ORIGINAL ARTICLE

# Validity of Mental Health Literacy Scales on Helping People at Risk of Depression among Thai Students in Health Science: Cross-Sectional Study

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**Background:** Mental health literacy (MHL) has garnered global attention as a crucial element in mitigating the risks associated with depression within communities and plays a pivotal role in shaping help-seeking behaviors.

**Objective:** To develop an MHL and helping behavior (HB) scale while examining a causal relationship model of HB.

**Materials and Methods:** The present study was a cross-sectional study designed by collecting 211 Thai health science students through stratified random sampling. The development process and quality assessment of the MHL and HB measures revealed five components by trying out 30 participants with Cronbach's alpha of 0.811 to 0.901 and item-total correlations of 0.252 to 0.828. Data were analyzed by confirmatory factor analysis (CFA) and structural equation modeling (SEM) utilizing LISREL version 8.72.

**Results:** 1) CFA confirmed the construct validity of both measures with empirical data. The 15-item MHL scale achieved an overall Cronbach's alpha of 0.84 and factor loading between 0.35 and 0.85. Similarly, the 17-item HB scale achieved an overall Cronbach's alpha of 0.86 and factor loading between 0.30 and 0.79, and 2) results of the causal relationship model estimation demonstrated a significant positive direct influence of MHL on HB that MHL could predict HM by 67.00%.

**Conclusion:** Both concise measurement scales exhibited good quality, making them viable options for use by healthcare professionals or educators in screening and assessing students' abilities in aiding individuals at risk of depression.

**Keywords:** Validity; Mental health literacy; Helping behavior; Depression; Students in health science

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The global surge in mental illness is a growing concern, with less than 10% of individuals in many countries receiving adequate mental health treatment. This alarming increase encompasses a wide range of conditions, from common disorders like depression, anxiety, and schizophrenia, to rarer ones such as bipolar disorder[1]. The World Health Organization has projected that depression will become the leading cause of disease burden worldwide by 2030, underscoring the worrisome rise of depressive disorders[2]. Depression, a condition that can affect individuals from all walks of life, is highlighted as a pervasive concern[3]. Research conducted by Bromet et al.[4] revealed a one-year prevalence of major depression at 5.5% across 18 countries, while Lim et al.'s systematic review[5] identified a global prevalence of 7.2%, with notably higher rates in women and countries with medium human development indexes. The increase in mental health issues is especially pronounced among university students worldwide, as evidenced by the previous studies, all of which highlight a significant rise in both prevalence and severity over the last decade[6-10].

In Southeast Asia, Tran et al.'s meta-analysis[11] in Vietnam, found a prevalence of depression at 14.6%, with notably higher rates among health workers. Similarly, Pham et al.[12] reported a prevalence of self-reported depression at 15.2% among medical students in Vietnam. The lack of awareness surrounding mental health is also a significant issue, as demonstrated in the Philippines[13]. The study of Siriraj Hospital that

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included 148 Thai medical students found that the prevalence of depression evaluated from the Patient Health Questionnaire (PHQ-9) was 19.6%[14]. This situation can be linked to a widespread lack of awareness regarding mental health, as highlighted[15]. For Thailand, the prevalence of depression exceeds 5%[16,17], surpassing the global average[2], which estimates that 4.4% of the worldwide population, or approximately 322 million people, suffer from depression. Previous studies in Southeastern-Asian populations exhibited a modest level of awareness regarding depression disorders, a significant prevalence of stigmatizing beliefs, and a limited inclination to seek assistance from mental health professionals[18].

Mental health literacy (MHL) has emerged as a pivotal factor in reducing the risks of depression within communities, drawing the attention of mental health researchers worldwide. MHL plays a significant role in influencing help-seeking behavior and empowering communities to take preventive actions, thereby enhancing the quality of life and well-being of students and the wider population[19,20]. This growing consensus acknowledges the positive impact of MHL in addressing mental health, major depression, and behavioral health issues[21-23]. Lack of awareness, understanding of mental health problems, and delayed treatment due to familial ignorance contribute to the severity of symptoms in individuals with mental health issues[24]. Jorm et al.[25] introduced the concept of MHL, extending the term health literacy (HL), defining it as "knowledge and beliefs about mental disorders that aid their recognition, management, or prevention." MHL encompasses recognizing specific disorders, knowledge of risk factors and causes, understanding self-help interventions, awareness of available professional help, fostering attitudes conducive to recognition and help-seeking, and knowledge of where to access mental health information.

