

RESEARCH ARTICLE

Validation of the Turkish Version of the Mental Health Literacy Scale

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ABSTRACT

This study aimed to adapt the MHL scale and research the measurement properties of the Mental Health Literacy Scale (MHL). The calibration research used a sample of Turkish participants (n = 633) aged 18 and older, resulting in a 19-item scale with three factors. The second sample of Turkish participants (n = 810), the validation research, convergent and divergent validity, and correlational and test-retest reliability was performed. Using the AMOS 26 and SPSS 25 for MAC, respectively, confirmatory factorial analysis and exploratory factor analysis were carried out. The adaption of the MHL to Turkish revealed a three-category structure: knowledge orientation, beliefs orientation, and resource orientation. The confirmatory factorial analysis disclosed that the model with three-factor had satisfactory fit values. The Mental Health Literacy Scale seems to be a vigorous and reliable tool for assessing the degree of knowledge orientation, belief orientation, and resource orientation to MHL in Turkish culture.

MHL offers a helpful framework for understanding the elements that can influence a person's mental health behaviors and how that individual seeks psychological help (O'Connor et al., 2014). Jorm and colleagues (1997) proposed the idea of mental health literacy, which they initially described as comprehension and ideas concerning psychological conditions that support their identification, treatment, or anticipation. A recent modification to this notion incorporated the capacity to assist a person with a mental health issue (Jorm, 2012). Therefore, knowledge is not the sole component of MHL since it is connected to beliefs, and recognition of resources together form MHL.

Literature about the function of MHL reveals that it influences attitudes about seeking psychological help (Cheng et al., 2018; Wang et al., 2022; Whyte, 2016). Prior research has investigated the link between mental health literacy and attitudes about the use of psychological services (Cheng et al., 2018; Wang et al., 2022; Whyte, 2016), stigma (Cheng et al., 2018) or stigmatizing attitudes (Crisp et al., 2000), particular psychological problems (Swami et al., 2008) and psychological treatment preferences (Holzinger et al., 2015). When these findings are considered, it is feasible to conclude that one's level of MHL may be utilized to recognize one's attitudes and actions about seeking psychological help thru relevant instruments.

Multiple tools were used to measure MHL, stigma linked with psychological health, and connected variables, including the interview that was used for the Australian nationwide assessment (Jorm et al., 2007), Mental Illness Attitudes Questionnaire (Luty et al., 2006), and the Schedule of Mental Health Knowledge (Evans-Lacko et al., 2010). Most presently accessible tests assess either specific psychological health apprehensions

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or diseases, such as despair and schizophrenia, or specific characteristics of MHL, such as awareness and stigmatizing ideas. In light of the recently revised model of MHL and the limitations of earlier measurement methods, evaluating this model in Turkish culture seems like a reasonable course of action.

In light of theoretical perspectives, the impact of MHL on psychological help-seeking behaviors may be explored. The help-pursuing paradigm potentially explains the underlying processes for the connections between MHL and mental disorders (Rickwood et al., 2015), which is a continuum, and one's conduct in this area constantly links with one's intentions and views about help-seeking. Understanding mental health issues and symptoms might boost help-seeking. Self-awareness of symptoms has a more significant influence on early diagnosis and help-seeking. Because of this, it is much simpler to comprehend why MHL is beneficial to mental health. For instance, a crucial component of MHL is the awareness of symptoms, which influences timely intervention and forecasts help-seeking behavior (Jorm, 2012). Consequently, those with greater levels of MHL may have a better ability to regulate their mental health (Jorm, 2012) proactively.

MHL Scale was created by Jung and colleagues (2016), relying on the multidimensional structure assumption. The MHL scale consists of three dimensions, namely MHL-Knowledge, MHL-Beliefs, and MHL-Resources, which assess the suggested qualities of Jorm et al. (1997). The measure's structural validity and internal consistency reliability have received strong support (Jung et al., 2017). The findings of model fit values showed that the reliability analysis was adequate, and the model fit was good (Wang et al., 2022). Besides general samples, the MHL Scale has been validated for assessing MHL in various settings (Sullivan et al., 2021; Wang et al., 2021). Despite this, few studies (Göktaş et al., 2019) have been conducted on Turkish individuals' mental health.

