



Original article

Factors associated with mental health literacy among healthcare workers in a university hospital in Selangor

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ABSTRACT

Introduction: Mental illnesses contribute to massive economic loss, especially in terms of years lost to disability (YLDs). By 2030, economic loss from mental illnesses is projected to hit USD 6 trillion. Mental health literacy encompasses the knowledge and belief surrounding mental health issues that play a vital role in promoting the wellbeing of healthcare workers (HCWs). University hospitals, like any healthcare institution, rely on its workforce to provide quality care to patients. However, HCWs may face mental health challenges that can significantly impact their wellbeing and the quality of patient care. Thus, a comprehensive understanding of the mental health literacy level among HCWs is essential in identifying areas for improvement so that targeted interventions can be implemented.

Methods: The study utilised a cross-sectional design to investigate mental health literacy among HCWs at Hospital Sultan Abdul Aziz Shah, Selangor. A pre-tested, self-administered questionnaire was distributed to determine factors associated with mental health literacy among HCWs. Statistical analysis was performed with IBM Standard Statistical Software Package (SPSS) version 29.0 for Windows.

Results: Among the 218 HCWs who responded, the average mental health literacy score was 106.65 points. The majority of respondents were females, Malays, and with tertiary education qualifications. Of the six variables that exhibited significant associations with the mental health literacy score, three emerged as predictors, namely i) individual monthly income, ii) help-seeking behaviours, and iii) stress.

Conclusion: These findings underscore the significant associations between mental health literacy scores and various factors, including individual monthly income, help-seeking behaviours, and stress levels. Addressing these predictors and implementing targeted interventions could improve MHL among all HCWs. Furthermore, there is a pressing need for comparative and intervention studies encompassing diverse professional groups to offer a comprehensive understanding and improvement of mental well-being within various occupational settings.

1. Introduction

Mental health literacy (MHL) originated from the broader concept of health literacy. It is defined as “knowledge and beliefs about mental disorders which aid their recognition, management, or prevention. Initially, it was focused on improving individuals’ knowledge and understanding of mental health issues.¹ Nowadays, MHL encompasses the ability to recognise specific illnesses; seek mental health information; obtain knowledge of risk factors, causes, self-treatments, and professional; as well as instilling attitudes that promote recognition and appropriate help-seeking behaviours”.²

Globally, 1.1 billion humans, or one in every six persons suffer from

psychiatric or drug use-related problems. Worse still, the numbers are increasing each year.³ Mental illnesses are a massive contributor to economic losses, especially in terms of years lost to disability (YLDs). Around USD 6 trillion is expected to be lost due to mental illnesses by 2030.⁴ In Malaysia, 3 out of 10 persons (29.2 %) were found to have mental health disorders in 2015, a sharp rise from 11.2 % in 2006.⁵ According to the 2019 National Health and Morbidity Survey, close to half a million people in Malaysia experienced symptoms of depression.⁶ A study on MHL among 4938 people in Portugal showed that 27.2 % of them were able to identify depression and 5.5 % were able to define mental disorders.⁷ In Kenya, a cross-sectional survey involving 310 primary healthcare workers (HCWs) found that 35.6 % and 15.7 % of

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them could correctly identify depression and schizophrenia.⁸ However, a local systematic review of 25 studies in Malaysia demonstrated a low level of public mental health knowledge and awareness.⁹

According to the UNESCO Institution of Statistics, 776 million adults, or 16 % of the world's adult population lack basic mental health literacy skills.¹⁰ For example, in Sweden, 66 % of 3538 participants failed to recognise depression.⁷ According to a WHO report, only one-third (33 %) of individuals seek professional help when facing mental health issues.¹¹ A systematic review reported that 47.0–54.3 % of paediatricians showed a weak understanding of mental diseases.¹² In a study involving 1073 Swiss psychiatrists, 60 % believed psychiatric patients should be terminated and many showed social distance towards schizophrenia patients.¹³

