



Psychological Morbidities among Trainee Pharmacists in Major Government Hospitals in Sarawak

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ABSTRACT

Introduction: Trainee pharmacists in Malaysia are required to undergo a one-year training program during which they have to fulfill the requirements of their training logbooks. The logbook outlines the jobs and tasks that should be performed by the trainee pharmacists during their attachment at various pharmacy units. Upon the completion of their internship, they should acquire adequate professional knowledge, skills, and attitudes in order to prepare themselves to deal with life-long professional challenges independently. **Objective:** The objectives of this study were to determine the prevalence of depression, anxiety and stress among trainee pharmacists in major government hospitals in Sarawak, to compare the level of psychological morbidities among trainee pharmacists among training centers, and to explore the factors associated with the psychological morbidities during pharmacy training. **Method:** This was a cross-sectional study involving 55 trainee pharmacists in major government hospitals in Sarawak over a period of two months, from 24th December 2019 to 28th February 2020, using a validated questionnaire, the Depression, Anxiety, and Stress Scale (DASS 21). Additional questions regarding socio-demographic variables were also included in the survey. **Results:** The prevalence of psychological morbidities for trainee pharmacists was found to be 14.5% for depression, 38.2% for anxiety, and 7.2% for stress, respectively. Local program graduates had 5.41 times higher odds of developing depression as compared to foreign or twinning program graduates. Furthermore, non-Sarawakian trainee pharmacists had 7.9 times higher odds for developing anxiety as compared to trainee pharmacists who originated from Sarawak. **Conclusion:** Anxiety was found to be the most common psychological symptom experienced by trainee pharmacists in Sarawak training centers. The origin of trainees and place of graduation were significantly associated with anxiety and depression, respectively. Attention should be focused on the early recognition of psychological morbidities among healthcare professionals.

INTRODUCTION

The World Health Organization (WHO) recognizes mental health as a crucial aspect of overall well-being [1]. A person could be classified as experiencing depression if he/she exhibits various degrees of low self-esteem; loss of interest or pleasure; feelings of worthlessness or guilt; low mood; changes in appetite; difficulty concentrating; or disrupted sleep patterns [1]. According to the American Psychological Association, anxiety and stress encompass feelings of tension, anxious thoughts, and physical changes [1]. Anxiety is primarily related

to skeletal muscle tension, autonomic stimulation, and situational aspects, whereas stress is predominantly associated with irritability, impatience, and difficulty in achieving a state of relaxation [1].

In general, individuals experience a significant burden of stress arising from three primary sources: personal, social, and professional stress [2]. Professional stress, in particular, stands out as the predominant form of stress encountered across various employment levels, and it has a greater tendency to impact both personal and social life [2]. Factors contributing to professional stress encompass a heavy workload, poor working

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conditions, demanding expectations, long working hours, limited control over tasks (autonomy), and insufficient social support and recognition [3].

Over the years, there has been an increased focus on evaluating professional stress among medical professionals [2]. Prolonged professional stress experienced by medical professionals not only diminishes the quality of their work but also has adverse effects on the quality of patient care provided [2]. Substantial evidence suggests that stress can lead to a range of negative consequences for individuals, including mental health disorders, somatic diseases or feelings of exhaustion [3]. Moreover, organizations are significantly impacted by professional stress, leading to increased error rates, poorer performance or production, early retirement and sickness absence [3].

Pharmacy graduates in Malaysia are required to undergo a one-year training period in which they have to complete nine modules in their logbook during their traineeship in government hospitals [4]. A passing mark of 60% is required for each module and for their logbooks [4]. The modules include ward pharmacy practice, out-patient pharmacy services, in-patient pharmacy services, drug and poison information services, manufacturing and pre-packing, inventory/store management, clinical pharmacokinetic services, parenteral nutrition/intravenous additive services and oncology pharmacy services [4]. These 9 modules outline the jobs and tasks that need to be completed or learnt by the trainee pharmacists while attached to the respective pharmacy units. Throughout this period, it is crucial for trainee pharmacists to attain comprehensive professional knowledge, skills, and attitudes that will enable them to effectively navigate lifelong professional challenges independently [1].

