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ASSESSMENT OF MENTAL HEALTH AND ITS ASSOCIATION WITH DEMOGRAPHIC VARIABLES AMONG STUDENTS

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Abstract:

The mental health of pharmacy students has been poor compared to other disciplines and has led to personal and professional consequences. The study was conducted to assess the prevalence of mental health of pharmacy students. It includes 351 randomly selected pharmacy students from a College of Pharmacy located in South India. A self-administered questionnaire was used to elicit information from the respondents. A score of ≥ 3 suggested poor mental while a score < 3 represented good mental health. Data were summarized using proportions, and chi-square test was used to explore associations between categorical variables. Level of significance was set at $p < 0.05$. The mean age of the respondents was 23.4 ± 4.3 years, 63.8% were males, and 0.091% was from the sixth and 23.07% from the fourth year levels of study. Based on the results 39.2% had a poor mental health status, compared to 60.8% with good mental health status. The factors significantly associated with poor mental health, were recent experience of mistreatment by trainers or colleagues, perceived inadequate monthly allowance and perception that medical training is stressful ($p < 0.05$). More than third of undergraduate pharmacy students with traits of poor mental health, provision of accessible mental health services/counselling is strongly recommended early in their training. More than half of students were responded that, they lost their sleep over worry and they had a feeling that they couldn't overcome difficulties. Similarly, 63.81% of students lost their self-confidence and 66.09% students thought themselves worthless.

Keywords: Assessment, Mental health status, Pharmacy students, Association, Socio demographic variables

1. Introduction

Mental health is defined as a state of wellbeing in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community, WHO (2019). Poor mental health is strongly related to other health and development concerns in young people notably lower educational achievements, substance abuse, violence, and poor reproductive and sexual health (Patel et al., 2007). Research has proven that the mental health of health professional students in particular, worsens from the beginning of medical school and remains poor throughout training (Guthrie et al., 1995; Givens and Tjia, 2002; Yiu, 2005; Dybbye et al., 2008). Unfortunately, numerous studies suggest that students' mental health worsens during the course of undergraduate studies. (Aktekin et al., 2001; Ball and Bax, 2002; Moffat et al., 2004).

Mental health problems do not just affect the individual. They impact the entire community. The cost of excluding people with mental health difficulties from an active role in community life is high (Liam and Vivien, 1997). It is projected that up to 340 million people will suffer from depression in the near future. The risk of suicide is high amongst those suffering from depression. Yearly, over 800000 deaths attributable to suicide are recorded worldwide: The majority of suicides are due to depression (Feri et al., 2000).

Pharmacy and medical students have significant mental health needs (Dyrbye et al., 2006). Many health professional students may feel that their stress is associated with academic pressure due to increased class workload, followed by the pressure and having many hours of studies, and the financial difficulties (Roberts et al., 1996; Brimstone et al., 2007; Janula et al., 2019). Pharmacy students' stress burden seems to be higher than that of practicing pharmacists, possibly because they are undergoing considerable changes in progressing from being college students to health professionals (Geslani and Gaebelein, 2013). Numerous factors influence the emotional health of pharmacy students. Pharmacy students' mental stress is associated with their

lower academic satisfaction (Silva and Figueiredo-Braga, 2019).

In India, the role of pharmacist in the society was never been given its due place and did not grow due to less paying job compared to job in industry again it's a burden to the health care professional. This forces us to evaluate status of pharmacy education in India. Before evaluating the status of pharmacy education, it is equally important to evaluate the environment where the pharmacy professionals are educated and analysis of their mental health in order to overcome the social barriers. Hence the present study was aimed to assess the mental health status and its association with socio demographic variables of pharmacy students from south India by using General Health Questionnaire 12 (GHQ-12).

2. Materials and Methods

2.1. Study Setting

The study was carried out among pharmacy students from Thiruvananthapuram, Kerala under Kerala University of Health Sciences. The college possesses permanent spacious academic building with all amenities and infrastructure sprawling over area of 5 acres. The building has spacious class rooms, full-fledged library with internet facility, well equipped laboratotaries, a modern computer center with global communication facility, an audio visual centre, laboratory animal facility and medicinal garden.

2.2. Study Population and Design

Pharmacy students from the Kerala University of Health Sciences, drawn from all levels of study.

Descriptive cross-sectional survey was used as design.