In a recent study among 587 respondents in Klang Valley, Malaysia, less than 5 % of the respondents indicated that they or someone they knew had mental health problems. Only one-quarter (26.5 %) of them showed a good knowledge of mental health issues.¹⁴ In a cross-cultural research study involving 440 individuals from Britain, Malaysia, and Hong Kong, professional help was considered mostly by the British while the other two nationalities preferred informal help by loved ones. The British performed better at identifying psychiatric conditions in vignettes of obsessive-compulsive disorder, depression, schizophrenia, ADHD, child depression, and bipolar disorder, followed by those from Hong Kong, and lastly, Malaysians.¹⁵

For HCWs, the maintenance of good mental wellbeing is more challenging due to the demanding nature of clinical work. Therefore, it is vital for HCWs to be aware of healthy behaviours and attitudes as well as obtain a sufficient amount of knowledge about mental illnesses so that they can react in a positive manner when facing difficulties at work and in life. Moreover, they should be familiar with the appropriate help-seeking methods and abstain from stigmatising the affected patients who they may encounter in their line of work. To date, very few studies have been conducted on the HCW's awareness and knowledge of mental illness, i.e. their MHL as well as the factors linked to it. Therefore, this study aimed to evaluate the level of MHL among HCWs in a comprehensive approach.

Understanding the mental health literacy of healthcare workers is critically important because they serve as both caregivers and role models within the healthcare system. Poor MHL among HCWs may not only affect their personal well-being and job performance but also compromise the quality of care delivered to patients, particularly those with mental health conditions. Furthermore, HCWs with low MHL may unintentionally perpetuate stigma, delay patient referrals, or fail to recognise early signs of mental illness in themselves and others. By identifying the factors associated with MHL among HCWs, this study provides a foundation for targeted interventions that can enhance mental health awareness, promote timely help-seeking, and ultimately improve patient outcomes and workforce sustainability within healthcare institutions.

The findings of this study have several practical applications. First, identifying key predictors of mental health literacy among HCWs allows hospital administrators and policymakers to design targeted training programmes that address specific gaps, such as poor help-seeking behaviours or high stress levels. Second, incorporating MHL modules into continuous professional development and workplace wellness programmes can empower HCWs with the skills needed to manage their own mental health and support their colleagues effectively. Third, improved MHL among HCWs can lead to earlier detection and referral of patients with mental health conditions, contributing to better health outcomes and reduced healthcare costs. Lastly, the study can serve as a baseline for future intervention or policy-based research aiming to create a more supportive and mentally healthy work environment within hospital settings.

2. Methods

2.1. Study design and study location

A cross-sectional study was conducted at Sultan Abdul Aziz Shah Hospital in Selangor (HSAAS), Malaysia with a total of 1380 staff. The inclusion criteria for this study were all HCWs in HSAAS. Those who did not consent to participate and those on deferment or long medical leave (more than 3 months) were excluded.

2.2. Sampling frame and sample size

The required sample size was estimated for each potentially associated factor using the two-proportions formula. The highest estimated number is taken as the sample size. Based on a 95 % precision and 80 % power, the required sample size was 147 using the study factor of previous mental illness. However, the sample size was further inflated by 70 % according to a meta-analysis study on an online-based survey response rate,¹⁶ giving a final sample size of 250.

2.3. Study instruments and data collection

A self-administered questionnaire in two language versions (English and Malay) was prepared. It consisted of six sections: 1. Sociodemographic factors, 2. Occupational factors, 3. Previous psychological incidents factors, 4. Mental Health Literacy Scale questionnaire by (O'Connor & Casey, 2015),¹⁸ 5. General Help Seeking Questionnaire (GHSQ), and 6. Depression, Anxiety, and Stress 21-item scale (DASS-21).

The Mental Health Literacy Scale (MHLS) Questionnaire, developed by O'Connor and Casey in 2015, serves as a validated tool aimed at assessing individuals' comprehension and beliefs regarding mental health. It covers their ability to recognise symptoms, understanding of causes, and awareness of treatment options. This questionnaire is essential for researchers and clinicians in evaluating mental health literacy across various demographics. It helps identify knowledge gaps and informs targeted interventions to promote mental health awareness and reduce stigma.

Similarly, the General Help Seeking Questionnaire (GHSQ), widely used in research and clinical practice, is designed to gauge individuals' inclination to seek assistance for personal or emotional issues. By offering scenarios and seeking responses regarding preferred sources of support, including friends, family, or professional services, the GHSQ helps understand patterns of help-seeking behaviour. It aids in developing tailored interventions and strategies to foster proactive help-seeking attitudes and overcome barriers to accessing mental health resources.