The earlier research required further cross-validation using various samples (Göktaş et al., 2019). Cross-validation of a measure in various populations and cultures is crucial since the outcomes of exploratory and confirmatory factor analysis may vary. It is also vital for scholars to comprehend how diverse cultural settings shape and impact lay perceptions of mental health illnesses. Different conceptual frameworks regarding health and the causes of the disorder may result, particularly if social groups disagree or dispute concerning a pattern of illness signs (Kermode et al., 2009). There is currently little information to support the development and adaptation of MHL measures for the Turkish population. Finally, understanding MHL behavior and attitudes for research and intervention requires culturally relevant tools to fit a population's requirements. As a result, the current study will expand the study of MHL and its implementations in Turkey and other nations with comparable cultural traditions. The objectives of the present research were (a) to examine the MHL structure in a Turkish sample and (b) to cross-validate the model's structure and evaluate the psychometric qualities of the MHL using a separate sample of Turkish participants.

Materials and Method

Participants

Two separate samples were utilized, and respondents were reached using the data-gathering company. Sample 2 functioned as the validation sample, while Sample 1 functioned as the calibration for the research purpose to determine the best structure for MHL. Outliers for all categories were inspected in the data using Box Plot analysis and Mahalanobis values and removed from the data. After outliers were removed, the initial sample included 633 respondents, 483 (76.3%) females and 150 (23.7%) men, varying between 18 and 62 years old ($M = 26.65$; $Sd=9.25$). The second validation sample comprised 812 participants, 538 (%66.3) females and 274 (%33.7) males, and they were 18 to 70 years old (mean: 27.80; SD: 10.11).

Instruments

MHL Scale. Jung and their colleagues (2016) created the original MHL Scale, of which 22 items from the three subscales were scored. The Knowledge-Oriented subscale of the original MHL scale included ten items (items 1-10), the Beliefs-Oriented subscale had eight items (items 11-18), and the Resource-Oriented subscale had four items (19-22). In the first two subscales, 18 items are scored on a Likert six-point scale: "strongly agree (5), agree (4), neutral (3), disagree (2), severely disagree (1), and unsure (0)." The resource oriented MHL subscale consists of four "yes" and "no" items. The replies "strongly agree," "agree," and "yes" each get one point, while all other responses receive zero points. Items 11-18 of the beliefs-oriented subscale are scored

and coded reversely. Cronbach's alpha reliability values varied from .71 to .74. In the present research, Cronbach values ranged from .73 to .78 for the KOMHL, BOMHL, and ROMHL subcategories.

The Scale of Life Satisfaction. Diener et al. (1985) developed the scale, which was adapted to Turkish by Köker (1991). The scale has five items linked to satisfaction with life. Questions are answered on a scale that ranges from one to seven points (1: not appropriate at all – 7: extremely appropriate). The scale aims to assess life satisfaction; researchers can use it for all ages. Because of the item examination, the Pearson correlation between the scores obtained from items was sufficient. The internal reliability using Cronbach's alpha analysis was revealed to be .85. In the present study, it was also determined to be .85.

Scale of Seeking Psychological Help Stigma. Vogel et al. (2006) developed the scale to measure individuals' stigmatization levels when seeking psychological help. Five-point Likert scale has ten items. High scores indicate that self-stigmatization increases in seeking psychological help. The Cronbach's Alpha value of internal reliability was calculated as 0.91, and the test-retest reliability was computed as 0.72. Acun-Kapıkıran and Kapıkıran (2013) adapted the scale to Turkish, and Cronbach's Alpha internal reliability was calculated as .71 (Kapıkıran & Kapıkıran, 2013). In the current study, the Cronbach Alpha value was .80.

Procedure

Two scholars who were both native Turkish speakers and English speakers translated the MHL scale. A qualified translator from the ELT department then back translated the translated versions separately. Linguists examined the semantic precision of the original and the back-translated text. In the end, the meanings of a few different nouns were elaborated upon and rephrased.

The data-gathering firm was used to contact both Sample 1 and Sample 2 participants. It was clarified to the participants how important it was for them to participate in the study voluntarily. Participants used the URL that was supplied by the researcher in order to complete the survey forms. Participants were informed that their answers would remain anonymous and that only aggregate data would be shared. The individuals in both samples received no rewards or incentives for participating in the research.

