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RESEARCH PAPER

Mental Health Literacy Scale: Translation and Validation in Pakistani Context

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PAPER INFO	ABSTRACT
    Corresponding Author: irum_akhter@yahoo.com	The study's prime objective was to translate in Urdu and validate the 35 items of Mental Health Literacy Scale (MHLS) developed by Matt O'Conner (2015). The methodology of Hambleton & Zenisky (2011) were adopted for translation and validation of MHLS in Pakistani context. The scale was translated and analyzed by field experts. Feedback and suggestions collected during pilot study helped the experts to modify the scale. Finally,335 questionnaires were analyzed. The SMART-PLS 3 was used for statistical analysis. PLS results of Cronbach's Alpha, rho, Average variance explain, composite reliability, internal consistency, face validity, convergent and discriminant validity, factor loading and cross loading confirmed the scale with 34 items. Only one item related to drug use for mental health awareness was dropped due to low reliability and validity. The 34 items scale in Pakistan is an adequate and valid instrument to measure the level of mental health literacy of the Pakistani population which recommends its use to detect the needs related to the management of health information

Introduction

Modifying knowledge is something that in principle is not difficult. As a society, it is done all the time. However, changing deep-seated emotional reactions to mental disorders can be much more difficult. Knowledge must be essential in seeking help. If the symptoms of a health problem are not recognized, the likelihood of seeking treatment is decreased (Jorm et al., 2006). Low literacy in health is associated with worse general health status and greater mortality(Berkman et al., 2011). Despite its importance, it remains so neglected in public health actions such as health research. Among the various instruments to measure literacy in Health Connor et al. (2014) developed on Mental Health Literacy design,a 35 items questionnaire which have 6 dimensions of health literacy, highlighting the importance of conducting a psychometric evaluation in general population. In Pakistan, the Mental Health Literacy

Scale (MHLS) has been analyzed in its English version but its properties have not yet been evaluated psychometrically in Pakistan. The objective of this study is to adopt the MHLS in national language of Pakistan "Urdu" and validate it for measurement of mental health literacy in Pakistan.

A meta-analysis of the global prevalence of mental disorders in children and adolescents indicates that approximately 241 million young people worldwide are affected by a mental disorder. The most common group of mental disorders are anxiety disorders which affect 117 million; disruptive behavior disorder which affects 113 million; attention deficit hyperactivity disorder which affects 63 million; and depressive disorders which affect 47 million (Polanczyk et al., 2015). This meta-analysis indicated that it is important to consider that the number of youth with sub threshold symptoms and functional impairment must be observed or even treated is considerable and has not been included in these estimates (Whiteford et al., 2013). Young people with sub threshold symptoms are not evaluated and there are limited estimates of their number in representative samples of the population. Compared to the prevalence of other chronic childhood diseases such as obesity (16.8%), the high frequency of mental disorders and their associated negative consequences make them the top health priorities.

On the other hand, the shared social opinion about mental illness is part of what interferes when you want to carry out treatment. Consequently, as much as the scientific evidence on mental illnesses increases if knowledge in these illnesses is not reinforced in society, it will be difficult to detect, treat or prevent mental illness adequately (Cubeiro, 2018).Cultural stereotypes about insanity are assimilated from an early age, generated in part by media representations that socialize stigmatizing views of mental illness in young people(Wahl, 2003). Studies of children's and young people's conceptions of mental illness have revealed that they do not yet have a clear idea of what mental illness means or what specific characteristics are associated with it(Adler & Wahl, 1998). Therefore, young people are an interesting audience for programs that seek to influence unhealthy behaviors and beliefs toward mental illness, before these beliefs take root in them (Schulze et al., 2003). Considering that general young population is potentially the one that may require mental health assistance, hence, it is pertinent to provide them basic knowledge and skills in order to protect their mental health and to understand the problems that mental illness entails.

The current study is an endeavor to adopt the Matt O Conner's original mental health literacy scale into Pakistan national language "Urdu" and validate it for measurement of mental health and for other studies based on mental health.