Moreover, the Depression, Anxiety, and Stress 21-item scale (DASS-21), a widely recognised measure developed to assess psychological distress, comprises three subscales—depression, anxiety, and stress—each consisting of seven items. This comprehensive evaluation of symptom severity over the past week provides established reliability and validity, serving as a valuable tool for researchers and clinicians. The DASS-21 facilitates the screening, monitoring, and treatment evaluation of individuals experiencing symptoms of depression, anxiety, and stress, thereby enhancing mental health assessment and intervention efforts.

The complete list of healthcare workers (HCWs) was obtained from the Human Resource Department of HSAAS to serve as the sampling frame. A proportional random sampling method was employed to ensure representation across different job titles, reflecting the actual distribution of HCWs in the hospital. As nurses constituted the majority of the workforce, their proportional representation in the sample was higher, consistent with the study's aim to accurately capture the perspectives of all job titles.

To distribute the questionnaire, hard copies were initially provided directly to HCWs during work hours between May and June 2023.

However, some respondents expressed a preference for digital completion. To accommodate these preferences and enhance response rates, the questionnaire was also made available via Google Forms. This alternative allowed participant to complete the questionnaire electronically at their convenience while ensuring consistency and integrity in data collection.

2.4. Data analysis

The collected data from the questionnaires were analysed using SPSS software (IBM SPSS version 29.0). Numerical data were assessed for normality using descriptive statistics and presented as mean (standard deviation) for normally distributed variable and median (interquartile range) for not normally distributed variable. For the categorical data, frequency and percentage were used to describe the respondents' characteristics. Both descriptive and bivariate analyses were performed. Independent *t*-test, one-way ANOVA, and Pearson's correlation coefficient test were conducted for exploratory data analysis. In this study, the *t*-test was utilised to evaluate differences in means between two groups, one-way ANOVA to assess disparities among means across three or more independent groups, and Pearson's correlation coefficient to investigate the strength of linear relationships between two continuous variables. These statistical methods were selected based on the research objectives and the nature of the data under examination, with the *t*-test employed for binary comparisons, ANOVA for multi-group analyses, and Pearson's correlation for exploring associations between variables. In addition to the aforementioned statistical methods, multiple linear regression was employed to analyse the relationship between multiple independent variables and a single continuous dependent variable. This method allows for the identification of significant predictors and their respective contributions to the variation observed in the dependent variable, thereby providing valuable insights into complex relationships within the data. Results with a *p*-value of less than 0.05 were considered statistically significant.

3. Results

A total of 218 responses were obtained from 250 samples, giving an overall response rate of 87.2 %. The MHL score was normally distributed. The study's analysis reveals that the average MHL score for HCWs was 106.65, with a standard deviation of 7.6. The scores ranged from 87.00 to 126.00. The 95 % confidence interval for the mean score was between 105.63 and 107.67. The distribution of scores showed a moderate degree of skewness (skewness = 0.149) and a slightly higher than normal kurtosis (kurtosis = 0.73). The standard errors for skewness and kurtosis were 0.165 and 0.328, respectively.

Table 1 shows that the majority of the participants were females (74.3 %), Malay (94.5 %), with tertiary education (83.0 %). Their median age was 32 years. Three-quarters (76.6 %) of them have no underlying comorbidities. The median monthly income for individuals was RM 3000 (IQR: 2000). In terms of monthly household monthly, almost half was categorised under the B40 group (46.8 %).

In terms of occupation, Table 1 shows that about half of the study participants had been in service for less than 5 years (55 %). The majority of them worked less than 45 h per week (80.3 %) and did not follow shift work schedules (72.9 %). As high as 91.3 % of the HCWs denied having any mental illness previously and only 14.7 % reported having a family member or a friend with mental illness while 15.6 % of them mentioned seeking mental health professionals for personal reasons or with loved ones. Table 1 also outlines the median (IQR) scores of depression, anxiety, and stress respectively.

