible cause of psychological distress. This could help to determine factors affecting psychological distress among pharmacy students.

7. Conclusion

This study highlights a high prevalence of psychological distress among pharmacy students. Gender, first choice of study, and satisfaction relationship with family were found to be the significant factors causing psychological distress among pharmacy students. This indicates a need for intervention in the form of social or psychological support to improve their mental health. Early assessment of mental health is crucial for developing future interventions such as group counselling using motivational approach, stress management training, having mentor–mentee program as well as having regular seminars and workshop for teachers and students on various issues of psychological problems and its coping mechanisms. These findings provide valuable information for future research, education, and health policymaking to identify needed interventions and promote mental health among pharmacy students.

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