

FACTORS ASSOCIATED WITH MENTAL HEALTH LITERACY AMONG INTERNATIONAL POSTGRADUATE STUDENTS

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ABSTRACT

Background: Drastic change in life demands would lead to mounting pressures on university students during their education years, which further leads to deteriorating in mental health, leading to suicide in some cases. International students face even additional pressures of living away from family and home. Since students displayed lacking in mental health literacy like the rest of the society in previous studies, empowering the students starts with improving their literacy on mental health. This study aims to measure the international students' mental health literacy, to pave the way for future education programs on mental health specially designed for the international students' community.

Materials and Methods: A cross sectional study was carried out among the international postgraduate students in a public university in Malaysia, using the Mental Health Literacy Scale (MHLS). Variables were examined against the MHLS using mean-comparing formulas. Later, linear regression models used to predict the relationship between the MHLS score and the variables.

Result: A total of 153 student participated in this study. The mean MHLS for the students is 111.42 point. Most of the students were males, between 25 to 34 years old. Females students, and the students who mentioned being to mental health professionals for personal reasons or with loved ones (BMHP) had higher MHLS ($p < 0.05$).

Conclusion: MHLS mean score came lower than two previous similar studies with comparable population. There is association between MHLS score and the variables Gender and BMHP.

Keywords: Mental health literacy, International university students.

1.0 Introduction

It is becoming increasingly difficult to ignore mental illnesses devastating effects on individuals, society, economy, and the progress of communities. According to a report published in 2017 by the World Health Organization, the issue has grown massively in recent years to the point that around 6 trillion USD is expected to be lost due to mental illnesses by 2030 (World Health Organization, 2017). Locally in Malaysia, the figures for mental illness are not any better. According to a survey published by the Institute for Public Health, every 3 in 10 adults aged 16 years and above have some sorts of mental health illnesses (Institute for Public Health, 2015). In the near past, some researchers tried to look for different groups in the community with high risk of attracting mental illness, one of the most prominent groups with high risk of attracting mental illnesses were university students. When comparing students to the rest of the community, students exhibited extremely higher tendency in acquiring mental illnesses compared with the rest of community. The peak of this issue presents itself in form of suicide, annually in the United States, 1100 students take their own life due to pressures during university life, with additional 24,000 students attempted failed suicide (Appelbaum, 2006; Blanco et al., 2008; Evans et al., 2018; Wilcox et al., 2010).

Despite the striking figures shown above, people around the world are still lacking behind in mental health literacy, which is one of most vital tools in controlling the drastic effects of mental illness, especially with an estimated lifetime risk of attracting mental illness up to 69% (Dahlberg et al., 2008; Kessler et al., 2008; Loureiro et al., 2015; UNESCO, 2017). Mental health literacy was defined by a group of researchers in 1997. Briefly, it can be summarized as knowledge and attitudes that aid in recognizing mental illnesses, and their risk factors and causes. This knowledge must aid in promoting healthy help-seeking behaviours, with knowledge on how and where to seek information related to mental illness, and the knowledge about self-treatment and professional help available (Jorm et al., 1997). The definition identified seven components of mental health literacy which are essential in promoting the individuals' resilience towards mental illness, these components since their conception in 1997 remained the core of defining the outlines of mental health literacy for many previous works of literature (Jorm et al., 1997, 2012; Wright et al., 2007).

Many previous studies showed that university students had higher tendency to attract mental illness compared with rest of the community ; therefore, studying mental health literacy among university population would give us a better outlook, and would clear the path for education programs dedicated to raise awareness in a group of community subjected to increased loss due to lack of knowledge about mental illness, college years represent challenging life transition for students, where they find themselves facing more responsibilities and in need to adapt to new life demands (Furnham et al., 2011; Mahfouz et al., 2016).