Table 2 shows a correlation between MHL scores and various sociodemographic factors among HCWs. Age exhibited a weak and statistically non-significant linear relationship with MHL scores ($r^2 = 0.009$, $P = 0.162$). Gender-based analysis revealed no statistically significant difference in MHL scores between males and females ($P = 0.252$).

Table 1

Sociodemographic, Occupational, Psychological status, Help-seeking behaviours and current psychological health state (n = 218).

Sociodemographic characteristics	n	%
Age (years)	Median (IQR) 32 (6)	
Gender		
Male	56	25.7
Female	162	74.3
Ethnicity		
Malay	206	94.5
Chinese	5	2.3
Indian	4	1.8
Other	3	1.4
Education level		
Tertiary (Diploma, Master, Doctoral Degree)	181	83.0
Secondary (high)	29	13.3
Other	8	3.7
Comorbidities		
Yes	36	16.5
No	167	76.7
I am not sure- I don't know	15	6.9
Individual monthly income	Median (IQR) 3000 (2000)	
Household monthly income		
B40 (< MYR 6960)	102	46.8
M40 (MYR 6960 - MYR14,439)	93	42.7
T20 (> MYR 14,439)	23	10.6
Studying subjects related to psychology		
Yes	82	37.6
No	125	57.3
I am not sure- I don't know	11	5.0
Occupational	n	%
Type of work		
Physician	29	13.3
Nurse	88	40.4
Pharmacist	8	3.7
Lab technician	13	6.0
Office staff	29	13.3
Other	51	23.4
Years of services		
< 5	120	55.0
6–10	64	29.4
> 10	34	15.6
Hours of work per week		
< 45	175	80.3
≥ 45	43	19.7
Work schedule		
Shift	59	27.1
Not shift	159	72.9
Psychological status	n	%
Previously having a mental illness		
Yes	6	2.8
No	199	91.3
I am not sure- I don't know	13	6.0
Having a family member or a friend with a mental illness		
Yes	32	14.7
No	176	80.7
I am not sure- I don't know	10	4.6
Being to mental health professionals personally or with a loved one		
Yes	34	15.6
No	182	83.5
I am not sure- I don't know	2	0.9
Help-seeking behaviours	Median	(IQR)
Help-seeking behaviours score	43	(11)
Current psychological health state	Median	(IQR)
Depression Score	3	(6)
Anxiety Score	3	(5)
Stress Score	3	(5)

Similarly, ethnicity ($P = 0.540$) and education levels ($P = 0.778$) did not significantly impact MHL scores.

In contrast, there was a statistically significant positive linear association between individual monthly income and MHL scores ($r^2 = 0.023$,

Table 2

Association between the mental health literacy score and the sociodemographic characteristics, occupational factors, previous psychological incidents factor, help-seeking behaviours and current psychological health status.

Sociodemographic characters	n	%	p-value
Age (years)	Median (IQR)		0.162
	32 (6)		
Gender			0.252
Male	56	25.7	
Female	162	47.3	
Ethnicity			0.540
Malay	206	94.5	
Chinese	5	2.3	
Indian	4	1.8	
Other	3	1.4	
Education level			0.778
Tertiary (Diploma, Master, Doctoral Degree)	181	83.0	
Secondary	29	13.3	
Other	8	3.7	
Comorbidities			0.519
Yes	36	16.5	
No	167	76.7	
I am not sure- I don't know	15	6.9	
Individual monthly income	Median (IQR)		0.024
	3000 (2000)		
Household monthly income			0.190
B40 (< MYR 6960)	102	46.8	
M40 (MYR 6960 - MYR14,439)	93	42.7	
T20 (> MYR 14,439)	23	10.6	
Studying subjects related to psychology			0.046
Yes	82	37.6	
No	125	57.3	
I am not sure- I don't know	11	5.0	
Occupational	n	%	p-value
Type of work			0.673
Physician	29	13.3	
Nurse	88	40.4	
Pharmacist	8	3.7	
Lab technician	13	6.0	
Office staff	29	13.3	
Other	51	23.4	
Years of services			0.638
< 5	120	55.0	
6 - 10	64	29.4	
> 10	34	15.6	
Hours of work per week			0.221
< 45	175	80.3	
≥ 45	43	19.7	
Work schedule			0.137
Shift	59	27.1	
Not shift	159	72.9	
Psychological status	n	%	p-value
Previously having a mental illness			0.04
Yes	6	2.8	
No	199	91.3	
I am not sure- I don't know	13	6.0	
Having a family member or a friend with a mental illness			0.218
Yes	32	14.7	
No	176	80.7	
I am not sure- I don't know	10	4.6	
Being to mental health professionals personally or with a loved one			0.007
Yes	34	15.6	
No	182	83.5	
I am not sure- I don't know	2	0.9	
Help-seeking behaviours	Median	IQR	p-value
Help-seeking behaviours Score	43	11	0.006