2.43 Sample Size Calculation

The Kish and Leslie Sample size formula for descriptive study was used to calculate the sample size: $n = z2pq/d2n$ = minimum sample size; z = critical value at 95% confidence interval; p = proportion of pharmacy students, who identified hostel accommodation as major stressor = 43.8%; d= level of precision.

2.4. Eligibility Criteria

2.4.1. Inclusion criteria

All consenting pharmacy students currently undergoing training in the Kerala University of health sciences were eligible to participate.

2.4.2. Exclusion criteria

Non-consenting and students who were not in college when the study was carried out were excluded from the study.

2.5. Sampling Technique

A total number of pharmacy students per class was obtained from the office of the College Secretary, in all there were a total number of 359 pharmacy students. Later the respondents were randomly selected using simple random sampling. Balloting was the method employed in selecting respondents per class into the study. The list of all the students was obtained from each class representative who constituted the sample frame.

The study was conducted after a brief introduction and the relevant explanation of the terms present in the questionnaire.

Data were collected using a pretested semi structured self-administered questionnaire which consisted of the following sections: Socio demographic characteristics of the respondents and assessment of psychological wellbeing the GHQ-12).

2.6. General Health Questionnaire 12 (GHQ-12)

The GHQ is a self-administered questionnaire designed to detect psychiatric disorders in community and other settings such as primary care. The GHQ-12 was chosen because it has been validated for use in this environment and is short and easy to complete, containing only 12 items. The standard GHQ method of scoring 0–0–1–1 for each item was employed, which allows a maximum score of 12. A cut-off point of 3 for GHQ-12 has been used successfully in this environment and those with a GHQ score of 3 above suggest poor mental health status.

2.7. Data Management

Questionnaires were inspected daily so as to detect errors, and omissions to ensure that it is properly filled. Questionnaires were manually sorted out, coded before entry and cleaned.

2.8. Statistical Analysis

Thereafter the data were entered into a computer for statistical analysis using Statistical Package for the Social Sciences (SPSS) version 16.0. Frequency, proportions, means and standard deviation was generated to summarize variables. Chi square tests were used to test associations between categorical variables. Level of significance was kept at 5%.

2.9. Ethical Consideration

Ethical approval was sought for and obtained before data collection commenced from teaching faculties of Pharmacy under Kerala University of Health Science (Protocol no: 01/017/skcprc/bpharm). Careful explanation of the purpose, content and implication was made known to the participants. Confidentiality was assured as names were not required from the subjects. Respondents and non-respondents were not penalized for participating or not participating or not participating in the study.

3. Results

The number of participants per class and their level of study was described in Table 1.

The participants were higher numbers in the first four years of study and gradually reduced at the level of six.

The socio demographic characteristics like age sex monthly allowance etc. of post graduate and graduate students were presented in Table 2 as frequency and percentage. Age group of 19-24 were participated this study where higher frequency and percentage was found with age 21-22, 81 (27%). The least percentage was found with age between 23 and 24 where the percentage was 10.6. Nearly 90.3% of female students and 26.6% of male students were participated in which 13 female

students were married and rest of them are single. 55.8% of students regularly came from their house for their study where as 44.1% of students stayed in hostel (inside the college campus).

Table 1. Total number of participants and level of study

Level of Study (yrs)	Desired sample per class	Number studied
1	90	64
2	92	76
3	92	76
4	92	81
5	32	32
6	32	30

Table 2. Socio demographic characteristics of participants

Sl No	Variable	Frequency n (%)
1	Age(years)	
	<19	64 (21.3)
	19-20	76 (25.3)
	20-21	76 (25.3)
	21-22	81 (27)
	22-23	32 (10.6)
	23-24	32 (10.6)
2	Gender	
	Male	80 (26.6)
	Female	271 (90.3)
3	Marital status	
	Single	338 (96.2)
	Married	13 (037)
4	Residence	
	On campus	155 (44.1)
	Off campus	196 (55.8)
5	Level of study	
	Year1	64 (18.23)
	Year2	76 (21.65)
	Year3	76 (21.65)
	Year4	81 (23.07)
	Year5	32 (0.091)
	Year6	32 (0.091)
6	Monthly allowance	
	5000-9999	
	10000-14999	8 (2.27)
	15000-19999	21 (5.98)
	20000-29999	112 (31.9)
	30000-49999	185 (52.7)
	>50000	12 (3.41)
		13 (3.7)
7	Adequacy of monthly allowance	
	Adequate	141 (40.1)
	Not adequate	210 (59.8)

The level of study was conducted based on their year of graduate and post graduate study in which fourth year students scored more when compared with other years. Monthly allowances were allotted as frequency from 5000-50000 in which higher frequency (52.7%) and percentage was found with between 20000 and 29999. However majority of them reported that their monthly allowances were inadequate.

