



## Knowledge of mental health challenges among healthcare students – Findings from a medical university

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### General Note

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## ABSTRACT

**Objective:** This study aimed to determine the knowledge about mental health challenges (MHCs) among healthcare students in a medical university. **Method:** A cross-sectional study was performed among healthcare students of a university to determine knowledge about MHCs with a validated research tool using a convenient stratified sampling technique. The Pearson Chi-Square test was used with Fisher's Exact and Phi Cramer's V values were obtained to determine the differences among the studied variables. The Statistical Package for Social Science (SPSS) Version 24.0 was used to analyze the data. **Results:** Among 284 students, female students had more adequate knowledge than males. The majority of the participants had adequate knowledge about MHCs. Among the different age groups, the students of 25-30 years' groups showed better results in terms of adequate knowledge of MHCs. **Conclusion:** Overall good knowledge of MHCs was observed among the healthcare students.

**Keywords:** knowledge, mental health challenges, MHCs, healthcare students

## 1. INTRODUCTION

In the younger student generation, mental health is very important, which can affect their student life and can be a big hurdle in their academic achievements (Grotan *et al.*, 2019; Iranag *et al.*, 2019). In university/college students, mental health is equally important as that of physical health for better performance in their academic performance (Andrews and Wilding, 2004). The number of students with psychological issues is continuously increasing all over the world every year (Zeng *et al.*, 2019). Mental health challenges (MHCs) may continue with the passage of age if they remain concealed or not managed properly (Kendrick *et al.*, 2016). Although mental health is a worldwide public health problem, still people all over the world have little knowledge regarding mental disorders (World Health Organization, 2017). In fact, the MHCs are vital to be dealt, but often ignored component of the health care system in all over the globe (World Health Organization, 2017).

The university years of education are the knowledgeable more demanding stage of learning in all the university students (Corrigan and Watson, 2003) because these years of student life will decide the future profession and directions of university students (Sawadogo *et al.*, 2020). These challenging years in student life can be the reason for the development of MHCs in students (Bowman, 2010). These MHCs can directly decrease the physical health and can also produce a negative effect on relationships with friends or family members (Thoits, 2011). These Ms once developed, they can have a long-term impact on students, affecting their future employment, earning potential, and overall health (Bowman, 2010). Therefore the student knowledge on MHCs should be appropriate to avoid any problem later on. Furthermore, the knowledge of medical, dental and pharmacy students is utmost important as they are the future health care providers in the country (Mori, 2000).

In Malaysia, there is a lack of research on knowledge of university students about MHCs. During the literature search, no data regarding the knowledge of university students about MHCs were found in any university in Malaysia. Therefore, the objective of the current study was to evaluate the knowledge of MHCs among medical, dental and pharmacy students in a private medical university in Malaysia.

## 2. MATERIALS AND METHODS

A cross-sectional study was conducted among healthcare students using a self-developed and validated research instrument. The research instrument was developed after an extensive literature review after consultations with content experts in the field. The research tool was consisted of two parts, whereby the first part was the demographic characteristics and the second part was the knowledge-based questions. Data were collected from Sep 2016 until May 2018 using a convenience sampling technique. The sample size was calculated by stratified sampling technique. A total of 300 participants from different faculties were targeted to participate in the study. Students' consent was obtained prior to participation in the study. All aspects regarding data confidentiality of the study participants were strictly followed throughout the study.

Students were required to read and choose the answer based on their understanding and knowledge. The participants' response was scored based on their correct and incorrect answers. The scoring criterion was adapted from some similar previous studies. A score of 1 was credited to each correct answer and 0 for incorrect answers (Johnson *et al.*, 2007; Johnson *et al.*, 2004). Bloom's cut-off method was applied for the final score assessment (Koo *et al.*, 2015). The knowledge was evaluated as adequate and inadequate based on the scores obtained by each participant. According to that  $\leq 3$  correct answers showed inadequate knowledge and  $\geq 4$

correct answers represented adequate knowledge. The obtained question scores were converted into a percentage form to ease the data interpretation.