The original MHL assessment, introduced by Jorm et al.[25,26], employed vignette interviews to explore participants' understanding of individuals facing mental health difficulties. However, this approach lacked specific MHL subscales and practicality for researchers and practitioners. Moreover, research by Intarakamhang and Macaskill[27] indicated that positive psychology and HL significantly influenced health behavior. However, the impact of positive psychology on behavioral outcomes, particularly helping behaviors, remains an area with limited evidence. Studies suggest that participants engaged in gratitude and enjoyed improved relationship quality. These findings lead to the hypothesis that positive psychology may affect helping behaviors among health volunteers, a pertinent consideration in the digital age[28,29].

Helping behavior is defined as actions aimed at assisting or alleviating the distress of individuals such as casual and substantial helping, emotional support, and emergency assistance[30,31]. It differs from "prosocial behavior", which includes any friendly actions, and "altruistic behavior", driven by a primary concern for another's well-being[30]. Various theoretical perspectives such as evolutionary, genetic, cultural, and psychological explanations, explore the origins of helping behavior[32,33]. Engaging in helping behaviors offers both external and internal benefits, particularly in depression recovery[34]. Externally, it enhances social relationships, fosters cooperation, and community care[32]. Internally, helping behavior provides mental health advantages and aids in alleviating depression[34]. Previous studies found that high prosocial behavior levels correlate with reduced adolescent anxiety symptoms[35], helping behavior reduces major depressive disorder among adults, with gender differences noted[36], and links exist between helping behavior and negative effect[37], positive effect, and life satisfaction[38,39]. In summary, helping behaviors play a vital role in promoting mental health, especially in the context of depressive disorders.

The present study addressed a substantial gap in global MHL research, particularly concerning anxiety disorders, given the limited available studies[40,41]. Existing investigations on HL and MHL primarily rely on Western models, lacking specific assessments for Thai university students. Surveys conducted in Thailand in 2014 and 2016 revealed concerning levels of inadequate HL, with 59.4% and 49.0% of adults, respectively, lacking sufficient HL[42]. These figures mirror global trends, with 32.5% of the U.S. population demonstrating low HL[43]. As a result, the present study aimed to develop an MHL and behavior scale. The research hypothesis, measurement model, and causal relationship model align well with empirical data, offering valuable insights.

## Materials and Methods

This cross-sectional study investigated the link between MHL's causal model and helping behavior of people at risk of depression using empirical data between March and September 2023. The study focused on Thai health science students in Bangkok and Nakhon Nayok universities. The sample included

third to sixth-year medical science students, categorized by field as medicine, nursing, psychology, and physical therapy, who willingly took part in all studies. The sample size was calculated to meet statistical guidelines, exceeding the recommended 200 individuals for confirmatory factor analysis (CFA)[44], and 10% of the sample size for missing protection. A sample size of 220 was required through stratified random sampling.

### Data collection

Amid the COVID-19 pandemic, the research team collected data online. They obtained permission and scheduled meetings with deans, faculty, and student leaders in various branches. Working with a research assistant and local representatives, they explained the study's goals and guided participants on completing surveys via Line groups. The researchers followed ethical guidelines and secured approval (SWUEC/E, No. 055/2566E) from the University's Institutional Review Board (IRB).

The authors' efforts to protect participant anonymity included several implementations. First, before data collection, the authors gained ethical approval, signifying that the ethical review board thoroughly evaluated and sanctioned the methodology. Furthermore, participants were supplied with thorough information regarding confidentiality methods, including the use of pseudonyms, the secure management of data, and a thorough informed consent process. These measures were designed to protect the privacy of the participants and maintain the ethical standards of the present study. It emphasized the commitment to ensuring adherence to ethical guidelines throughout the study, safeguarding participants' rights, and well-being.