Mental Health Literacy Measuring Instruments

Wei (2017) emphasizes the need to develop MHLS tools that encompass all related components: knowledge, stigma, and seeking help. There are instruments for each dimension separately which are described below:

Knowledge instruments primarily investigate disease identification ability and factual knowledge of mental disorders such as terminology, etiology, diagnosis, prognosis, and consequences (Yifeng Wei et al., 2015). On large scale employed measures of knowledge include the Jorm et al. (2006) Knowledge Program, Mental Health Literacy Questionnaire (MHLQ), Mental Health Knowledge Schedule (MHKS), the questionnaire "Open the Doors" of the World Psychiatric Association (World Psychiatric Association WPA-OD), the Depression Literacy Scale (DLS), the Schizophrenia Knowledge Questionnaire (SKQ).

Most of the scales employed to assess the stigma associated with mental illness have constructs like social distancing (to which extent acceptance of mentally ill people in communal affairs by general population), personal stigma (individual behavior towards mentally sick), perceived stigma (credence about others' perspective towards MI); self-stigma; stigma associated to mental health servicer's; stigma against MH treatment, psychiatric treatment , seeking aid or MH care centers (Yifeng Wei et al., 2015).

Measures that assess attitudes toward seeking psychological help primarily address: recognition of the need for psychological help; the interpersonal openness, trust and reliability of mental health professionals (Yifeng Wei et al., 2015). Of the 35 measures related to seeking help, the largely employed are: Attitudes towards Help-Seeking Scale; the Mental Health Literacy Questionnaire (MHLQ) containing items on beliefs about treatments; General Help Seeking Questionnaire (GHSQ).

The aforementioned instruments measure dimensions of the MHL separately. However, it is necessary to measure the MHL in a multidimensional way, that is, an instrument that contains all the dimensions of the MHL construct. These include Jorm's Vignette Interview by Jorm (2000) Test Mental Health & High School Curriculum Guide (TMHSCG) by Wei et al. (2015) and The Mental Health Literacy Scale (MHLS) Scale developed by O'Connor and Casey (O'Connor et al., 2014).

A systematic review by Wei et al. (2018) indicate that most of the studies were carried out in the patients and there were only four studies directed at general population (Georgiades & Swendsen, 2010; Yifeng Wei et al., 2015; Wilson et al., 2011). This highlights the need for development, evaluation and validation of tools that address the knowledge of mental health specifically for young people who are in a vulnerable period related to the risk of developing mental illness.

Even though the evidence is overwhelming, the publichas the misconception about effectiveness of the treatment, thus, they are of the opinion that the issue will be solved automatically without treatment(Cubeiro, 2018; Jorm et al., 2006).

However, ailment caused by mental disorders can be eventually minimized by timely identificationand by provision of mental health literacy. There is consistent evidence that indicates that treatments in general are efficient and effective in reducing disability, both for the ailing and their family members, symptoms' amelioration and shortening the course of the disease(Cubeiro, 2018; Jorm et al., 2006).

Material and Methods

Research Design

The prevailing study is using descriptive and explanatory research design to get the objectives of the research.

Participants and Sampling

The non-probability sample was used in the study. The respondents were 335 individuals whose age ranging 15 to67 years. The sample consisted of 121 women (36.11%) and 214 men (63.89%). Of the total number of respondents178 (53.13%) were fromUrbanand 156 (46.57%) fromrural areas of Islamabad.

Instrument

In addition to a socio-demographic questionnaire which included age, gender, level of education, socio-economic status, the general questionnaire to measure MHL. The MHL has six dimensions which are disorder recognition, Risk Factor Knowledge, Available Professional Help, Information Seeking Knowledge, Self-treatment knowledge and stigma. The disorder recognition, Risk Factor Knowledge, Available Professional Help, Information Seeking Knowledge are measured on four point Likert scale while the Self-treatment knowledge and stigma were measured on 5 point-Likert scale as recommended by the original author. The scale also consists of 2 reverse questions. 1questions related to Risk Factor Knowledge, 1 questions of Available Professional Help, 1 question of Information Seeking Knowledge, 9 question of Self-treatment knowledge (10, 12, 15 and 20 to 28).