Data Analysis

SPSS version 25 for Mac was used for all preliminary, descriptive, and interpretive analyses. Amos 26.0 was used to conduct confirmatory factor analyses (CFA) using maximum likelihood (ML) prediction and associated fit statistics. Exploratory factor analyses (EFA) were used to analyze the MHL's factor structure, and they were run on the initial sample (n = 633) of participants. A correlation matrix and Kaiser-Meyer-Oklin (KMO) value were employed to assess whether the current data fit the analysis. To confirm the MHL scale validity, a CFA was performed on the second sample (n = 812). We assessed Model fit utilizing four different indices (Hu & Bentler, 1999), which were CFI (comparative fit index), GFI (goodness-of-fit index), the TLI (Tucker Lewis index), AGFI (adjusted goodness-of-fit index), RMSEA (root mean squared error of approximation), and SRMR (standard root mean root ratio). Test-retest reliability and to compute the effect of gender on KOMHL, BOMHL, and ROMHL, the alpha coefficient, correlations, and linear regression were used in order to establish internal consistency. Data input accuracy, normality, and multivariate assessments for both samples were examined for research variables before analysis. Skewness and kurtosis scores were between -.009 to -.872 and -.586 to .980, demonstrating that the scale items met the requirements for the multivariate analyses' assumptions.

Results

Before the analysis, the assumptions were examined. The skewness and kurtosis values were computed for normality assumption, and the results were within a normal distribution's satisfactory values. The numeric variables were transformed to their average z-score values to identify univariate outliers, and those lower than -3 and bigger than +3 were removed. Finally, the linearity and homogeneity of variance presumptions were verified. Table 1 provides the scale means and standard deviations for both samples for all the MHL items. The table shows that the items in Sample 1 and Sample 2 have similar mean scores.

Table 1. Descriptives of the Scale of Mental Health Literacy (MHL) for Samples 1(n=632) and 2 (n=802)

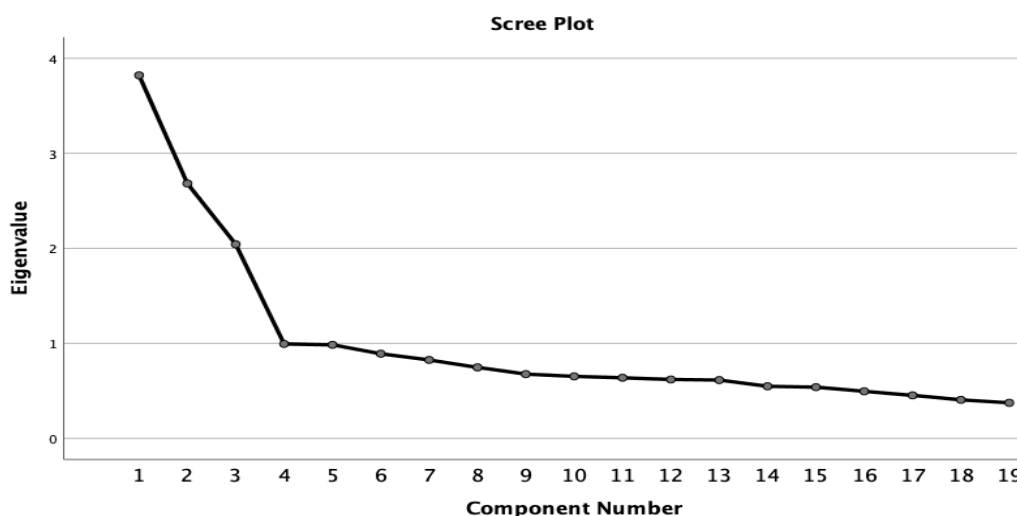
		Sample 1			Sample 2		
		<i>M</i>	<i>Std. Dev.</i>	Range	<i>M</i>	<i>Std. Dev.</i>	Range
KOMHL	Item 1:	3.91	1.07	1-5	3.78	1.11	1-5
	Item 2:	3.53	1.47	1-5	3.42	1.48	1-5
	Item 3:	4.10	1.06	1-5	3.95	1.09	1-5
	Item 4:	3.37	1.38	1-5	3.31	1.35	1-5
	Item 5:	3.55	1.28	1-5	3.33	1.42	1-5
	Item 6:	3.59	1.34	1-5	3.40	1.44	1-5
	Item 7:	3.42	1.60	1-5	3.34	1.59	1-5
	Item 8:	3.50	1.17	1-5	3.35	1.29	1-5
	Item 9:	3.63	1.51	1-5	3.66	1.36	1-5
	Item 10:	3.67	1.45	1-5	3.62	1.36	1-5
BOMHL	Item 11:	2.20	1.27	1-5	2.29	1.26	1-5
	Item 12:	1.86	1.01	1-5	1.95	1.05	1-5
	Item 13:	1.71	.92	1-5	1.77	1.00	1-5
	Item 14:	2.99	1.57	1-5	3.00	1.49	1-5
	Item 15:	1.96	.99	1-5	2.09	1.08	1-5
	Item 16:	3.08	1.33	1-5	3.06	1.31	1-5
	Item 17:	2.29	1.22	1-5	2.32	1.25	1-5
ROMHL	Item 18:	2.14	1.04	1-5	2.13	1.08	1-5
	Item 19:	.94	.24	1-5	.83	.37	1-5
	Item 20:	.48	.50	1-5	.47	.50	1-5
	Item 21:	.83	.38	1-5	.72	.50	1-5
	Item 22:	.77	.42	1-5	.74	.44	1-5