2.0 Materials and Methods

A cross sectional study was carried out among the international postgraduate students of a public university in Malaysia. Simple random sampling with proportional allocation method was used to recruit the students (Salkind, 2010). After getting the numbers of students by each faculty, the percentage of students' numbers required of each faculty was determined. Then, the required numbers of students were submitted to the School of Graduate Studies (Dean's assistant office for Student Affair, Learning Support and Publishing Unit) to help distributing

the online questionnaire using their own database, and to help delivering the questionnaire to the students emails. The students then can access the questionnaire using the link attached to the email sent to them. Data was collected using a self-administered online-based survey service (Google Forms). Before proceeding to the questionnaire, all the eligible respondents must click on the dedicated button to agree that they have read the information sheet about the study and signed the consent form. Inclusion criteria was all registered international postgraduate students, academic year 2019/2020, semester one. Registered students who are currently on deferment were the only exclusion. Ethical approval was obtained prior to distributing the questionnaire from the Ethics Committee for Research Involving Human Subjects Universiti Putra Malaysia (JKEUPM) on the 6th of May 2019, reference number (UPM/TNCPI/RMC/1.4.18.2).

The questionnaire consisted of three sections. The first section was the sociodemographic factors which consists of 5 items (age, gender, country of origin, and the factor “previously having studied a subject related to psychology” data; the country of origin will be used to generate two variables i.e. cultural region of the student’s country of origin, and income classification of the student country of origin (using the World Bank’s classification of countries income per capita). The second section included items labelled as previous psychological incidents, the items were adopted from O’Connor & Casey study in 2015, and included the following questions, the first one “did you previously had a mental illness?”, the second one “did you have a family member or a friend with a mental illness?”, the third one “have you been to a mental health practitioner?”, the last question was “what is your preferred source of information of mental health?” (O’Connor & Casey, 2015).

The third section was the Mental Health Literacy scale (MHLS) instrument, the instrument questionnaire was adopted as well from O’Connor & Casey study in 2015. The MHLS instrument was used to measure the mental health literacy of the students in this study, and represented the data of the dependent variable, the instrument consisted of questions (35 items) and used a Likert-based answering method. The possible answers range from (very unlikely\unhelpful to very likely\helpful) or (strongly disagree\definitely unwilling, to strongly agree \definitely willing) for each item. The scoring is as follows; questions with 4-point scale (1 = very unlikely\unhelpful, to 4 = very likely\helpful); questions with 5-point scale (1= strongly disagree\definitely unwilling, to 5 =strongly agree \definitely willing); questions number 10, 12, 15, 20 to 28, are reversed scored. Values are ranging from 35 as the lowest level of mental health literacy, to 160 as the highest level of mental health literacy (16).

The questionnaire was revalidated among 30 student who are not part of the main study, Cronbach’s alpha reliability test has been done for the MHLS ($\alpha = .81$), the test showed sufficient reliable scores above the value of (0.70) which is considered acceptable. However, it was slightly lower than the original version of ($\alpha = 0.873$). The test was done using IBM Statistical Package for the Social Sciences (SPSS) program. The content validity of the study questionnaire was reviewed by the experts in the field in the Department of Community Health in Universiti Putra Malaysia, in which the supervisory committee reviewed the questionnaire wordings to make sure that the questions will be understood by the respondents without any difficulty. Necessary adjustments were carried out based on the suggestions made by the experts.

The study was carried out between September 2018 to December 2019. Statistical calculations were performed using IBM Standard Statistical Software Package (SPSS) 23.0 for Windows.

Statistical calculations involved both descriptive and bivariate analysis. Inferential statistical test used such as one-way ANOVA and independent t-test to measure the association between the variables and mental health literacy scale score. In all the statistical analyses, a “p” value of < 0.05 (95% Confidence interval) considered to be statistically significant. Predictors of mental health literacy were assessed using simple linear regression.

3.0 Result

A total number of 153 students participated in this study (i.e. response rate 30.6%). The mean for the mental health literacy scores for the international postgraduate students of UPM in Serdang campus is 111.42 (SD 13.93, minimum 68.00, maximum 148.00, 95% CI 109.19–113.64), the scale was moderately skewed (skewness .145, kurtosis .221) with a standard error of (.196) and (.390) respectively. The majority of the students were males (60.8%), and between 25 to 34 years old (55.6%); more than (70%) were from the Middle East and Africa, the majority are coming from middle-income countries (81%), 56.2% of them said they never studied any subject related to psychology. 88% of the students reported not having a mental illness previously, and only 27.5% reported having a family member or a friend with mental illness, and 21.6% of them mentioned going to a mental health professional for personal reasons or with loved ones. Most of them favoured formal learning methods as an optimum way to learn about mental illness (56.9%), these results are shown in detail in (Table I).