Procedure

In initial phase, the cross-cultural translation of the questionnaire was conducted according to the recommendations suggested by Hambleton & Zenisky (2011). The steps taken are as followed: 1) Obtaining authorization; 2) Translating the original text from English to Urdu by 3 bilingual people from the field of psychology; 3) Retro translation; 4) Submitted then to experts for assessing level of understanding of items. After obtaining this version reviewed by experts, it was applied through cognitive interviews to a sample of 20 participants both 3rd and 4th year university students and then applied to a pilot sample of 60 persons from general population in order to warn off feasible issues of understanding the items and relevance of the sources of aid. From this pilot age and considering the recommendations of the author of the scale, to verify the cultural relevance of the sources of help, 1 item was eliminated that did not fit the sociocultural reality of the adolescents. Consequently, the scale translated here does not include the items of "Drug dependence" as a source increasing MHL. In a second stage, participants were recruited in various areas in Islamabad, Taxila and its surrounding. The respective consents and assents were requested. The scale was given to 500 respondents of which

387 were collected back. The 387 questionnaires were scanned and refined as some of the questionnaires were not properly filled, there were missing data and after screening of data in Smart-PLS found some outlier which were deleted. Thus, only 335 respondents were left for final analysis.

Pilot Study

In the preliminary stage of scale validation the pilot study was conducted on 20 psychology students in which scale reliability and validity was achieved for all 35items. After achieving the required scores of reliability, convergent and discriminant validity of scale, consultations of professional, suggestions and feedback of respondents for pilot study, the questionnaires were floated to 500 hundred respondents.
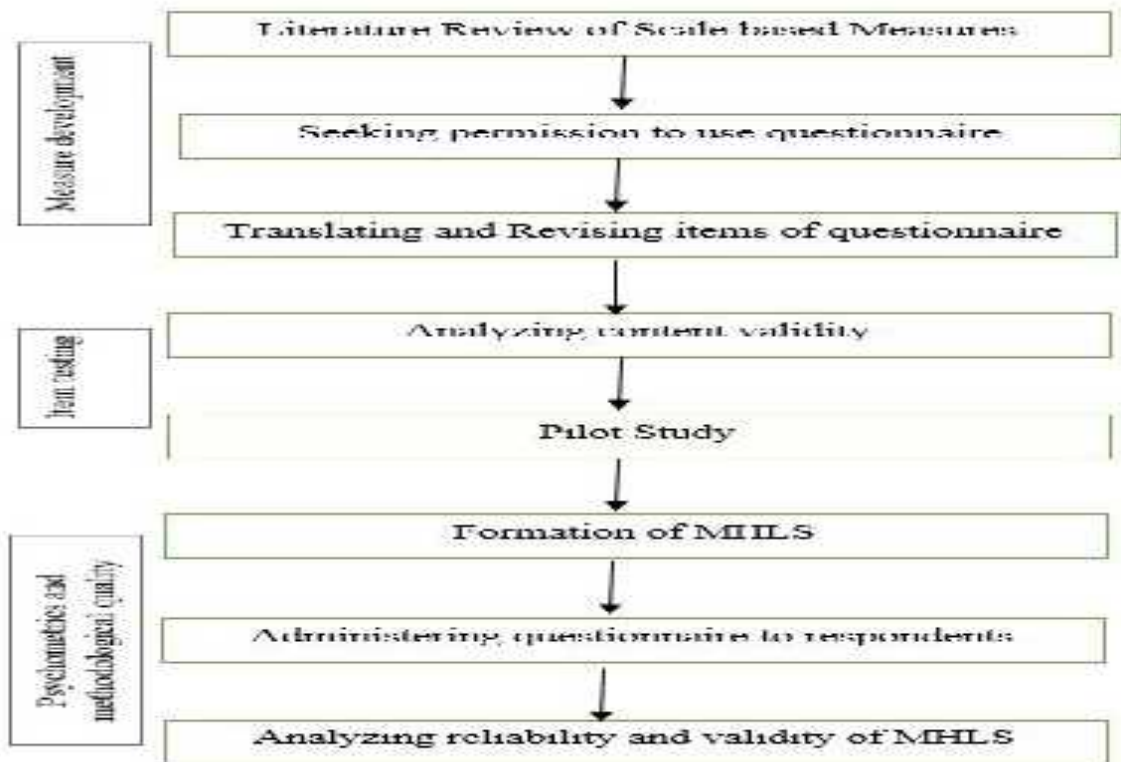