### Statistical analyses

Data analyses and calculations were carried out using Statistical Package for Social Science (SPSS) version 24.0. Frequencies with percentages were calculated for the categorical variables and means with standard deviations were calculated for the continuous variables. The Pearson Chi-Square test was used with Fisher's Exact and Phi Cramer's V values were obtained to determine the differences among the studied variables. A  $p$ -value of  $< 0.05$  was considered statistically significant.

## 3. RESULTS

There were a total of 284 students from three healthcare faculties participated in the study. Out of the total participants, females were 180 (63.4%) and males were 104 (36.6%) in the study. For the race variable regarding ethnic backgrounds of the students, Malays were 7 (2.5%), Chinese 212 (74.6%), Indians 60 (21.2%), and others 5 (1.7%). Among other demographic attributes, there were 95 (33.5%) students from the faculty of medicine, 94 (33.1%) from the pharmacy, and 95 (33.5%) from dentistry who participated in the present study and are presented in table 1.

**Table 1** Demographic characteristics of study participants (N =284)

Variables	N (%)
Faculty	
Medicine	95 (33.5)
Pharmacy	94 (33.1)
Dentistry	95 (33.5)
Year of education	
Pre-final	143 (50.4)
Final	141 (49.6)
Age (Years)	
20-25	277 (97.5)
25-30	7 (2.5)
Residence	
Hostellers	174 (61.3)
Non-hostellers	110 (38.7)
Family size	
Less than 4	42 (14.8)
4-6	209 (73.6)
More than 6	33 (11.6)

Table 2 represents the total questions asked from the study participants. There were five diverse questions asked from the study participants to evaluate their overall knowledge about MHCs.

**Table 2** Knowledge questions regarding MHCs

Knowledge questions
Stress and depression are among the top MHCs faced by HCSs.
MHCs are mainly diagnosed by a physical exam.
MHCs are easy to treat and manage if early diagnosed.
Medications in combination with psychotherapy are the most effective way to promote recovery from MHCs.
Development of MHCs is a part of aging.

The demographic information of the study participants i.e. HCSs and their responses regarding the first question is given in table 3. The correct answer was given by 158 (55.6%) of the HCSs.

**Table 3** Study participants' response to question 1

Variables	Correct answer N (%)	Incorrect answer N (%)	p-value	Effect size #
Faculty				
Medicine	61 (64.2)	34 (35.8)	0.076*	-
Pharmacy	45 (47.9)	49 (52.1)		
Dentistry	52 (54.7)	43 (45.3)		
Year of education				
Pre-final	75 (52.4)	68 (47.6)	0.285**	-
Final	83 (58.9)	58 (41.1)		
Gender				
Male	52 (50.0)	52 (50.0)	0.173**	-
Female	106 (58.9)	74 (41.1)		
Age (Years)				
20-25	154 (55.6)	123 (44.4)	0.980**	-
25-30	4 (57.1)	3 (42.9)		
Residence				
Hostellers	102 (58.6)	72 (41.4)	0.221**	-
Non-hostellers	56 (50.9)	54 (49.1)		
Race				
Malay	1 (33.3)	2 (66.7)	0.105*	-
Chinese	129 (55.8)	102 (44.2)		
Indian	28 (60.9)	18 (39.1)		
Others	0 (0.0)	4 (100.0)		
Family size				
Less than 3	22 (52.4)	20 (47.6)	0.887*	-
4-6	117 (56.0)	92 (44.0)		
More than 6	19 (57.6)	14 (42.4)		

\*Pearson Chi-Square, \*\*Fisher's Exact Test, #Phi Cramer's V

The demographic information of the HCSs and their responses regarding the second question are presented in table 4. The correct answer was given by 238 (83.8%) of the HCSs.