Note. *Potential range for MHL and its items

Structural Validity

CFA revealed unsatisfactory model indices with the current data. To investigate the 22-item MHL structure, EFA (exploratory factor analysis) was conducted. Kaiser's assessment of the data's suitability for factor analysis showed a sample adequacy rating of .82. I conducted principal-component studies following Oblimin rotation with eigenvalues larger than one and multiple item loading (Table 1). In addition, the results of the Barlett test of sphericity were statistically significant (p .001). The components' eigenvalues varied from 0.37 to 3.82, accounting for 45% of the variation. The scree plot and fit indices indicated a three-factor, 19-item model (Table 2, Figure 1).

Figure 1. Scree Plot



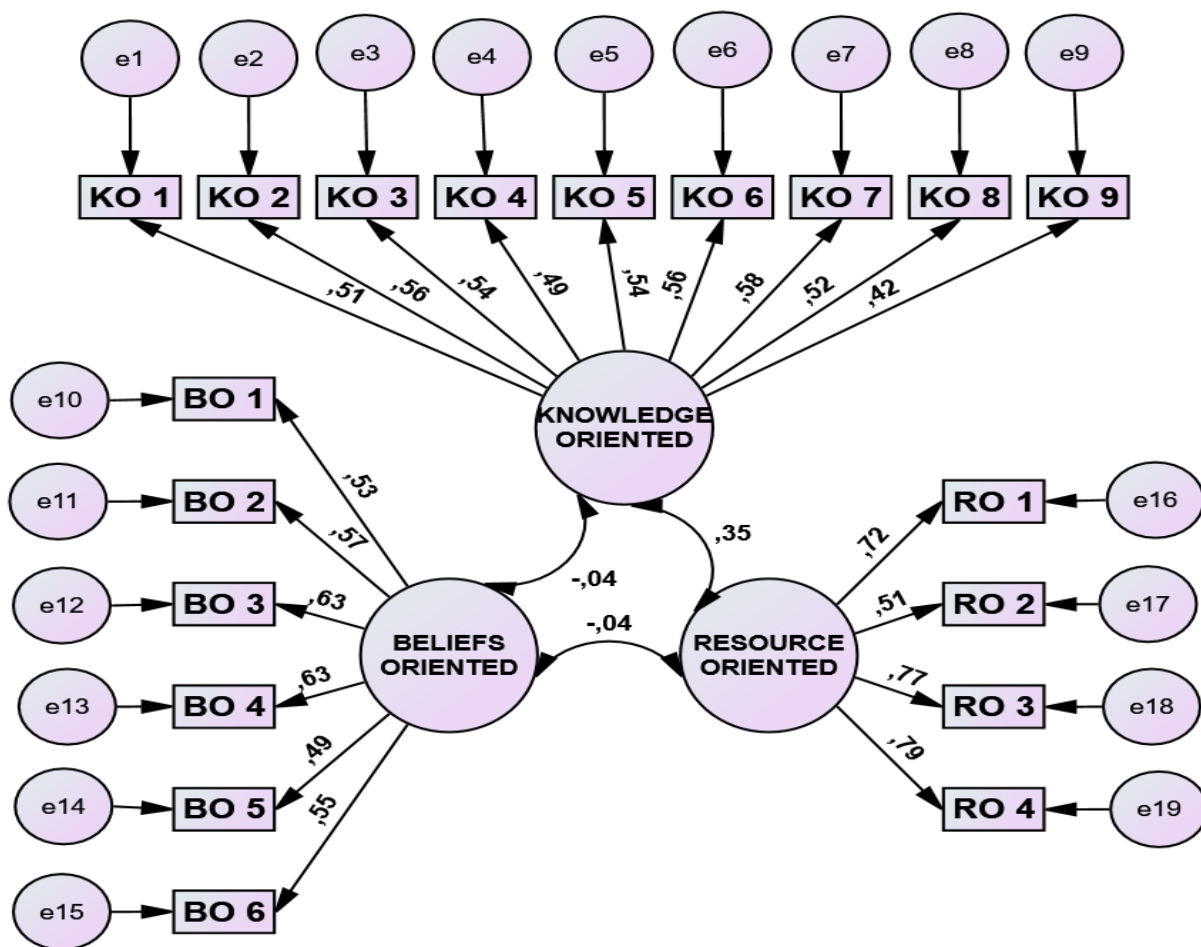
Items 9, 14, and 16 with low loadings (.40) were removed from the scale (Comrey & Lee, 2013). The 19-item, three-factor model was proposed as the best solution. A nine-item factor was created using the KOMHL assessment items. The nine items (1, 2, 3, 4, 5, 6, 7, 8, and 10) explained 20.1% of the variation. Six components (items 11, 12, 13, 15, 17, and 18) composed factor 2 (BOMHL), which accounted for 14.1% of the variance. Items 19, 20, 21, and 22 composed factor 3, ROMHL, which accounted for 10.8% of the variation.