Statistical analysis using mean-comparing formulas showed that females and the students who have been to a mental health professional personally or with a loved one (BMHP), had higher mental health literacy scale (MHLS) score compared to the rest of the students ($p < 0.05$). The variables Cultural Region and Age showed differences, but these differences yielded no statistical significance ($p > 0.05$). The rest of the results are displayed in detail in (Table II).

At the end, simple linear regression models were used to show the relationship between the MHLS score and the independent variables. For the variable (Gender) the simple linear regression test was found to be statistically significant for the sub-variable “Female” ($P < 0.05$). With weak degree of correlation suggested ($R = 0.318$), Only 10.1% of the change in dependent variable (MHLS mean score) can be explained by the change in the variable Gender ($R^2 = 0.101$). While for the variable BMHP, the simple linear regression test was found to be statistically significant for the sub-variable “No” ($P < 0.05$). With weak degree of correlation suggested ($R = 0.283$), Only 8% of the change in dependent variable (MHLS mean score) can be explained by the change in the variable BMHP ($R^2 = 0.08$). Despite that the variables Age and Cultural Region did not show significant association, simple linear regression models were done as well, due to their relative closeness to the statistical significance point ($p = 0.05$). The results are displayed in (Table III).

Table I: Characteristics of the international postgraduate students (N= 153).

Variables characteristics:	n	%
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Age (years)		
18 – 24	9	5.9
25 – 34	85	55.6
35 or above	59	38.6
Gender		
Male	93	60.8
Female	60	39.2
Cultural Region		
Middle East and North Africa	54	35.3
Sub-Saharan Africa	57	37.3
Southeast Asia	10	6.5
China	4	2.6
South Asia	28	18.3
Country income class		
Low income	18	11.8
Low middle income	77	50.3
High middle income	47	30.7
High income	11	7.2
SSRP¹		
Yes	58	37.9
No	86	56.2
Not sure	9	5.9
PMI¹		
Yes	7	4.6
No	135	88.2
Not sure	11	7.2
HFMI¹		
Yes	42	27.5
No	97	63.4
Not sure	14	9.2
BMHP¹		
Yes	33	21.6
No	116	75.8
Not sure	4	2.6

Note: (1) – SSRP: Studying subject related to psychology, PMI: Previously having a mental illness, HFMI: having a family member or a friend with mental illness, BMHP: being to a mental health professional personally or with a loved one.

Table II: Statistical analysis of the study variables using mean-comparing formulas (N= 153).

Variable	n	mean MHLS ³	SD	95% CI Lower Upper	Min	Max	p value
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Variable	n	Mean	SD	Min	Max	n	Mean	p value
Age								0.06
18-24	9	108.0	19.46	93.04	122.9	68	139	
25-34	85	113.0	13.08	110.9	116.6	82	146	
35≤	59	108.0	13.78	104.9	112.1	77	148	
Gender								<0.01
Male	93	107.8	12.03	105.4	110.3	68	134	
Female	60	116.9	14.96	113.0	120.8	82	148	
Cultural Region²								0.07
ME & NA	54	107.0	14.26	105.6	113.4	77	146	
SSA	57	107.0	10.85	107.3	113.1	92	139	
SEA	10	123.5	11.38	113.1	129.3	101	139	
China	4	115.0	18.75	83.90	143.6	93	132	
SA	28	113.0	17.69	107.0	120.7	68	148	
Income class								0.38
Low income	18	112.7	14.77	105.3	120.1	77	146	
Lower middle	77	111.5	13.92	108.3	114.6	68	148	
Upper middle	47	112.4	13.43	108.5	116.4	82	139	
High income	11	104.5	14.65	94.7	114.4	87	134	
SSRP¹								0.58
Yes	58	112.2	14.53	108.4	116.0	82	145	
No	86	110.5	14.00	107.5	113.5	68	148	
Not Sure	9	114.8	8.585	108.2	121.4	101	127	
PMI¹								0.27
Yes	7	118.4	20.49	99.48	137.3	96	146	
No	135	110.8	13.58	108.4	113.1	68	148	
Not sure	11	114.4	13.31	105.6	123.5	95	133	
HFMI¹								0.58
Yes	42	113.3	13.58	109.0	117.5	77	146	
No	97	110.6	13.98	107.8	113.4	68	148	
Not sure	14	111.4	15.03	102.7	120.0	95	139	
BMHP¹								<0.01
Yes	33	118.8	13.53	114.0	123.6	101	148	
No	116	109.5	13.45	107.1	112.0	68	139	
Not sure	4	105.0	12.35	85.34	124.7	95	123	