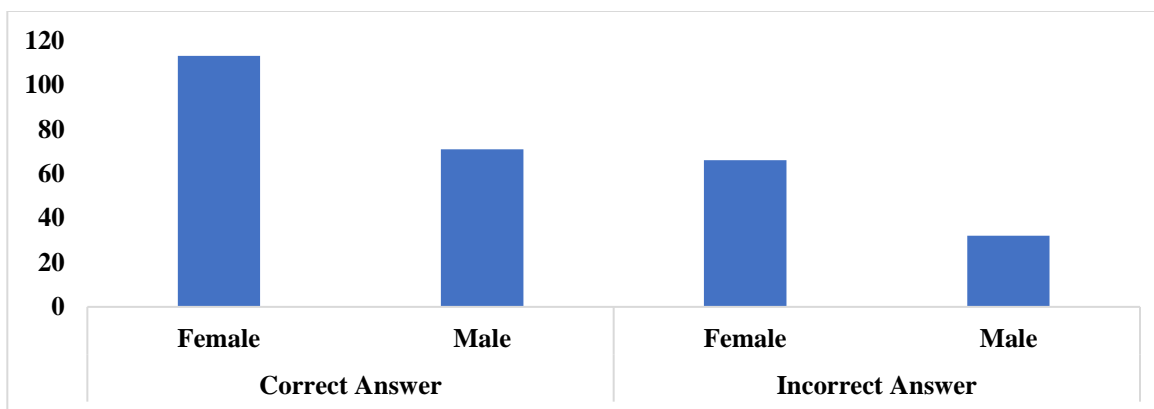
**Table 4** Study participants' response to question 2

Variables	Correct answer N (%)	Incorrect answer N (%)	p-value	Effect size #
Faculty				
Medicine	86 (90.5)	9 (9.5)	0.090*	-
Pharmacy	75 (79.8)	19 (20.2)		
Dentistry	77 (81.1)	18 (18.9)		
Year of education				
Pre-final	121 (84.6)	22 (15.4)	0.749**	-
Final	117 (83.0)	24 (17.0)		
Gender				
Male	80 (76.9)	24 (23.1)	0.020**	-0.142
Female	158 (87.8)	22 (12.2)		
Age (Years)				
20-25	233 (84.1)	44 (15.9)	0.317**	-

25-30	5 (71.4)	2 (28.6)		
Residence				
Hostellers	142 (81.6)	32 (18.4)	0.248**	-
Non-hostellers	96 (87.3)	14 (12.7)		
Race				
Malay	2 (66.7)	1 (33.3)	0.606*	-
Chinese	192 (83.1)	39 (16.9)		
Indian	40 (87.0)	6 (13.0)		
Others	4 (100.0)	0 (0.0)		
Family size				
Less than 3	32 (76.2)	10 (23.9)	0.112*	-
4-6	183 (87.6)	26 (12.4)		
More than 6	23 (69.7)	10 (30.3)		

\*Pearson Chi-Square, \*\*Fisher's Exact Test, #Phi Cramer's V

In table 4 the gender variables was found to be statistically significant, where the p-value was 0.020 and the effect size was 0.142. These results are presented in figure 1.



**Figure 1** Difference in knowledge regarding MHCs in gender

The demographic characteristics with the responses regarding the third question are reported in table 5. The correct answer was given by 264 (92.9%) of the HCSs.

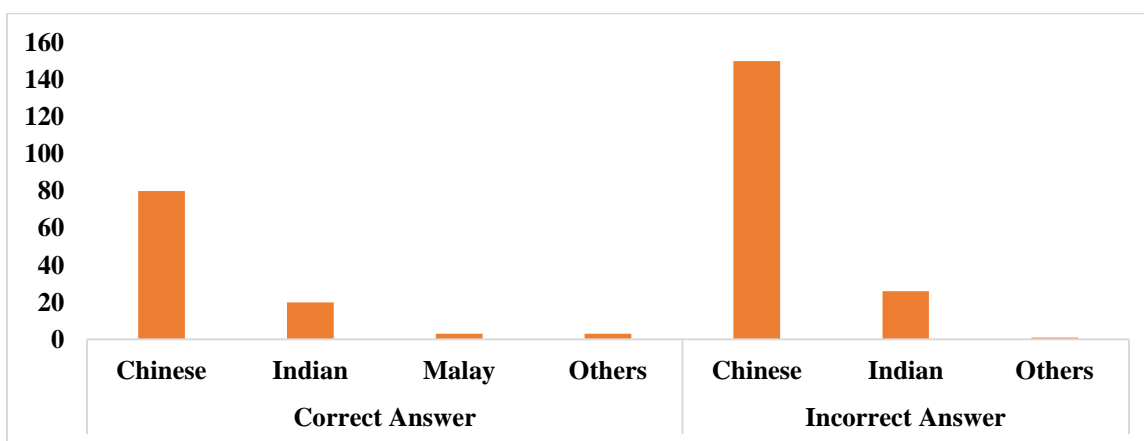
**Table 5** Study participants' response to question 3