Table 2. Exploratory Factor Analyses

Items	KOMHL	BOMHL	ROMHL	Variance explained (%)
Item 1: Psychological counseling is a useful treatment for depression.	.540	-.121	.077	20.108
Item 2: People with schizophrenia see things that aren't there.	.618	.109	-.009	
Item 3: Early diagnosis of mental health diseases can increase the chances of recovery.	.608	-.126	-.009	
Item 4: Peer support groups can help to recover from psychological problems.	.534	.139	.076	
Item 5: Inexplicable bodily pain or exhaustion can be an indication of depression.	.639	.089	-.077	
Item 6: CBT can alter how a person reasons and responds to stress.	.609	.076	.074	
Item 7: A person who experiences bipolar disorder can experience intense changes in their attitude.	.699	.041	-.060	
Item 8: It is useful to use the drugs prescribed by doctors for mental health diseases.	.564	-.060	.042	
Item 10: The person with an anxiety disorder has excessive worry and fear.	.612	-.135	-.037	
Item 11: People who are more committed to their beliefs do not develop a mental health disorder.	-.022	.625	-.098	14.116
Item 12: Mental health illnesses are short-term illnesses.	-.017	.654	.049	
Item 13: Recovery from psychological illnesses is typically reliant on luck or fate.	-.115	.694	-.031	
Item 15: Mental health disorders will improve over time without treatment.	.019	.696	.025	
Item 17: A person can stop the hoarding disease (things etc.) at any time.	.102	.614	.007	
Item 18: A depressed person will recover on their own without any treatment.	.044	.635	.040	
Item 19: I can access to mental health help.	.121	-.094	.746	10.750
Item 20: I know the phone number to prevent suicide.	-.135	.142	.703	
Item 21: I know where I can find useful information about mental health diseases.	.034	-.046	.827	
Item 22: I know the place for the psychological health service unit where I live.	.047	-.042	.820	
Total Variance Explained MHL				44.974

A 19-item and three-factor model was examined using CFA on the second sample of data using the maximum likelihood approach to generalize and validate the model based on the findings of the EFA. The outcomes displayed that the revealed model yielded satisfactory fit values ($\chi^2/df = 3.25$, GFI = .94, AGFI = .92, CFI = .90, RMSEA = .05, SRMR = .07). The CFA output is presented in Figure 2.