### Instruments and quality assessment

A five-point Likert scale with 1=not true at all to 5=absolutely true, assessed questionnaire items, based on operational definitions from conceptual models. Measuring tools included 1) MHL, adapted from Jorm et al.[25] and O'Connor & Casey[45], covering knowledge in five areas, and 2) helping behavior[36,46], encompassing two perspectives. The content's validity was leveraged by conducting a comprehensive examination and selecting items based on their relevance to the constructs being studied. Furthermore, a preliminary study was performed to determine the credibility of the present study tools. The feedback obtained from participants in the pilot study enabled the authors to enhance and optimize the precision and suitability of the research measurement instruments. Validation achieved the content validity index (CVI) of 0.67 to 1.00 with three experts[47]. Testing with 30 participants similar to the study group yielded Cronbach's alpha of 0.811 to 0.901 and item-total correlations of 0.252 to 0.828[48].

### Data analysis

Descriptive statistics, such as means and standard deviations, were used to examine key data aspects by IBM SPSS Statistics, version 26.0 (IBM Corp., Armonk, NY, USA). CFA assessed the measurement model's consistency with empirical data, and Structural Equation Modeling (SEM) analyzed the causal relationship model's fit. Model fit was evaluated using benchmarks including a statistically significant chi-square ($\chi^2$), $\chi^2$/df ratio less than 5, root mean square error of approximation (RMSEA) of 0.08 or lower, standardized root mean square residual (SRMR) less than 1.00, comparative fit index (CFI) greater than 0.90, goodness of fit index (GFI) greater than 0.90, and normed fit index (NFI) greater than 0.90, as outlined in reference[44]. Data analysis utilized LISREL version 8.72.

## Results

### General characteristics of the sample

The data of the online questionnaire collection from 211 Thai health science students were complete and clean. They were predominantly females at 80.57%, males at 16.11%, and others or not specified at 3.32%. They were distributed across faculties with Faculty of Health Sciences/Psychology at 29.38%, Faculty of Physical Therapy and Public Health at 26.07%, Faculty of Nursing at 25.12%, and Faculty of Medicine at 19.43%. In terms of the year, 52.13% were in the third year, 27.93% in the fourth year, 15.17% in the fifth year, and 4.77% in the sixth year. Regarding financial status, 47.87% had adequate finances or no savings, 37.44% had sufficient funds with savings, 11.37% faced financial insufficiency or no debt, and the other 3.32% did not specify. Most students lived with their families for 53.5% while also having roommates for 31.28%, sharing housing with friends for 11.37%, and living alone for 3.80%, respectively.

### Quality assessment of the scales: development and quality assessment of the MHL and helping behavior measures

The development and quality inspection of the

**Table 1.** Quality assessment of MHL scale

| | MHL of Thai students in health science | Correlation coefficient (r) | Factor loading |
|---|---|---|---|
| Compound 1: Knowledge of how to seek mental health information (Cronbach's alpha=0.86) | | | |
| 1 | I know how to educate myself about mental health issues. | 0.53 | 0.68 |
| 2 | I know how to access resources to research mental health issues. | 0.60 | 0.85 |
| 3 | I know of several reliable mental health resources or websites. | 0.56 | 0.84 |
| Compound 2: Knowledge of risk factors and causes (Cronbach's alpha=0.77) | | | |
| 4 | I know how to avoid stressful situations. | 0.27 | 0.36 |
| 5 | Lack of adequate rest can result in mental health problems. | 0.38 | 0.63 |
| 6 | I understand that family background is often one of the factors that predisposes most people to mental health problems. | 0.36 | 0.60 |
| Compound 3: Knowledge of self-treatments (Cronbach's alpha=0.74) | | | |
| 7 | I learn to understand the cause and how to end suffering to reduce my discomfort. | 0.53 | 0.68 |
| 8 | I learn how to control my emotions with the advice of a psychologist. | 0.56 | 0.63 |
| 9 | I know how to set aside time for hobbies or relaxation. | 0.53 | 0.67 |
| 10 | Scheduling work to finish early helps me reduce anxiety. | 0.40 | 0.50 |
| Compound 4: Knowledge of professional help available (Cronbach's alpha=0.66) | | | |
| 11 | I know of a mental health facility where I can go for counseling. | 0.47 | 0.61 |
| 12 | I can see a psychologist or psychiatrist for initial help | 0.60 | 0.73 |
| Compound 5: Attitudes that promote recognition and helping (Cronbach's alpha=0.72) | | | |
| 13 | A psychologist can give me advice on social adjustment. | 0.51 | 0.64 |
| 14 | I think that when stress starts, it's a good idea to consult a mental health professional. | 0.46 | 0.63 |
| 15 | People with mental illness should learn how to tolerate their discomfort with the support of a psychologist. | 0.24 | 0.35 |