Table 2 (continued)

Current psychological health state	Median	IQR	p-value
Depression Score	3	6	0.328
Anxiety Score	3	5	0.124
Stress Score	3	5	0.024

P = 0.024). However, household monthly income status did not significantly influence MHL scores (P = 0.190). HCWs with a background in psychology-related subjects exhibited significantly higher MHL scores (P = 0.046).

The analysis of MHL scores in relation to occupation factors among HCWs in Table 2 reveals no statistically significant difference between MHL scores with the type of work (P = 0.673). Similarly, years of service also did not significantly affect MHL scores (P = 0.638). Regarding hours of work per week, there was no statistically significant difference in MHL scores between those working less than 45 h and those working 45 h or more (P = 0.221). Lastly, the type of work schedule (shift or non-shift) also did not significantly impact MHL scores (P = 0.137).

In examining the association between MHL and factors related to previous psychological incidents among HCWs, notable findings emerged. Firstly, there was a statistically significant difference in MHL scores based on a history of previous mental illness (P = 0.04). HCWs who had previously experienced a mental illness reported higher MHL scores (x = 114) compared to those without (x = 106.6) or were unsure (x = 104.8). Additionally, a significant difference was found in MHL scores based on whether respondents had personally visited or accompanied a loved one to see mental health professionals (P = 0.007). Those with such experiences exhibited higher MHL scores (x = 110.3) compared to those without (x = 105.9). However, no statistically significant difference in MHL scores was observed between those with or without a family member/friend with a mental illness (P = 0.218).

Table 2 also shows the association between MHL in help-seeking behaviours and current psychological health status. Help-seeking behaviour shows a positive linear association with MHL scores (P = 0.006). Current psychological health status, including depression, anxiety, and stress, shows a relatively weak linear association with MHL scores ($r^2 = 0.004$, $r^2 = 0.011$, and $r^2 = 0.023$, respectively). However, only the relationship between MHL and stress reached statistical significance (P = 0.024).

Univariate analysis shows that six variables were significantly associated with MHL scores, including individual monthly income, having studied subjects related to psychology, a history of prior mental illness, personal experience with mental health professionals, help-seeking behaviours, and stress. However, when only three remained as significant predictors, namely individual monthly income, help-seeking behaviours, and stress. Multiple linear regression analysis in Table 3 revealed that individual monthly income had a small and practically insignificant impact on MHL, explaining approximately 14.3 % of the variance. Help-seeking behaviours had a more substantial positive effect, explaining around 19.4 % of the variance. Similarly, stress positively influenced

Table 3

Predictors of mental health literacy.

Variable	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
Individual monthly income*	0.000	0.000	0.143	2.187	0.030
General help-seeking behaviours	0.180	0.061	0.194	2.971	0.003
Stress	0.298	1.49	0.173	2.000	0.047

(P < 0.05) is significant.

* income per RM1.00 increment.

MHL scores, explaining approximately 17.3 % of the variance. Collectively, these three independent variables explained 10.1 % of the variation in MHL scores.