Figure:1. Flowchart for development of MHLS

Statistical Assessment of Scale Validity and Reliability

The psychometric properties of MHLS were developed through the reliability, internal consistency, convergent validity, discriminant validity, factor loading and cross loading. For the analysis and validation of MHLS the SMART-PLS 3.0 version has been used. The partial least square methodology is latest, more robust and reliable than traditional methods. The PLS based methodology consists of two stages. In PLS based analysis there are two models inner and outer. The outer model is constructs,

latent variable and the arrows connecting the construct to the concerned latent variable while inner model includes all the latent variables in model and the arrows connecting these variables. Thus, the measurement model assesses the scale convergent and discriminant reliability and validity. The Cronbach's Alpha, rho, composite reliability and average variance explained for checking the reliability of scale while loading and cross loading, Fornnel Larcker Criterion, Hetrotraitmonotrait ratio for discriminant validity. The mentioned 8 criterions are essential for scale to be considered reliable and valid for a study and due to these criterions the PLS based analysis are considered more robust.

Results and Discussion

Items Analysis

The original scale of MHLS developed by Matt O'Conner has 35 items which were validated in pilot study conducted previously on 20 university students. After administering the questionnaire to 500 respondents, one item related to stigma was found irrelevant due to its low Cronbach's Alpha, rho, composite reliability and average variance explained values. Thus the item number 8 of disorder recognition was dropped. The item states that drug use increase the mental health awareness of general public. The item was not supported in Pakistani culture which means Pakistanis consider drug usage as a negative factor of literacy and do not agree with item number 8's statement. All other items of MHLS were loaded and validated as depicted in the following diagram.
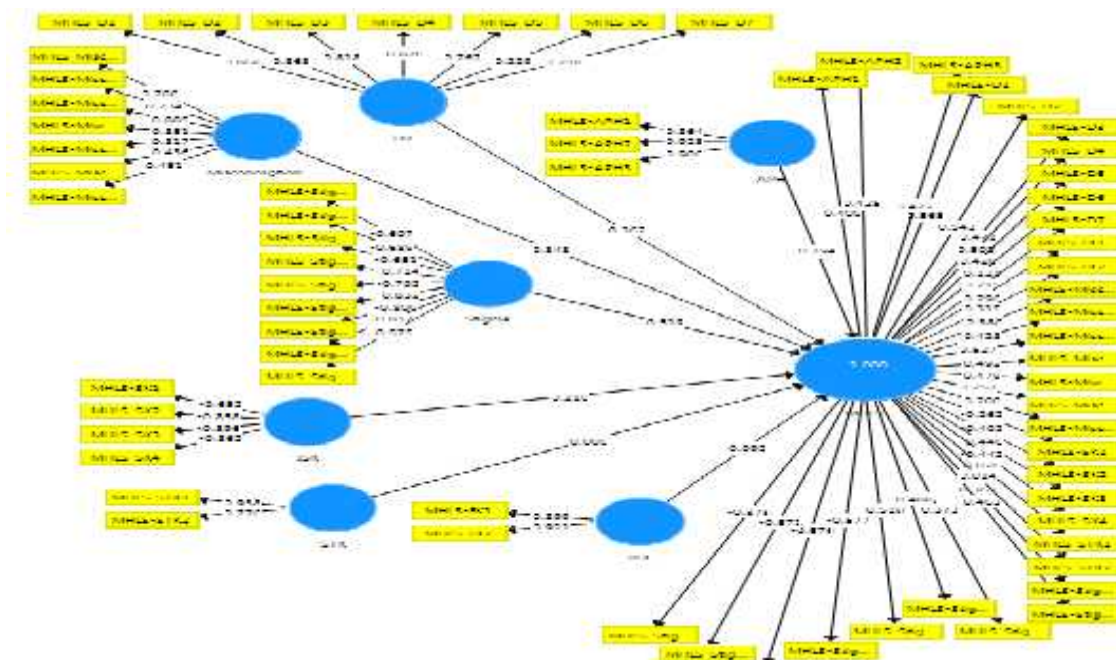

Figure: 1. PLS output: outer loading of MHLS items

The Smart-PLS output shows the outer loading of all items on their respective latent variables. All the items are having loading score from 0.219 to 0.911. The loading score as per the recommendations of Chin (1998) the factor loading of item on its own latent variable must higher than factor score of same item on another latent variable. Thus there is no cut off value used for acceptance and rejection of an item but it was strictly followed that items are loaded on their own latent variable and have higher scores compared to score of same item on other latent variable. Other determinants of convergent and discriminant validity was also considered in validating the scale which are discussed below.