Figure 2. Factor structure of Mental Health Literacy (MHL)



Convergent Validity

The connections between life satisfaction and MHL were used to assess convergence validity (KOMHL, BOMHL, and ROMHL, Table 3). Life satisfaction was positively and substantially correlated with KOMHL and ROMHL.

Table 3. Correlations among KOMHL, BOMHL, ROMHL, Stigma, and Life Satisfaction.

	1	2	3	4	5	6
1.KOMHL	1					
2. BOMHL	-.026	1				
3. ROMHL	.249*	.010	1			
4.Self-Stigma	-.331*	.368*	-.114	1		
5. Life Satisfaction	.167*	.063	.180*	-.101	1	

*P< 0.001, **p<.01

Divergent Validity

Correlation studies were carried out to examine the connection between total KOMHL, BOMHL, ROMHL, and stigma to establish the divergent validity of the scale (Table 3). It was discovered that whereas the Stigma and the KOMHL, and ROMHL had negative correlations with one another, the BOMHL had a positive and substantial correlation.

Predictive Validity

The connections between the KOMHL, BOMHL, and ROMHL and gender were reported to demonstrate the predictive validity of these measures since prior research has shown that gender may have a significant impact on MHL (Cotton et al., 2006). The analysis of linear regression showed that the female gender significantly impacted the KOMHL and ROMHL ($=.176$, $R^2=.03$, $F(1-810)=.25.79$, $p.001$), as well as the BOMHL ($=-.147$, $R^2=.02$, $F(1-810)=17.88$, $p.001$).

Reliability

Using Cronbach's Alpha to determine internal consistency values, the KOMHL, BOMHL, and ROMHL exhibited correspondingly internal consistencies of .79, .73, and .78. Pearson's correlation was utilized to examine test-retest reliability and establish the temporal consistency of the KOMHL, BOMHL, and ROMHL. The test-retest correlation was determined between the average score of the KOMHL, BOMHL, and ROMHL using information from 25 participants who completed the scale twice over two weeks and were randomly selected from the third sample. For KOMHL, BOMHL, and ROMHL, the correlation values were $r = .87$, $.94$, and $.89$, respectively, indicating that temporal consistency was satisfactory.

Discussion

The current study evaluated MHL's component structure and psychometric features on Turkish volunteers over 18 years old. The findings of the current investigation validated the MHL original with three scales and 19 items. Even though several indicators were substantial, CFA with the original MHL produced an unsatisfactory fit to the current data. Thus, various EFA on calibration and CFA were run on a cross-validation sample. Consistent with the original MHL, the Turkish adaption of the MHL was constructed with three factors similar to 19 item Chinese MHL (Wang et al., 2022) and Iranian MHL (Nejatian et al., 2021) with a few changes regarding the number of items in KOMHL and BOMHL, which may be linked to social and cultural disparities.

EFA divulges that three items from MHL's KOMHL and BOMHL factors exhibit the main difference. In contrast, MHL has 10 KOMHL items and eight BOMHL items. However, no difference was yielded in ROMHL items, in which EFA indicated a four-item model as in the original one. As a result of EFA, items 9, "Drinking alcohol can worsen the symptoms of mental health disorders" from the KOMHL factor and items 14, "A depressed person should not be asked if they have suicidal thoughts," and 16, "Recuperating from a psychological illness is the similar to getting better" with poor loadings from the BOMHL factor of MHL were removed from the scale in the current study. In conclusion, the factor structure revealed in the Turkish sample was similar to Chinese MHL but with few distinctions. The current sample and Turkish culture may be to reason for the primary difference. Regarding question 9 of the KOMHL, individuals may not have evaluated the influence of alcohol on mental health issues since they do not typically use alcohol. Due to their young age (mean = 26 years), the participants may not have the counseling knowledge or experience to evaluate items 14 and 16 on the link between depression and suicidal thoughts.

Correlations between life satisfaction and the MHL were examined to examine the convergent validity of the MHL. Consistent with the existing research, general satisfaction with life was significantly and positively associated with KOMHL and ROMHL (Li et al., 2022; Sequeira et al., 2022). According to the Theory of Reasoned Action (Fishbein & Ajzen, 1977), positive attitudes might influence one's intention to behave positively. People who are satisfied with their lives may fully comprehend themselves, use their resources, and vigorously regulate one-self to reduce external pressure. The constructive thoughts and behaviors positively influence their motivations for the treatment and avoidance of potential psychological issues, significantly raising their MHL.