4. Discussion

In this study, the MHL scores of HCWs in HSAAS averaged 106.65 points. This was lower than the mean scores reported in prior studies conducted by Gorczynski et al. (2017) and O'Connor & Casey (2015)^{17,18} which reported 122.88 and 127.38 points, respectively. However, the variation could be attributed to the differences in the study population. This study consisted primarily of respondents who were Malays, with tertiary education, female nurses, and with lower income classifications (B40, M40, T20). These sociodemographic elements could contribute to variations in the MHL levels as ethnicity and income classification have been demonstrated to influence MHL.^{19–21}

From our findings, age did not show any significant impact on the MHL of HCWs, consistent with previous research.²² The similarities between our results and Hadjimina & Furnham (2017) further underline the consistency of MHL across various age groups,²³ likely attributed to the specific characteristics of HCWs and the narrower age range among our study population. Gender was also not significantly related to MHL, echoing the results of Furnham et al. (2014).²⁴ In contrast to several published studies (Altweck et al., 2015; Bener & Ghuloum, 2011) that highlighted differences in MHL based on ethnicity, our study revealed no such disparities.^{19,20} We postulated that this lack of difference could be attributed to the professional nature of our HCWs study sample, thus potentially mitigating the influence of ethnicity on MHL.

Despite having a big proportion of participants (83 %) with tertiary education, there was no significant difference in MHL between different education levels, in contrast to Lee et al. (2022) who reported an association between lower education levels and limited health literacy.²⁵ This discrepancy may be attributed to the more extensive formal medical education received by the HCWs in our study. Next, the significant association between individual monthly income and MHL in our results also aligned with existing literature. Higher-income individuals have greater access to educational resources and health information, thus contributing to better MHL.²⁶ However, our study did not identify a statistically significant association between MHL and household monthly income, unlike Holman (2015) who reported limited access to mental health information in low-income households.²⁷

O'Connor & Casey (2015) was one of the first studies that used the MHL Scale to compare mental health professionals and the general community.¹⁸ Their results highlighted a significantly higher mean score among mental health professionals. Our study replicates this trend, indicating a significant difference in MHL among HCWs based on their study subjects, particularly those with a background in psychology. Studies exploring MHL among workers often overlook specific occupational influences. A study among medical professionals in China showed that community health workers had a higher level of mental health awareness than non-community medical staff.²⁸ In our study, we examined various occupational factors, including the type of work, years of service, hours of work per week, and work schedule among HCWs. However, there were no significant differences between these occupational factors and MHL. Further research is needed to explore other potential occupational factors that may influence MHL in healthcare settings.

In addition, we explored the relationship between MHL and previous psychological incidents, such as having a mental illness, having a family member or friend with a mental illness, as well as visits to mental health professionals for personal reasons or with loved ones. HCWs with a mental illness in the past exhibited a significantly higher MHL mean score. This result aligns with O'Connor & Casey's (2015) findings in which MHL was slightly better among those with previous mental illness experience. Even though our study shows that having a family member or a friend with a mental illness was not associated with significantly

higher MHL among HCWs, those who had visited mental health professionals for personal reasons or with loved ones exhibited a higher MHL score.

Apart from that, previous studies on the relationship between MHL and help-seeking behaviour showed a correlation between people's help-seeking behaviour and their mental literacy, similar to our results. As for underlying mental health states, this study found that people with depression had significantly statistically lower recognition abilities for depression compared to the healthy population.²⁹ On the other hand, another study revealed that general psychological health condition such as depression was not correlated to MHL.³⁰ Our results indicated that while there were no statistically significant differences in MHL for those with depression and anxiety, substantial variances were observed in relation to stress.

More importantly, three variables emerged as predictors of the MHL scale score, including individual monthly income, help-seeking behaviours, and stress. These findings are important for the stakeholders. To the best of our knowledge, no previous research has looked into the predictors of MHL using the MHL scale score due to the relative novelty of the instrument designed by O'Connor & Casey.¹⁸

4.1. Limitation and strength

This study offers a novel contribution by focusing specifically on mental health literacy among healthcare workers employed in a university hospital setting in Malaysia, a context that remains insufficiently studied in current research. While many existing studies have examined mental health literacy among the general population or targeted specific disorders, few have comprehensively evaluated the overall level of mental health literacy and its associated factors within the healthcare workforce in tertiary care institutions. This research is distinctive in its integration of sociodemographic, behavioural, and psychological variables to provide a more in-depth understanding of mental health literacy among healthcare professionals. Additionally, the use of a pre-tested and validated instrument, along with robust statistical analysis, strengthens the originality and methodological value of this study. It provides a comprehensive assessment of MHL, encompassing a wide array of components as defined by Jorm in 1997.² This instrument opens up new avenues for examining MHL in-depth, offering insights that were previously unattainable. Furthermore, our specific focus on HCWs constitutes a significant advantage that allows us to capture the unique challenges and experiences encountered by HCWs in a hospital setting. Furthermore, we employed appropriate sampling techniques and validated measurement tools, ensuring the reliability and validity of the data collected.