Perceived stress, selection of course, mistreatment and second chance of pharmacy education statements were calculated and presented in Table3. Almost 50.4% of students declared that their degree programme as stressful and 47.86% of students felt non-stress. About 86.03% of students not experienced any mistreatment in the curriculum where as 11.68% of students reported that under mistreatment and abuse. Nearly 73.78% of students responded that they would not study pharmacy if given as second chance. Exactly ¼ of students showed their interest on the study of pharmacy if given as second chance.

Table 3. Perceived stress, mistreatment and second chance at pharmacy

SL No	Variable	Frequency n (%)
1	Perceived pharmacy education as stressful	163 (52.13)
	Yes	137 (47.86)
	No	-
	No response	
2	Recent experience of mistreatment or abuse	21 (11.68)
	Yes	271 (86.03)
	No	8 (2.27)
	No response	
3	Will you study pharmacy if you get a second chance?	67 (24.78)
	Yes	228 (73.78)
	No	5 (1.42)
	No response	

The association between some socio-demographic variables and mental health status of pharmacy students were presented in Table 4. It illustrated that the responds of students against General Health Questionnaire. In which, 54.131% of students were responded that, losing of sleep over worry (n=159) and 66.38% of students feeling that they couldn't overcome difficulties. Similarly, 63.81% of students lost their self-confidence and 66.09% (n=221) students though themselves worthless. About 175 students (58.68%) felt unhappy indicated that they were not enjoyed their daily activity. Responds against the questionnaire variables such as perceived stress, selection of course, mistreatment and second chance of pharmacy education were statistically significant ($P<0.05$) when compared with other variables.

Table 4. Association between some socio-demographic variables and mental health status

Sl No	Variable	Frequency n (%)	χ2	p-value	Significance
1	Concentrated in what you were doing				
	Yes	155 (49.85)	2.703	0.101	NS
	No	145 (41.31)			
	No response	-			
2	Lost much sleep over worry				
	Yes	141 (45.86)	1.063	0.302	NS
	No	159 (54.13)			
	No response	-			
3	Felt you were playing a useful part in things				
	Yes	188 (59.25)	11.31	0.007	S
	No	105 (38.74)			
	No response	7 (1.9)			
4	Felt capable of making decisions about things				
	Yes	214 (66.6)	20.23	0.007	S
	No	86 (33.3)			
	No response	-			
5	Felt constantly under strain				
	Yes	169 (53.84)	5.139	0.023	S
	No	131 (46.15)			
	No response	-			
6	Felt you couldn't overcome difficulties				
	Yes	98 (33.6)	0.837	0.360	NS
	No	202 (66.38)			
	No response	-			
7	Enjoyed a normal day to day activity				
	Yes	117 (39.03)	0.000	0.980	NS
	No	180 (60.11)			
	No response	3 (0.08)			
8	Faced up to problems				
	Yes	154 (49.57)	3.177	0.074	NS
	No	138 (48.14)			
	No response	8 (2.27)			
9	Felt unhappy and depressed				
	Yes	129 (42.45)	0.255	0.613	NS
	No	171 (57.54)			
	No response	-			
10	Lost confidence in self				
	Yes	102 (34.75)	0.41	0.521	NS
	No	193 (63.81)			
	No response	5 (1.42)			
11	Thought of yourself as a worthless person				
	Yes	79 (28.20)	3.572	0.058	NS
	No	221 (66.09)			
	No response	-			
12	Felt reasonably happy all things considered				
	Yes	113 (37.89)	-	0.997	NS
	No	175 (58.68)			
	No response	-			
13	Selection of pharmacy course				
	Yes	157 (50.4)	14.45	0.001	S
	No	75 (30.19)			
	No response	68 (19.37)			

S= significant, NS= non-significant

Table 4. Association between some socio-demographic variables and mental health status (continuing)