Additional correlation tests were conducted to determine the divergent validity by exploring the association between stigma, KOMHL, BOMHL, and ROMHL. While the Stigma, KOMHL (Hadlaczky et al., 2014), and ROMHL (Kutcher & Wei, 2014) each exhibited negative relationships with one another, the BOMHL had a positive and significant association (Kutcher et al., 2016). Accordingly, BOMHL can raise stigma, while KOMHL and ROMHL have the potential to lower stigma. So, a lack of knowledge can be seen as a cause of negative attitudes, including stigma, affecting how people act when they need psychological help.

The scale's predictive validity was demonstrated by establishing linkages between the KOMHL, BOMHL, ROMHL, and gender. According to the linear regression analysis findings, the female gender substantially influenced the KOMHL, BOMHL, and ROMHL. These findings confirmed the earlier research results (Cotton et al., 2006). MHL has been linked to more females, which may account for gender variations in the usage of psychology facilities (Mackenzie et al., 2006). Similarly, Ratnayake and Hyde (2019) discovered that women reported greater MHL. Generally, females demonstrated greater mental health literacy levels, keeping with existing findings (Campos et al., 2016). The outcomes of the scale's predictive validity establishing links between the KOMHL, BOMHL, ROMHL, and gender were subsequently verified by the current research.

Cronbach's Alpha studies revealed good internal consistencies for the KOMHL (0.79), BOMHL (0.73), and ROMHL (0.80) in terms of adapted MHL reliability (.78). In addition, Pearson's product-moment correlations for KOMHL ($r=0.87$), BOMHL ($r=0.94$), and ROMHL ($r=0.89$) demonstrated a high degree of test-retest reliability. In addition, the scale means and standard deviations for both calibration and validation samples indicate that the mean scores for both samples were comparable. Thus, we can conclude that Cronbach's alpha values were substantial (Nunnally & Bernstein, 1994), and test-retest MHL reliability at two stages was likewise acceptable, showing that the MHL's longitudinal consistency was excellent (Hair et al., 1995). The present findings revealed that the reliability was adequate for test-retest and internal consistency.

Limitations and Long-Term Effects

The current research includes several shortcomings that need to be addressed. First, since the data were gathered in various contexts, the conclusions may need to be more objective. Different environments may have impacted the findings and participant behavioral patterns. Second, only online survey and convenience sampling methods were used in this research; however, future studies may include alternative data-gathering methods to compile a complete set of information. Third, the research used solely a cross-sectional approach for its analysis. Even though two of the sample groups had similar features, the cross-sectional methods still needed to propose an understandable picture of the development process. Cross-sectional models yield data on the population's present state, but the cross-sectional model doesn't permit the establishment of cause-and-effect linkages. It might be proposed that a longitudinal paradigm, which involves surveying the same group repeatedly, be used. Only the Life Satisfaction and Self-Stigma Scales were employed in this investigation for convergent and divergent validity. Nonetheless, future research should include measures like Public Stigma and Seeking Psychological Help Attitudes. Finally, most participants had access to social networking sites and other pertinent online resources. Therefore, individuals from other data-gathering sources should also be included in a future study. Future research may examine the MHL in various populations.

Conclusion

Overall, the Mental Health Literacy Scale (MHL) was detected as a viable and consistent tool for assessing mental health knowledge, beliefs, and resource in Turkish society. Consequently, the outcomes of the current study propose that MHL can be used in future research in Turkey without compromising confidentiality. More research on the MHL's application in Turkish and various cultures and regions is necessary to increase its generalizability and provide further empirical support for its validity.

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Conflicts of Interest: The authors do not have any conflicts of interest to disclose.

Data Availability: The paper contains all the data that underpins the results; no additional source data is necessary.

Ethical Disclosure: The participants provided their consent, obtained by the Declaration of Helsinki's guidelines. It was made clear to all participants what the aim of the study was, and they were assured that their responses would only be used in an anonymized, unidentified form for research. Finally, University Ethics Committee reviewed the measures employed in the research and, with the decision of the University Senate dated 25.06.2020 and numbered 044/01 granted, that they complied with ethical standards.

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