(p <0.05) is significant, one-way Anova formula was used, or non-parametric equivalent formulas. Note: (1) – SSRP: Studying subject related to psychology, PMI: Previously having a mental illness, HFMI: having a family member or a friend with mental illness, BMHP: being to a mental health professional personally or with a loved one. (2) – ME & NA: Middle East & North Africa region, SSA: Sub-Saharan Africa region, SEA: Southeast Asia region, SA: South Asia region. (2) – non-parametric formula was used. (3) – MHLS: Mental Health Literacy Scale mean score.

Table III: relationship between the MHLS score and the independent variables using simple linear regression models (N= 153).

Variable	Unstandardized Coefficients	Standardized Coefficients	t	p value
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	B	Std. Error	Beta		
Age					
25-34 (Constant)	113.8	1.5		76.2	
18-24	-5.8	4.8	-0.098	-1.2	0.23
35≤	-5.3	2.3	-0.185	-2.2	0.02
Gender					
Female (Constant)	116.9	1.7		68.3	
Male	-9.046	2.2	-0.318	-4.1	<0.01
Cultural Region¹					
SEA (Constant)	121.2	4.3		27.8	
ME & NA	-11.73	4.7	-0.404	-2.4	0.01
SSA	-11.02	4.7	-0.384	-2.3	0.02
China	-7.450	8.1	-0.086	-0.9	0.36
SA	-7.307	5.1	-0.203	-1.4	0.15
BMHP²					
Yes (Constant)	118.8	2.3		50.7	
No	-9.245	2.6	-0.285	-3.5	<0.01
Not Sure	-13.88	7.1	-0.158	-1.9	0.05

($p < 0.05$) is significant, simple linear regression formula was used. Note: (1) – ME & NA: Middle East & North Africa region, SSA: Sub-Saharan Africa region, SEA: Southeast Asia region, SA: South Asia region. (2) - BMHP: being to a mental health professional personally or with a loved one.

4.0 Discussion

The postgraduate international students of this study achieved a mental health literacy scale (MHLS) mean score of 111.42 point. Students' samples from two previous studies in UK and Australia achieved scores of 122.88 and 127.38 point respectively on the MHLS, both scores are higher than score achieved by the students of this study. The recruited sample in the Australian study composed of two different sets of population, one was from university students living in Australia, while the other were from mental health professionals. On the other hand, the UK study composed only from students from a university in the UK (Gorczyński et al., 2017; O'Connor & Casey, 2015). This study on the other hand composed multiracial respondents of various nationalities and backgrounds, but at least all of them were on in the process to acquire (or already holding) a postgraduate certificate in different studies. Most of the students (more than 60%) were males and younger than 35 years old. The majority (more than 70%) were Middle Eastern or African, while the remaining were of Asian descent. More than 80% were from middle-income countries. Only about 40% of them mentioned studying subjects with relation to psychology.

When looking at differences in mean scores between age groups, students aged between 25 to 34 years old scored the highest mental health literacy at 113 point, while both either younger or older groups scored less at 108 point, although the difference was not conclusive ($p = 0.06$), the result is worth to be looked at despite not presenting a statistical significance. The results of this study were similar with a study done on Australian adults in 2008, in which no significant difference observed across different age groups (18 to 70<) of the respondents; the study used vignette describing depression or schizophrenia, unlike our study which used quantitative instrument (Farrer et al., 2008). On the other hand, another study found that younger people had better recognize abilities compared to all older age groups, the study had wide range of age (18 to 71) among its respondents picked up from different European countries, and utilized vignettes instruments as well (Hadjimina & Furnham, 2017). It is unclear why students in this particular age range (25 to 34) would fare better than their younger or older counterparts;

however, previous literatures have talked about cognitive function, learning, focusing, attention and memory, and how these functions would vary considerably across individuals and through age (Glisky, 2007). Additionally, both previous studies enjoyed having access to a wider range of respondents, which were distributed more evenly as well relative to this study.