In 2016, the Malaysian government started employing doctors, pharmacists and dentists on a contract basis for one year (with a maximum one-year extension) and thereafter, as compulsory service for another year. A third-year contract is offered for those who did not get a permanent posting as a grace period for them to seek other opportunities out of public service. This new policy might have an impact on the psychological morbidities in these groups of trainee pharmacists as they are required to perform well in order to obtain a permanent position in the government sector.

The aim of this study was to determine the prevalence of depression, anxiety and stress among trainee pharmacists in major government hospitals in Sarawak, to compare the level of psychological morbidities of trainee pharmacists among training centres, and to explore the factors associated with the psychological morbidities during pharmacy training.

METHODS

Ethical Approval

This study was registered in the National Medical Research Registry (NMRR ID: NMRR-19-3096-49450) and approved by the Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia.

Study design and setting

A cross-sectional study was conducted in the main government teaching hospitals in Sarawak, namely Sarawak General Hospital, Sibu Hospital, Miri Hospital and Bintulu Hospital over a period of 2 months from 24th December 2019 to 28th February 2020. We included the trainee pharmacists who underwent training in the respective hospitals at the pharmacy department, able to understand English and aged above 18 years old. Trainee pharmacists who did not consent for the study or unfit for work were excluded.

Study instrument

Trainee pharmacists who met the inclusion criteria were given a self-administered Depression, Anxiety and Stress Scale (DASS-21) questionnaire. The DASS-21 is a reliable, valid, and easily administered test that has been validated for the Malaysian population in two separate studies conducted by Ahmad et al. and Thiagarajan et al. Both studies demonstrated a strong internal consistency, with Cronbach's alpha values of 0.926 and 0.959, respectively [5, 6]. DASS evaluates major aspects of psychological morbidities including depression, anxiety, and stress. DASS-21 is a shortened version of the DASS-42 clinical assessment tool which allows a shorter examination time for trainee pharmacists to complete.

The DASS-21 questionnaire was distributed by the pharmacist in-charge to the trainee pharmacists at the respective hospitals. The questionnaire comprised 21 questions on a four-point Likert scale (0 = Did not apply to me at all, 1= Applied to me to some degree, or some of the time, 2= Applied to me to a considerable degree, or a good part of time, and 3= Applied to me very much, or most of the time) [7]. In addition to the questionnaire, respondents were asked to provide their sociodemographic information. They were given a timeframe of 2 weeks to complete the questionnaire.

The extent of the psychological comorbidities is divided into five categories (normal, mild, moderate, severe and extremely severe) according to each scale given for depression, anxiety and stress [7]. The scoring guide for the DASS questionnaire is shown in Table I.

Table I. DASS scoring guide [8]. Scores for DASS-21 will have to be multiplied by 2 to calculate the final score.

DASS (42) Scoring	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	≥ 28	≥ 20	≥ 34

Apart from the DASS-21 questionnaire, socio-demographic information such as gender, age, place of origin, university graduate (local, foreign, or twinning program), current pharmacy department and training duration were collected to explore the possible factors associated with psychological morbidities of trainee pharmacists.

Statistical analysis

Data analysis was performed with IBM® SPSS® Statistics Version 23 (Armonk, NY: IBM Corp.) and the appropriate statistical tests were used to analyse data collected. Descriptive statistics were performed, and categorical variables were expressed as frequency and percentage. Numerical variables such as age were expressed as mean (SD) or median (IQR). The studied psychological morbidities were categorized as binary outcomes, namely with or without depression, anxiety or stress. The association between the presence of depression, anxiety and stress, and the other studied variables were analysed using Pearson's chi-square test and Fisher's exact test. The odds ratio (OR) was calculated manually to express the magnitude of the association. This study considered a P-value of less than 0.05 as statistically significant with a confidence interval of 95%.