Sl No	Variable	Frequency n (%)	χ2	p-value	Significance
14	Perceived pharmacy education as stressful		3.992	0.045	S
	Yes	163 (52.13)			
	No	137 (47.86)			
	No response	-			
15	Recent experience of mistreatment or abuse		42.30		S
	Yes	21 (11.68)			
	No	271 (86.03)			
	No response	8 (2.27)			
16	Will you study pharmacy if you get a second chance?		6.292	0.012	S
	Yes	67 (24.78)			
	No	228 (73.78)			
	No response	5 (1.42)			

S= significant, NS= non-significant

4. Discussion

The mental health status of pharmacy has long been recognized as a cause for concern in both developed and developing countries.

The study conducted show that in pharmacy profession is still a purely a male dominated one, though there has been increasing number of females entering to the profession. Majority (96.2%) were single and only 3.1% were married this is similar to reports from other study (Omohkodion and Gureje, 2003).

4.1. Mental Health Status of Respondents

Assessment of psychological morbidity or mental health status of the respondents using the GHQ-12 was a key finding in this study. The prevalence of psychological morbidity was 39.2%.This was found to be high compared to studies reported from both High income and Low and middle income countries (Guthrie et al., 1995; Guthrie et al., 1998; Carson et al., 2000; Benitez et al., 2001; Assadi et al., 2007). Earlier studies from United Kingdom using a cut off score of 3– 4 reported slightly lower findings for prevalence of psychiatric morbidity (Firth, 1986; Guthrie et al., 1995; Guthrie et al., 1998).

Reports from Malaysia and Turkey using a cut off of 4 had a prevalence of 46.2%, and 47.9%, respectively. These figures are higher than what was observed in the present study. However, studies conducted among medical students in Pakistan and Spain which used the same cut off as the present study showed comparable results as observed in present study (Sender et al., 2004; Shoukat et al., 2010).

The reasons for our high levels of psychological morbidity are likely to be complex and cannot be attributed to single issues and to be rationalized by the perceived medical school stress and our highly stressful educational environment in which the medical students are. Personal characteristics of our students themselves and possible previous mental health problems may also be considered. These variations in mental health status of medical students shows that effective supportive and mental health services still need to be instituted as a necessary part of the under graduate medical training both in developed and developing countries.

The socio-demographic characteristics of our sample did not significantly influence the risk of having poor states of mental health. Neither gender nor any of the other socio demographic variables in our study was found to have a significant relationship with psychiatric morbidity. This finding was consistent with other studies (Facundes and Ludermir, 2005; Amr et al., 2007; Dahlin and Runeson, 2007; Nivert and Jehan, 2010). The reason behind this remains unclear. However, other studies reported contrary results which indicated associations with these variables (Chandrashekhar, 2007).

Significant associations were observed among students who perceived their monthly allowance as inadequate and having traits of poor mental health. This finding is consistent with other studies (Dahlin and Runeson, 2007, Sami Abdo et al., 2011). Other factors which negatively influenced the students mental health status included recent mistreatment, were more than two out of every five respondent who experienced recent mistreatment or abuse were more likely to have traits of poor mental health status. This finding was in contrary to that of Shoukat et al., (2010) reported no significant association between mistreatment and psychological morbidity. Likewise the perception of medical training as stressful was also significantly associated with poor mental health states. These findings were consistent with what was observed in Pakistan. The cross-sectional nature of this study was reflective of a period of time and would not allow for results to be generalized for the medical undergraduate population. The classes included in the study were those available at the time the study was being carried out (Shoukat et al., 2010).

A major finding was the level of psychological morbidity or mental health status of the pharmacy students interviewed. The proportion of pharmacy students identified as having traits of poor mental health using the GHQ-12 was quite high and is a cause for concern for our future pharmacy professionals. The presence of accessible mental health services to help identify these

students with psychological morbidity early would help to address most of the problems students encountered.

5. Conclusion

The conclusions drawn are not the results of a systematic assessment. Moreover, our illustration refers to issues among pharmacy students in south India. They may differ from other undergraduate students and postgraduate in several important ways including academic responsibilities, campus life, and relationships with academic advisors. These limitations withstanding, we believe that mental health providers working in college campuses should enhance their training and knowledge by becoming familiar with the topics reviewed here.

Author Contributions

All the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version.

Conflict of Interest

The authors declared that there is no conflict of interest.

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