Regarding gender variation in mental health literacy (MHL) in this study, females presented with a significant higher scores compared to males ($p < 0.05$), about 9 points in mean difference, which was similar to previous study done in UK using the mental health literacy scale, the study found out that females scored 9 points higher than their males counterparts (Gorczyński et al., 2017). Moreover, this study also gave similar results as other studies which used different instrument i.e. mental illness identification vignettes (Furnham et al., 2009; Hadjimina & Furnham, 2017). On the other hand, another study done by Furnham et al in 2014 presented no difference between both genders when examining mental health literacy (Furnham et al., 2014). In general, the theme of female presenting with higher mental health literacy appears to be frequent in previous literature, it possible that such gender variations are linked to the females psychological nature; for long time, female perceived to be more caring, mentally present and highly responsive to any possible emotional stimuli, their surrounding people actions and behaviours ; however, these differences remain to be scientifically proven (Christov-Moore et al., 2014; A. H. Fischer et al., 2018; A. Fischer & LaFrance, 2015).

Culturally, the students presented with a relative significant difference in mental health literacy mean scores ($p = 0.07$), with students from Southeast Asia (SEA) presenting with the highest score at around 121 points, while students from the Middle East and North Africa, Sub-Saharan Africa, China and South Asia (ME, NA, SSA & SA) presented with scores 11.7, 11, 7.4 & 7.3 points respectively lower than SEA students. When conducting simple linear regression, only means scores of the students from both the Middle East and North Africa, and the Sub-Saharan Africa regions presented with significant difference ($p < 0.05$), while the rest of the cultural regions differences where not significant. Previous studies looked about differences in mental health literacy among populations with different cultural background. A study done by group of researchers in 2015 on two different cultural populations i.e. Europeans and Asians, the study found out that Europeans and Asians differed significantly in mental illness recognition, and help-seeking beliefs, in which Europeans presented better mental health literacy elements compared to Asians (Altweck et al., 2015).

Unlike the cultural variations in the students' mental health literacy seen above, the study found no statistically significant difference in mental health literacy across the students' countries income classes ($p = 0.38$), this probably resulted because the students were chosen from the educated classes of their respective region, and not from the general population, those students have great similarities being studying in the same university, receiving similar quality of education, and probably some of them enjoyed better living standards relative to their communities, these factors probably contributed to minimizing any differences to be statistically observed. Although this study resulted in negative differences across different countries' income classification of the students, poor mental health literacy has been brought up by previous literature as a result of poor mental health services, policymaking and lack of infrastructure, which in turn was attributed to lacking of resources in lower and middle-income countries (Ganasen et al., 2008; Jacob, 2017).

In the previous study done in Australia where the mental health literacy scale (MHLS) first introduced, the researchers have selected the respondents used in their study out of two sets of population, the selected sample came from both mental health professionals population as well

as the general (students) community, the results came with significant statistical difference between both population of the sample, where the mental health professionals scored higher mean score than the general community (O'Connor & Casey, 2015). On the other hand, this study did not pursue similar sampling method but opted instead to perform proportional allocation simple random sampling, students been asked to answer wither they studied or not any subject related to psychology (SSRP), the mean score came slightly and not statistically significant higher in student who answered (YES) and studied subjects with possible relation to psychology ($p=0.58$). It is expected that professional mental health specialists would perform better than students who have studied subject might be related to psychology.