RESULTS

A total of 55 trainee pharmacists participated in this study. The majority of the trainee pharmacists were female (67.3%), had a mean age of 24.91 (SD=2.24 years old), were working in Sarawak General Hospital (49.1%), originated from Sarawak (81.8%) and were local graduates (65.5%). Table II summarizes the socio-demographic characteristics.

We explored the prevalence of depression, anxiety and stress among the pharmacists' trainee. The DASS questionnaire's total score was calculated, and the frequencies were then categorized into five severity levels, as outlined in Table III.

The prevalence of psychological morbidity among trainee pharmacists in different facilities in Sarawak is summarized in Figure I. Sibul Hospital had the highest prevalence of depression among trainee pharmacists (37.5%) whereas Miri

Characteristics	n (%)	Mean (SD)
Hospital		
Sarawak General Hospital	27 (49.1)	
Sibu Hospital	8 (14.6)	
Miri Hospital	18 (32.7)	
Bintulu Hospital	2 (3.6)	
Gender		
Male	18 (32.7)	
Female	37 (67.3)	
Age (years)		24.91 (2.24)
Origin		
Sarawak	45 (81.8)	
Non-Sarawak	10 (18.2)	
Graduate		
Local	36 (65.5)	
Foreign	17 (30.9)	
Twinning program	2 (3.6)	
Current Station		
In-patient pharmacy services	11 (20)	
Out-patient pharmacy services	13 (23.6)	
Ward pharmacy practices	8 (14.6)	
Clinical pharmacokinetic services	3 (5.5)	
Drug and poison information services	7 (12.7)	
Inventory/store management	6 (10.9)	
Cytotoxic drug reconstitution/Total parenteral nutrition	5 (9.1)	
Manufacturing and pre-packing	2 (3.6)	

Hospital had the highest prevalence of anxiety and stress (72.2% and 44.4% respectively).

Furthermore, we explored the association of sociodemographic characteristics with depression, anxiety and stress. As shown in Table IV, a significant association was found between the type of graduation (local and foreign/twinning) and depression ($\chi^2 = 4.85(1)$, $P = 0.028$). It was observed that local graduates had 5.41 times higher odds for developing depression as compared to foreign/twinning programme graduates.

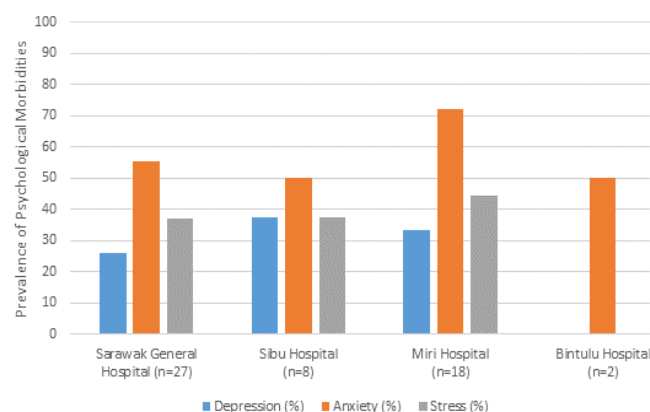


Figure I. Prevalence of Psychological Morbidities among Trainee Pharmacists in different hospitals in Sarawak (n=55).

Table II. Social demographic profiles of the trainee pharmacists (n=55).

In terms of anxiety, there was a significant association between the place of origin of the trainee pharmacists with anxiety ($P=0.039$) (Table V). It was observed that non-Sarawakian trainee pharmacists had 7.88 times higher odds for developing anxiety as compared to trainee pharmacists who originated from Sarawak. However, there was no significant association between socio-demographic characteristics with stress (Table VI).

Table III. Classification of Psychological Morbidities among Trainee Pharmacists (n=55).