Table 1
Construct Validity and Reliability

Items	Cronbach's Alpha	rho_A	C R	(AVE)
APH	0.882	0.888	0.927	0.809
DR	0.805	0.890	0.864	0.516
ISK	0.838	0.871	0.892	0.677
Misconception	0.832	0.877	0.875	0.514
RFK	0.779	0.781	0.900	0.819
STK	0.676	0.847	0.850	0.741
Stigma_	0.879	0.892	0.903	0.511

NOTE: DR, Disorder Recognition, RFK, Risk Factor Knowledge, APH, Available Professional Help, ISK, Information Seeking Knowledge, STK, Self-treatment knowledge

Table 1 shows the four criterions of construct reliability and validity. The Cronbach's Alpha (CB) results show that all the six dimensions of the MHLS are reliable as the CB values of all the factors are above 0.7 except the self-Treatment knowledge which is 0.676. This values is less than0.7 but still is considered good reliability result as Taber (2018) asserts that CB value of 0.6 is reliable valid and satisfactory for assessment of internal consistency of a scale. Thus it is concluded that all the 6 dimensions with their respective items are internally consistent except the one item of disorder recognition which has been dropped.

Additionally the other 2 criterions i.e. composite reliability and rho are having threshold values of 0.7 (Henseler et al., 2015).All the 6 dimensions of MHLS, Disorder Recognition, Risk Factor Knowledge, Available Professional Help, Information Seeking Knowledge, Self-treatment knowledge and Stigma have rho scores of 0.888, 0.890, 0.871, 0.877, 0.781, 0.847, and 0.892respectively; the composite reliability scores of 0.927, 0.864, 0.892, 0.875, 0.900, 0.850 and 0.903 respectively. On the basis of rho and composite reliability, the scale is having very high reliability as all the scores of factors are more than 0.7. Thus, the MHLS is reliable on the basis of rho and composite reliability.

The last criterion of convergent validity is Average Variance Explained (AVE). The AVE criterion makes it compulsory for items to be reliable if the items collectively

explain more than 50% variation in their respective latent variable. The AVE values of Disorder Recognition, Risk Factor Knowledge, Available Professional Help, Information Seeking Knowledge, Self-treatment knowledge and Stigma are 0.809, 0.516, 0.677, 0.514, 0.819, 0.741, and 0.511 respectively. The items are explaining more than 80% variation in disorder recognition, more 51% in risk factor knowledge, more than 67% in available professional help, more than 51% in information seeking behavior, more than 74% in self-treatment knowledge and 51.1% in stigma. Thus, it can be concluded that MHLS is valid and reliable on the basis of all the construct validity and reliability criterions, Cronbach's Alpha, AVE, Composite reliability and rho.