Variables	Correct answer N (%)	Incorrect answer N (%)	p-value	Effect size #
Faculty				
Medicine	92 (96.8)	3 (3.2)	0.137*	-
Pharmacy	87 (92.6)	7 (7.4)		
Dentistry	85 (89.5)	10 (10.5)		
Year of education				
Pre-final	133 (93.0)	10 (7.0)	0.970**	-
Final	131 (92.9)	10 (7.1)		
Gender				
Male	93 (89.4)	11 (10.6)	0.093**	-
Female	171 (95.0)	9 (5.0)		

Age (Years)				
20-25	257 (92.8)	20 (7.2)	0.980**	-
25-30	7 (100.0)	0 (0.0)		
Residence				
Hostellers	160 (92.0)	14 (8.0)	0.481**	-
Non-hostellers	104 (94.5)	6 (5.5)		
Race				
Malay	2 (66.7)	1 (33.3)	0.032*	0.176
Chinese	213 (92.2)	18 (7.8)		
Indian	46 (100.0)	0 (0.0)		
Others	3 (75.0)	1 (25.0)		
Family size				
Less than 3	38 (90.5)	4 (9.5)	0.786*	-
4-6	195 (93.3)	14 (6.7)		
More than 6	31 (93.3)	2 (6.1)		

\*Pearson Chi-Square, \*\*Fisher's Exact Test, #Phi Cramer's V

In table 5 the race attribute had statistically significant results and this statistically significant difference (0.032) was further confirmed by determining the effect size using Phi Cramer's V (0.176). The results are illustrated in figure 2.



**Figure 2** Difference in knowledge regarding MHCs in race

The demographic information of the HCSs and their responses regarding the fourth question are presented in table 6. The correct answer was given by 264 (92.9%) of the HCSs.

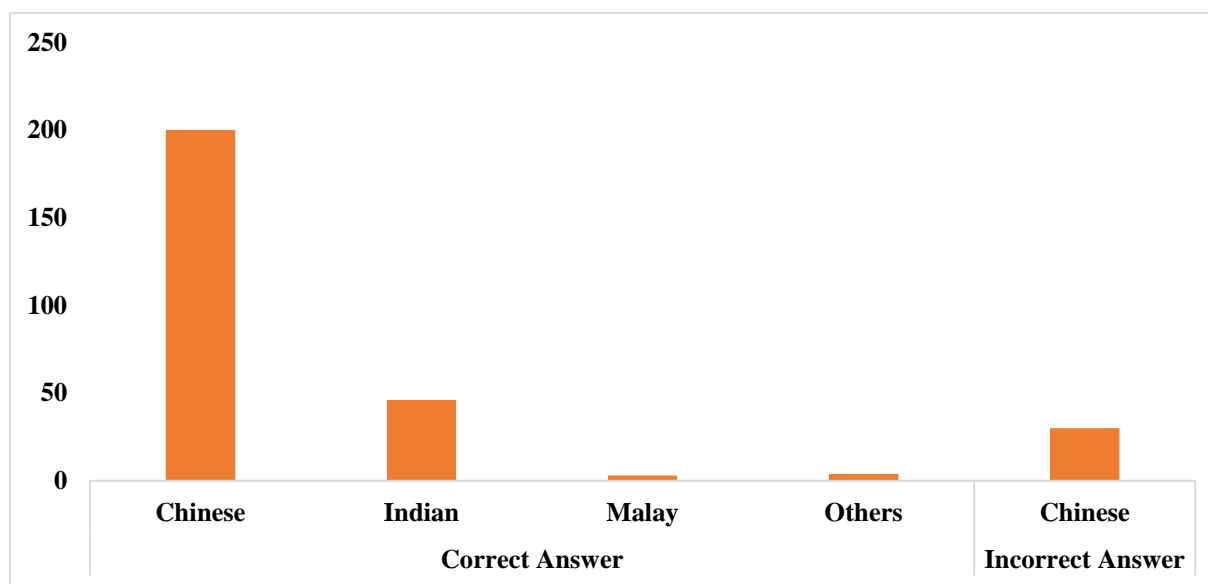
**Table 6** Study participants' response to question 4