Despite its strengths, there are several limitations to this study. Firstly, the generalisability of the findings may be compromised by the inclusion of HCWs from a single centre. The issue of sample representativeness may affect the applicability of the results to other healthcare settings due to the variation in the characteristics, demographics, and work environments of different centres. Secondly, the cross-sectional design restricts the establishment of causal relationships between MHL and psychological incidents. Longitudinal studies would offer a more nuanced understanding of how changes in MHL over time can be related to psychological wellbeing.

5. Recommendations

MHL is a highly complex and relatively new concept. Therefore, it is highly recommended that relevant studies focus on a more homogenous population and aim to answer more specific research questions to achieve more conclusive results. It is also important to evaluate help-seeking behaviours as well as the psychological state of the respondents in relation to their MHL state to obtain a more comprehensive understanding of MHL and its associated factors.

As reported in previous literature, the MHL scale is the first

instrument to test all the seven components of MHL as compared to its predecessors. Thus, it offers a sufficient level of reliability and validity. Future like-minded researchers should optimise the use of this instrument to obtain reliable, valid, and comprehensive knowledge in the MHL field.

Based on the results of this study, the recommendation to implement stress management programs tailored to the needs of healthcare workers (HCWs) could help alleviate workplace stressors and promote mental well-being. Strategies may include mindfulness training, stress reduction workshops, and resilience-building activities. Moreover, the introduction of regular training sessions focused on enhancing mental health literacy among HCWs is recommended. These sessions should cover topics such as recognizing signs and symptoms of mental health disorders, understanding effective coping strategies, and promoting self-care practices.

The results of this study should not be taken as conclusive due to its cross-sectional design. There is a continuous need for further research to determine the true causal relationship between MHL and its influencing factors. In addition, it is imperative to address income-related disparities in MHL through targeted interventions and policies to ensure equitable access to mental health knowledge and resources among HCWs. Last but not least, comparative studies that compare the MHL and psychological incidence of HCWs with other professional groups or the general population. This will help identify whether HCWs exhibit unique challenges or strengths in terms of MHL and provide a broader context for understanding their mental wellbeing.

In future studies, the application of Artificial Neural Network (ANN) methods should be explored to predict and model mental health literacy levels among healthcare workers. Similar to how ANN was effectively used in the engineering field to evaluate the formability behaviour, these methods could be adapted for use in public health research.³¹ By training an ANN model with key sociodemographic, psychological, and behavioural variables, researchers may be able to accurately estimate mental health literacy scores or identify at-risk subgroups without relying solely on traditional survey methods. This approach may enhance predictive accuracy, reduce data collection time, and support the development of intelligent decision-making tools for targeted interventions within healthcare institutions.

6. Conclusion

This study confirms the reliability and validity of the Mental Health Literacy (MHL) Scale in assessing all seven components of MHL among healthcare workers. Key findings revealed that mental health literacy was significantly associated with three main factors: individual monthly income, help-seeking behaviours, and stress levels. These factors should be prioritised in designing targeted interventions to enhance MHL among healthcare professionals. Additionally, the results highlight the need for future comparative and intervention studies involving diverse professional groups to strengthen the understanding and promotion of mental well-being across various occupational settings.

7. Data management

Study data and personal information were stored using Microsoft Excel. These data were transferred to the records and documentation system under the Universiti Putra Malaysia's system. The data will be destroyed five years later. Further to this, any study participant who has requested to know the study findings will be informed via email correspondence.

Ethical approval

Ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects of Universiti Putra Malaysia (JKEUPM-2023-249). Consent from each participant was obtained using

an online or hardcopy consent form before they answered the questionnaire. They were allowed to withdraw at any point during the study.

Author's contribution

All authors contributed to the conceptualization, methodology development, result synthesis, original draft preparation, and manuscript revision. All authors have read and approved the final version of the manuscript for publication.

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Declaration of competing interests

The authors declare that they have no competing interests.

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