Classification	n (%)		
	Depression	Anxiety	Stress
Normal	39 (70.9)	22 (40.0)	34 (61.9)
Mild	8 (14.6)	12 (21.8)	17 (30.9)
Moderate	5 (9.1)	13 (23.6)	2 (3.6)
Severe	2 (3.6)	3 (5.5)	1 (1.8)
Extremely Severe	1 (1.8)	5 (9.1)	1 (1.8)

Table IV. Association between Sociodemographic Variables with Depression (n=55).

Variable	Depression n (%)	No Depression n (%)	χ^2 Statistics ^a (df)	P-value ^a	OR (95% CI)
Gender					
Male	8 (44.4)	10 (55.6)	3.058 (1)	0.08	2.90 (0.86, 9.78)
Female	8 (21.6)	29 (78.4)			Reference
Origin					
Sarawak	12 (26.7)	33 (73.3)	-	0.453 ^b	Reference
Non-Sarawak	4 (40.0)	6 (60.0)			1.83 (0.44, 7.64)
Graduate					
Local	14 (38.9)	22 (61.1)	4.85 (1)	0.028	5.41 (1.08, 27.09)
Foreign/Twinning	2 (10.5)	17 (89.5)			Reference

^a Pearson's Chi-square test

^b Fisher's Exact Test

DISCUSSION

Since 2016, the Ministry of Health has implemented a mandatory two-year service and an optional one-year service contract system for doctors, pharmacists, and dentists. After two years of mandatory service, MOH will release a list of top candidates based on the logbook and appraisal marks that will remain in service with them as a permanent job position [9]. They must pass all modules in the logbook to be entitled to full registration as set by the Pharmacy Board of Malaysia [4]. Therefore, one of the possible contributing factors to the high psychological morbidity in trainee pharmacists is their concern with the logbook achievement and performance [4]. Trainee pharmacists hope that the logbook targets can be reduced. However, it is important to recognize that the development of these logbooks by the Pharmacy Board of Malaysia serves the

purpose of ensuring the proper training and competency of future pharmacists. The psychological morbidities experienced by trainee pharmacists can have a significant negative impact on their job performance and productivity, ultimately increasing the potential risks to patients [10].

The literature on DASS among trainee pharmacists in Malaysia was relatively scarce with the majority of studies focused on other healthcare workers, especially doctors [11-13]. The objective of the study was to determine the prevalence of depression, anxiety and stress among trainee pharmacists in the major government hospitals in Sarawak, to compare the level of psychological morbidities of trainee pharmacists among Training centres, and to explore the factors associated with the psychological morbidities during pharmacy training. The findings of this study revealed that the prevalence of moderate to extremely severe depression, anxiety, and stress among

Table V. Association between Sociodemographic Variables with Anxiety (n=55).

Variable	Anxiety n (%)	No Anxiety n (%)	χ^2 Statistics ^a (df)	P-value ^a	OR (95% CI)
Gender					
Male	12 (66.7)	6 (33.3)	0.495 (1)	0.481	1.52 (0.47, 4.94)
Female	21 (56.8)	16 (43.2)			Reference
Origin					
Sarawak	24 (53.3)	21 (46.7)	-	0.039 ^b	Reference
Non-Sarawak	9 (90.0)	1 (10.0)			7.88 (0.92, 67.43)
Graduate					
Local	24 (66.7)	12 (33.3)	1.93 (1)	0.165	2.22 (0.71, 6.92)
Foreign/Twinning	9 (47.4)	10 (52.6)			Reference

^a Pearson's Chi-square test

^b Fisher's Exact Test

Table VI. Association between Sociodemographic Variables with Stress (n=55).