Cronbach's alpha of total MHL=0.84

MHL was measured from five components, 1) knowledge of how to seek mental health information, 2) knowledge of risk factors and causes, 3) knowledge of self-treatment, 4) knowledge of professional help available, and 5) attitudes that promote recognition and help. The number of questions was 15. The discriminant power was between 0.24 and 0.60, and the reliability of the entire questionnaire was 0.84.

The results of the construct validity analysis using CFA found that the constructed measurement model was in harmony with the empirical data (chi-square=98.58, df=80, p=0.08; chi-square/df=1.23; RMSER=0.03; SRMR=0.05; GFI=0.94; CFI=0.99; NFI=0.95), indicating that the measure has construct validity. When considering the standard component coefficients (factor loading), it was found that every question passed the standard criteria. The value was between 0.35 to 0.85, passing Kline's acceptable level[49] as shown in Table 1.

For the development of the helping behavior measure, it was found that the helping behavior measure consisted of two components, 1 and 2. The number of questions was 17, with a discriminatory power value between 0.24 and 0.62 and a confidence value for the whole version equaled to 0.86. The results of the construct validity analysis using first-order CFA revealed that the constructed measurement model was in harmony with the empirical data (chi-square=203.39, df=105, p=0.00, chi-square/df=1.94, RMSER=0.07, SRMR=0.07, GFI=0.90, CFI=0.96, NFI=0.92), indicating that the measure had construct validity. When considering the standard factor loading coefficients, it was found that all questions passed the standard criteria with values between 0.30 and 0.79, passing Kline's acceptable level[49] as shown in Table 2.

### Analysis of the causal relationship model of helping behavior

For the results of the analysis of the causal relationship between MHL and helping behavior, the estimating causal relationship model found that the developed causal relationship model was in line with the empirical data (chi-square=17.64, df=11, p=0.09, chi-square/df=1.60, RMSEA=0.05, SRMR=0.03, CFI=0.99, NFI=0.97, GFI=0.98). The harmony index of the causal relationship model was within the acceptable criteria for every value, and when considering the direct influence of MHL on helping behavior, it was found that MHL had a direct and positive influence on helping behavior. It was statistically significant at the 0.05 level with an