Variables	Correct answer N (%)	Incorrect answer N (%)	p- value	Effect size #
Faculty				
Medicine	88 (92.6)	7 (7.4)	0.123*	-
Pharmacy	86 (91.5)	8 (8.5)		
Dentistry	90 (84.2)	15 (15.8)		
Year of education				
Pre-final	134 (93.7)	9 (6.3)	0.053*	
Final	120 (85.1)	21 (14.9)		
Gender				
Male	88 (84.6)	16 (15.4)	0.070**	-

Female	166 (92.2)	14 (7.8)		
Age (Years)				
20-25	247 (89.2)	30 (10.8)	0.990**	-
25-30	7 (100.0)	0 (0.0)		
Residence				
Hostellers	157 (90.2)	17 (9.8)	0.692**	-
Non-hostellers	97 (88.2)	13 (11.8)		
Race				
Malay	3 (100.0)	0 (0.0)	0.021**	-0.140
Chinese	201 (87.0)	30 (13.0)		
Indian	46 (100.0)	0 (0.0)		
Others	4 (100.0)	0 (0.0)		
Family size				
Less than 3	35 (83.3)	7 (16.7)	0.199*	-
4-6	191 (91.4)	18 (8.6)		
More than 6	28 (84.8)	5 (15.2)		

\*Pearson Chi-Square, \*\*Fisher's Exact Test, #Phi Cramer's V

In table 6 the race variable was found to be statistically significant ( $p$ -value = 0.021). This association was further confirmed by determining effect size using Phi Cramer's V and the value obtained was observed as -0.140. These results are presented in figure 3.



**Figure 3** Difference in knowledge regarding MHCs in race

The demographic information of the HCSs and their responses regarding the fifth question are presented in table 7. The correct answer was given by 162 (57.1%) of the HCSs.

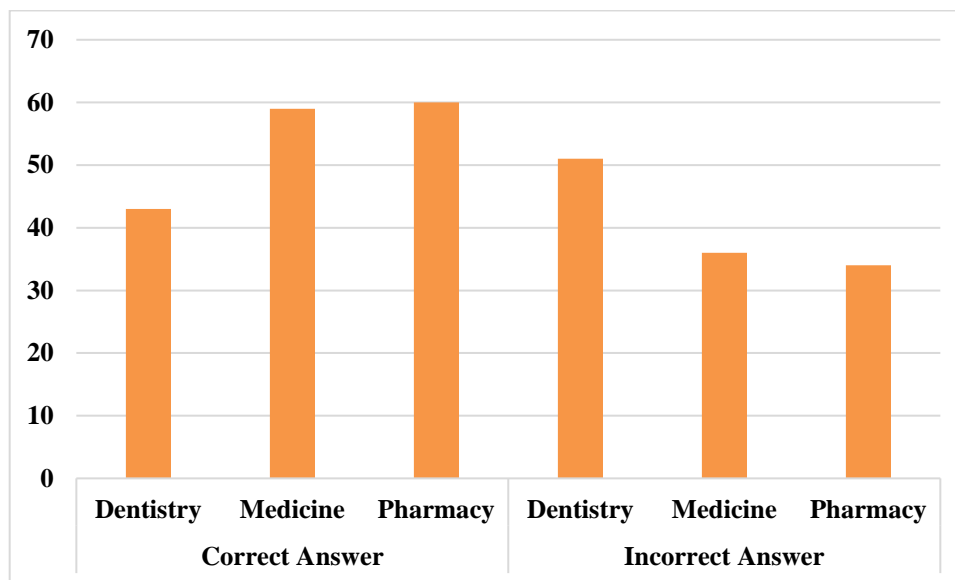
**Table 7** Study participants' response to question 5

Variables	Correct answer N (%)	Incorrect answer N (%)	$p$ -value	Effect size #
Faculty				
Medicine	59 (62.1)	36 (37.9)	0.017*	0.169
Pharmacy	60 (63.8)	34 (36.2)		
Dentistry	43 (45.3)	52 (54.7)		