Variable	Stress n (%)	No Stress n (%)	χ^2 Statistics ^a (df)	P-value ^a	OR (95% CI)
Gender					
Male	6 (33.3)	12 (66.7)	0.266 (1)	0.606	0.73 (0.23, 2.39) Reference
Female	15 (40.5)	22 (59.5)			
Origin					
Sarawak	17 (37.8)	28 (62.2)	-	>0.95 ^b	Reference 1.10 (0.27, 4.46)
Non-Sarawak	4 (40.0)	6 (60.0)			
Graduate					
Local	14 (38.9)	22 (61.1)	0.022 (1)	0.882	1.10 (0.35, 3.44) Reference
Foreign/Twinning	7 (36.8)	12 (63.2)			

^a Pearson's Chi-square test^b Fisher's Exact Test

trainee pharmacists were 14.5%, 38.2%, and 7.2%, respectively. Interestingly, the trend of psychological distress observed among trainee pharmacists was similar to the results from previous research conducted on healthcare workers in Malaysian hospitals, showing anxiety as the highest percentage, followed by depression and stress [11,12].

In this study, Hospital Sibu had the highest percentage of trainee pharmacists with depression whereas Hospital Miri had the highest percentage of trainee pharmacists with anxiety and stress. Further studies exploring the possible underlying reasons for this finding may be useful. However, possible factors contributing to higher psychological morbidities may include staff shortages, lack of peer support and personal individual factors.

There is a statistically significant association in depression status between graduates from local universities and those from foreign/twinning programs, with a higher prevalence of depression among local graduates. This could be due to the inability to adapt to a new working environment. These trainee pharmacists are expected to acquire extensive knowledge and skills while coping with pressures and an overwhelming workload. As a consequence, they often find little time for relaxation due to long working hours, weekend shifts, and after-office hour shifts.

In terms of anxiety, it was observed that there was a significant association between the place of origin and anxiety status. A higher proportion of non-Sarawakian trainee pharmacists reported developing anxiety compared to Sarawakian trainee pharmacists. This could be due to trainee pharmacists needing to acquaint themselves with a new living environment such as leaving existing family and friends, and at the same time they must adapt themselves to new working places. Research suggests that individuals who are satisfied with their social life with friends and possess a good social support system are more resilient to life stressors, serving as a life buffer [14].

Study limitations

The limitation of this study is that it was conducted in only one of the states in Malaysia which results in a smaller sample size. Associations among these factors might not represent the general population as factors contributing to psychological morbidities are not solely limited to those socio-demographic data obtained from the participants in this study. Furthermore, this study focused exclusively on trainee pharmacists in government hospitals. The nature of work and the higher patient load in these settings may contribute to higher levels of depression, anxiety, and stress compared to other healthcare facilities. To overcome this limitation, future studies should aim to include a larger and more diverse sample from multiple states across Malaysia. This would enhance the generalizability of the findings and provide a more comprehensive understanding of the psychological morbidities experienced by trainee pharmacists in various healthcare settings.

As this is a cross-sectional study, we did not exclude subjects with pre-existing psychological problems because we aimed to look at the prevalence of psychological morbidities during the training period. Therefore, the effect of pharmacy training on the change of DASS scoring before starting and during their training cannot be determined.

The detrimental effects of long working hours on work performance, including fatigue, impaired decision-making, and emotional distress, have been widely acknowledged [14]. However, this study did not specifically examine the impact of working hours on the psychological morbidities experienced by trainee pharmacists. Therefore, future research should consider investigating the relationship between working hours and psychological distress in this population. Investigating the potential effects of working hours on the mental well-being of trainee pharmacists can provide further insights into the factors contributing to their psychological distress and inform strategies for addressing and mitigating these challenges.

CONCLUSION

In conclusion, anxiety was found to be the most common psychological morbidity experienced by trainee pharmacists in the Sarawak training centres. Sibuh Hospital has the highest prevalence of depression among trainee pharmacists, whereas Miri Hospital had the highest prevalence of anxiety and depression. Origin of trainees is significantly associated with anxiety whereas place of graduation is significantly associated with depression. It is crucial to prioritize the early recognition of psychological morbidities among healthcare professionals, as they play a vital role in ensuring the provision of continuous quality care to the growing population in Malaysia.

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CONFLICT OF INTEREST

The investigators declared no conflict of interest.

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