**Table 2.** Quality assessment of helping behavior scale

| | Helping behavior of Thai students in health science | Correlation coefficient (r) | Factor loading |
|---|---|---|---|
| Compound 1: Casual and Substantial helping behavior (Cronbach's alpha=0.85) | | | |
| 1 | I often lend things or money to people who ask for help or when the opportunity arises. | 0.24 | 0.30 |
| 2 | I am ready to donate things when I see the announcement asking for help. | 0.52 | 0.50 |
| 3 | I always donate money, items, or food to help society. | 0.52 | 0.50 |
| 4 | When I have the opportunity, I offer help to others that they haven't asked for. | 0.42 | 0.41 |
| 5 | I noticed a tourist getting lost, so I immediately walked over and gave directions. | 0.46 | 0.57 |
| 6 | When I see an injured animal on the side of the road, I will help or bring it to a medical facility. | 0.35 | 0.51 |
| 7 | When I see an elderly or handicapped person crossing the road, I will rush over to help. | 0.60 | 0.75 |
| 8 | I am ready to report to the responsible agency if I see anything that could cause harm. | 0.54 | 0.65 |
| Compound 2: Emotional and mental helping behavior (Cronbach's alpha=0.86) | | | |
| 9 | I understand everyone's problems. | 0.47 | 0.57 |
| 10 | I help and encourage those who are underprivileged or suffer from various disasters. | 0.62 | 0.66 |
| 11 | I will willingly help out as a mentor to a friend if he or she needs it. | 0.46 | 0.44 |
| 12 | I have sympathy for friends who are troubled or distressed. | 0.40 | 0.46 |
| 13 | I volunteered to provide mental health counseling services. | 0.48 | 0.58 |
| 14 | I am willing to sacrifice my personal time to learn how to help those in need. | 0.53 | 0.64 |
| 15 | I am ready to coordinate with mental health services. | 0.52 | 0.79 |
| 16 | I have been able to develop myself to be well-versed in helping people with mental health problems. | 0.52 | 0.70 |
| 17 | I support the care of people with mental health problems whenever possible. | 0.55 | 0.69 |

Cronbach's alpha of total helping behavior=0.86

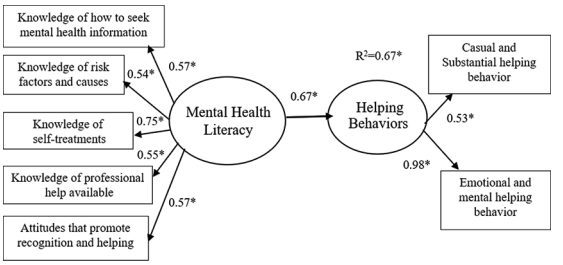


**Figure 1.** Causal relationship model between mental health literacy (MHL) and helping behavior of Thai students in health science.

influence coefficient of 0.67 and could explain 67% of the variance in helping behavior. For explaining the components of MHL, knowledge of self-treatments was significantly found to have the highest factor loading at 0.75. Furthermore, emotional, and mental helping behaviors were shown significantly to have the highest factor loading at 0.98, for explaining the components of helping behaviors, as shown in Figure 1.

## Discussion

The MHL Scale was developed, incorporating concepts from Jorm et al.[25] and O'Connor & Casey[27], adapted to the Thai context, resulting in a reliable 15-item MHL scale with a high overall reliability of 0.84. Similarly, the helping behavior scale, based on McGuire[31] and Baston[33], which comprised 17 items and exhibited an excellent reliability of 0.86. Both scales met acceptable factor loadings of 0.53 to 0.98 through CFA, validating their practicality for assessing MHL and helping behavior among Thai health science students. However, this MHL scale as short measurement had acceptable quality and knowledge and attitude factors predicting the helping behaviors of university students. Hence, the MHL scale serves as a suitable tool for assessing the younger generation, who are more inclined to spend less time responding to inquiries, and it demonstrates reliability in forecasting behaviors. There was a difference from the measurement of O'Connor et al.[49], the longer 35-item MHL Scale with Cronbach's alpha of .87, which measured recognition of mental health disorders, knowledge of information sources, comprehension of causes and risk factors, knowing how to seek help, familiarity with available resources, and fostering positive attitudes toward mental health awareness and help-seeking. Consistent with the study of Poreddi et al.[50], it proposed an MHL measurement with 33 items covering mental illness etiology, knowledge, and attitudes promoting health behaviors.

The causal relationship model aligned well

with empirical data, indicating a direct and positive relationship between MHL, and helping behavior at a significance level of 0.05. MHL could predict helping behavior of 67%. Consistent with prior studies that found that personality traits reflecting positive emotionality linked to altruistic behaviors[38,39]. The results were confirmed by Ginggeaw & Prasertsri's study on the relationships between HL and health behavior among adults with chronic diseases[51]. Similar results were also found that the causal relationship model of sufficient health behavior was consistent with the empirical data. In addition, HL positively influenced sufficient health behavior with a direct effect=0.82, $p<0.001$, and HL was a key factor that could predict sufficient health behavior by 67.00% as well[52]. Future research could explore additional factors, like personality traits and self-emotions, influencing MHL and helping behavior, as studied in HL and personality traits[52,53]. Comparative studies with samples facing mental health challenges, such as individuals with mental health problems[54], might provide valuable insights.