Year of education				
Pre-final	82 (57.3)	61 (42.7)	0.980**	-
Final	80 (56.7)	61 (43.3)		
Gender				
Male	59 (56.7)	45 (43.3)	0.970**	-
Female	103 (57.2)	77 (42.8)		
Age (Years)				
20-25	157 (56.7)	120 (43.3)	0.703**	-
25-30	5 (71.4)	2 (28.6)		
Residence				
Hostellers	96 (55.2)	78 (44.8)	0.461**	-
Non-hostellers	66 (60.0)	44 (40.0)		
Race				
Malay	3 (100.0)	0 (0.0)	0.102*	-
Chinese	132 (57.1)	99 (42.9)		
Indian	23 (50.0)	23 (50.0)		
Others	4 (100.0)	0 (0.0)		
Family size				
Less than 3	18 (42.9)	24 (57.1)	0.128*	-
4-6	125 (59.8)	84 (40.2)		
More than 6	19 (57.6)	14 (42.4)		

\*Pearson Chi-Square, \*\*Fisher's Exact Test, #Phi Cramer's V

In table 7 the faculty variable was found to be statistically significant ( $p$ -value = 0.017). This association was further confirmed by determining effect size using Phi Cramer's V and the value obtained was 0.169. These results are presented in figure 4.



**Figure 4** Difference in knowledge regarding MHCs in faculty

#### 4. DISCUSSION

The current study is novel among its type in Malaysia that evaluates and compares the knowledge of different HCSs regarding MHCs. The results of the current study showed that statistically a non-significant association was observed among all the variables when the question was asked about the stress and depression about MHCs. The knowledge of medical students on stress and



depression was more appropriate among all other students. The possible reason behind could be the curriculum of medical students, which directly affects their knowledge about depression and stress (Dyrbye *et al.*, 2006). The results of the current study were supported by a pilot study conducted by Sawadogo and colleagues, where they found that the medical students had better knowledge as compared with other HCSs (Sawadogo *et al.*, 2020). Statistically, a significant association was also observed in gender and family size variables when the question was asked about the diagnosis of MHCs which showed significant value, where  $p$ -values are 0.020 and 0.012 with effect size -0.142 and 0.176 respectively. A statistically weak negative association was observed in the gender variable of the current study when it was asked about the diagnosis, which means that the female respondents had better knowledge as compared with the male respondents. This justification was well supported by a study conducted in Kenya according to which the knowledge of the females was more appropriate as compared with males (Ndetei *et al.*, 2011).

The finding of the current study showed that the race variable had a significant effect when the question was asked about the treatment of MCHs, where the  $p$ -value was 0.032. The effect size was 0.176, which showed a weak positive association. The probable reason could be the imbalance in the number of respondents between different races. In the current study, the number of Chinese respondents was more as compared with the other races. The results of the current research on the imbalanced number of participants were in line with a study conducted in Malaysia according to which the Chinese students had more good knowledge as compared with the other races in the study (Iqbal *et al.*, 2020). Year of education and race variables showed statistically significant association when the question was asked about the medication in combination with psychotherapy is the most effective way to promote recovery. The observed  $p$ -values were 0.021 and 0.053, and the effect sizes were 0.140 and 0.165, respectively. A weak positive association was also observed in these two variables. The results of the current study were in line with the study conducted by Azar and Hanna (Azar *et al.*, 2016).

The finding of the current study showed that dental faculty students had the lowest MHCs knowledge as compared with the other faculties. In contrast, pharmacy students had more appropriate knowledge as compared with the other students when the question was asked about the relationship of MHCs with the aging process. This variable showed a significant association, where the  $p$ -value was 0.017 and the effect size was 0.169. The results of the current study were supported by the results of a study conducted in Malaysia among different HCSs (Iqbal *et al.*, 2020).

## 5. CONCLUSION

This study showed that knowledge of MHCs in HCSs was more among females than males and among those students that aged 21-15 years. This study also highlighted that majority of the participants had adequate knowledge regarding MHCs which can further be improved by taking appropriate measures.

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### Conflicts of interest

The authors declare that there are no conflicts of interest.

### Ethical approval

The ethical committee approval code of the study was AUHAEC/FOP/2017/08.

### Funding

This study had not received any external funding.

### Data and materials availability

All data associated with this study are present in the paper.

### Peer-review

External peer-review was done through double-blind method.

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