The mean score for the students who reported having mental illness previously (PMI) scored higher in MHLS at 7.6 points more than the students who did not report having mental illness previously, but this difference yielded no statistical significance ($p=0.27$). On the other hand, previous studies done in UK, and Australia showed different results, both previous studies outcomes resulted in a significant statistical difference between students mentioned having mental illness previously compared to students who said otherwise (using the MHLS), with a mean difference of 14 and 5 points for UK, and Australia studies respectively (Gorczyński et al., 2017; O'Connor & Casey, 2015). The insignificant outcome in this study is probably attributed to the large variance figure in this study compared with previous studies (about three times larger), which is due to the widely distributed MHLS scores across the board for the students who mentioned having mental illness previously, it is known that the larger the variance (σ^2), the lower the power (p). In the formula for (z) increasing (σ^2) increases the denominator and therefore lowers (z) and power (p).

Moreover, statistical tests yielded no significant difference when the students got asked about having a family member or a friend with mental illness ($p=0.58$), and the mean difference came only 3 points higher in the students who reported having a family member or a friend with mental illness. On the other hand, the previous Australian study yielded statistical significance when the same question has been asked, respondents who had a family member or a friend with mental illness got a higher score on the MHLS (O'Connor & Casey, 2015). Cultural differences may have been a factor which might be affecting the outcome in our study, in which people perceive and react to mental illness according to their believes, experiences, culturally norms and traditions. In future studies, narrowing the question asked to (having a family member with mental illness) might be more conclusive in presenting significant difference, since it is expected that people would be much more invested emotionally in their family life than friends.

Finally, when students were asked about being to mental health professionals for personal reasons or with loved ones, this question resulted in a statistically significant difference in mental health literacy scale mean score ($p<0.01$), the students who reported going to mental health professionals had higher MHLS with a mean score higher than the students who reported not going to mental health professionals, with a mean score difference of above 9 points. This outcome came aligned with the previous Australian study (using the MHLS), which reported a similar significant difference between both groups of respondents (O'Connor & Casey, 2015). Comparing this clear significant difference to the previous variable (students who have a family member or a friend with mental illness), it can probably shed a light on the people behaviour responding to actions and incidents during their life, in which some incidents might lead them to seek knowledge on mental health, while other incidents not, the previous variable as seen above did not yield a significant difference as in this variable in our hands, and it appears that the respondents needed serious motivation that would affect their life immensely in order for

them to start investing additional time and effort to learn and understand mental illnesses and mentally ill population.

It is important to point out that the instruments used in most of the studies that we brought up in the discussion were either, non-scale-based qualitative instruments, or quantitative instruments that tested for only some of the components as per Jorm et al definition in 1997 of the Mental Health Literacy (MHL). On the other hand, the Mental Health Literacy Scale (MHLS) instrument used in this study is known to include all the components of MHL as defined by Jorm with decent psychometric properties (Jorm et al., 1997; O'Connor & Casey, 2015). The MHLS instrument opens a new horizon for future studies in the MHL field that were lacking standardization in scale measurements in the past as seen in earlier studies (O'Connor et al., 2014; Wei et al., 2015).

5.0 Conclusion and recommendation

This study has investigated mental health literacy variations among the international postgraduate students of public university in Malaysia. The mean score of the mental health literacy scale of the students came lower than previous similar studies. The students in this study were mostly from African or Middle Eastern origin, coming from middle-income countries. While the two previous similar studies were done in high-income western countries and did not focus on international students like our study. Female students, and the students who mentioned being to a mental health professional personally or with a loved one had higher mental health literacy compared with the rest of the students. Variations in mental health literacy were also observed based on different cultural regions of the students' origin and based on different age groups. However, both previously observed variations did not result in statistical significance. The sampling method used in this study and the diversity of the students' backgrounds probably played an important role in giving these results.

Since that the students had lower mental health literacy compared with previous studies, this indicate the need for educational programs designed specially to raise the mental health literacy among the students. Mental health literacy is an essential tool in controlling the rising figures in losses related to mental illness among the students, as many previous studies shown that students are subjected to increased risk in contracting mental illness.

It is probably better as well to focus on a narrower students' sample, specifically students who displayed lower mental health literacy compared to the rest of the students, like Middle Eastern and African students. Further investigation into the association between income and culture on one side, and mental health literacy on the other side could reveal some important findings in future studies.

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Declaration

We, the authors of the article declare that there is no conflict of interest regarding publication of this article.

Authors contribution

Author 1: Data collection and manuscript preparation.

Author 2: Supervision and final editing.

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