Additionally, the present study attempts to avoid collecting data from people who have severe mental health difficulties. A professional practitioner will be provided to assist them appropriately. It might have potential confounding variables that specifically focus on the influence of mental health status on survey results. There might be limitations associated with these factors, acknowledging their potential impact on the study's outcomes.

## Limitation

The current study employed an online survey to gather data, which may present significant obstacles in terms of ensuring high-quality random sampling, attaining statistical confidence, and minimizing the margin of error. Some participants were less likely to stay fully engaged in a survey than with other research methods. Consequently, some respondents did not answer all the questions. Hence, to mitigate the risk of data loss, it is imperative to augment the data-gathering process by 10%. Additionally, it is crucial to ensure that the sample size aligns with the statistical methodologies employed for its analysis.

In addition, the authors acknowledge the inherent limitations associated with self-selection bias and stress the importance of exercising caution in interpreting of the findings, especially concerning their generalizability to the broader population of medical science students. Individuals willingly participate may exhibit distinct characteristics or motivations compared to those who choose not to participate. Furthermore, limitations stemming from the geographical focus on Bangkok and the Nakhon Nayok area underscore the necessity for prudence when attempting to generalize our findings to a wider population. Future research should expand the geographical scope of the study to include a more diverse range of locations. Consider selecting locations that are representative of the broader population or that vary in relevant characteristics. This can help in capturing a more comprehensive understanding of the phenomenon under investigation. If feasible, consider adopting a multi-site comparative analysis between the highlighted similarities and differences and discussing how contextual variations may impact the generalizability of the results.

The online data collection conducted amidst the COVID-19 pandemic, including the potential for technical difficulties, decreased participant attention or motivation, and variations in response quality due to the absence of face-to-face interaction. These concerns highlight the need for readers to consider the unique circumstances imposed by the pandemic when interpreting the present findings. To mitigate these challenges during data collection, future research should provide a more transparent and comprehensive overview of data collection in face-to-face interaction to describe clear instructions instead of online implementation only to avoid these limitations.

In future research, the balance between achieving an optimal sample size and practical constraints should be carefully considered. The samples that meet more than the basic statistical guidelines for CFA allow for better estimation of parameters, enhance the generalizability of findings, and increase the likelihood of achieving more meaningful results.

## Conclusion

The present study, as per the literature review, focused on developing and evaluating a MHL measure comprising of five distinct components, and a helping behavior scale with two components. CFA was used to validate both the MHL and the helping behavior construction, confirming that the measurement models aligned well with empirical data. The results of the causal relationship model estimation demonstrated a direct and positive influence of MHL on helping behavior.

## What is already known on this topic?

The research indicates that a higher level of MHL

significantly influences Thai university students' willingness to help others. Encouraging a strong MHL in these students, either through universities or government initiatives, could potentially increase their helping behavior by up to 67%. Consequently, public policies should prioritize the promotion of MHL and helping behaviors among the general population. Health providers and professionals should consistently offer educational activities to enhance the MHL of the Thai population throughout their lives. Embracing the sufficiency economic concept in the Thai lifestyle, including mental health resilience and psychological well-being, fosters self-reliance and the capacity for MHL and care.

## What does this study add?

The researchers expanded their study to include university students working in healthcare professions, utilizing adjusted MHL and helping behavioral scales to evaluate their MHL and helping behavior. In line with the research hypothesis, both the measurement and causal relationship models exhibited a good fit with the empirical data. These findings have implications for future research, such as using the developed scales to predict helping behavior improvements in related fields. Additionally, researchers could conduct qualitative studies among individuals with high MHL and helping behavior levels to develop guidelines for those who may not prioritize their mental health, thereby reducing mental health risks.


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## Conflicts of interest

The authors declare no conflict of interest.

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