Table 2
Factor Loading and Cross Loading

	APH	DR	ISK	Mis-conception	RFK	STK	Stigma_
MHLS-APH1	**0.864**	0.378	0.013	0.217	0.208	0.044	-0.003
MHLS-APH2	**0.928**	0.332	0.058	0.196	0.251	-0.023	0.042
MHLS-APH3	**0.906**	0.511	0.009	0.233	0.229	-0.004	0.015
MHLS-D1	0.410	**0.868**	0.009	0.335	0.254	-0.005	0.059
MHLS-D2	0.473	**0.863**	-0.011	0.290	0.269	0.002	0.032
MHLS-D3	0.317	**0.818**	-0.035	0.227	0.255	0.045	0.036
MHLS-D4	0.412	**0.870**	-0.022	0.244	0.325	0.037	-0.005
MHLS-D5	0.323	**0.767**	-0.019	0.229	0.103	0.054	-0.011
MHLS-D6	0.010	**0.229**	0.009	0.035	0.011	0.274	0.038
MHLS-D7	0.062	**0.218**	0.117	0.108	0.051	0.217	0.107
MHLS-FK1	0.219	0.238	0.041	0.120	**0.899**	0.001	0.066
MHLS-FK2	0.242	0.283	0.023	0.207	**0.911**	-0.042	0.011
MHLS-Miscon1	0.053	0.178	0.023	**0.700**	0.107	0.061	0.096
MHLS-Miscon2	0.120	0.164	0.053	**0.734**	0.123	0.018	0.135
MHLS-Miscon3	0.238	0.350	-0.011	**0.885**	0.214	0.007	0.063
MHLS-Miscon4	0.226	0.251	0.031	**0.851**	0.160	0.015	0.085
MHLS-Miscon5	0.231	0.268	0.040	**0.817**	0.150	0.032	0.066
MHLS-Miscon6	0.187	0.196	-0.059	**0.436**	0.054	0.089	0.015
MHLS-Miscon8	0.138	0.183	-0.141	**0.451**	0.024	0.064	-0.038
MHLS-SK1	0.018	0.016	**-0.652**	0.025	-0.029	0.125	-0.264
MHLS-SK2	-0.019	0.028	**-0.858**	-0.039	0.022	0.105	-0.410
MHLS-SK3	-0.050	0.005	**-0.896**	-0.034	-0.082	0.045	-0.435
MHLS-SK4	-0.029	-0.027	**-0.862**	0.031	-0.024	0.088	-0.480
MHLS-STK1	-0.012	0.031	-0.075	0.016	-0.026	**0.938**	0.047
MHLS-STK2	0.035	0.103	-0.120	0.083	-0.011	**0.776**	-0.070
MHLS-Stigma1	0.042	-0.002	-0.214	-0.012	-0.035	-0.075	**-0.607**
MHLS-Stigma2	0.016	-0.043	-0.297	-0.077	-0.019	-0.046	**-0.689**
MHLS-Stigma3	0.122	0.052	-0.268	-0.048	-0.036	-0.023	**-0.651**
MHLS-Stigma4	-0.011	0.014	-0.530	-0.020	0.017	0.005	**-0.714**

MHLS-Stigma5	-0.115	-0.082	-0.316	-0.069	-0.114	0.016	**-0.702**
MHLS-Stigma6	-0.052	-0.045	-0.363	-0.103	-0.062	0.035	**-0.832**
MHLS-Stigma7	-0.064	-0.059	-0.357	-0.125	-0.073	-0.034	**-0.800**
MHLS-Stigma8	-0.005	-0.043	-0.431	-0.105	-0.017	0.036	**-0.817**
MHLS-Stigma9	0.006	-0.012	-0.376	-0.009	0.115	0.010	**-0.575**

NOTE: DR, Disorder Recognition, RFK, Risk Factor Knowledge, APH, Available Professional Help, ISK, Information Seeking Knowledge, STK, Self-treatment knowledge

Table 2 shows the factor loading scores of items on their respective latent variable as well as on other latent variables. In PLS based modeling there are two types of model i.e. reflective and formative. As per the recommendation of Ringle, Wende and Becker, (2015) for the assessment of reflective models (the one we are assessing) the outer model loading should be consider while for the assessment of formative model both the factor loading and weights must be analyzed to consider the reliability of scale. The factor loading and cross loading simultaneously assess the convergent and discriminant validity of scale. The convergent validity assumes that all the items related to a specific latent variable must be strongly correlated and explain more than 50% variation in respective latent variable while the discriminant validity proclaims that item of one latent variable should not be associated with another latent variable. Thus the items of specific factor must have high factor loading score on its own latent variable while low factor score on other latent variables. This is the same notion like Chin(1998) who asserted that there is no cut off value for factor loading but the items of one variable must have low factor loading score on other latent variables compare to its own variable. On the basis of these criterions and assumptions all the items of each dimension i.e. Disorder Recognition, Risk Factor Knowledge, Available Professional Help, Information Seeking Knowledge, Self-treatment knowledge and Stigma having high factor loading scores on their respective latent variable while have low factor loading on other variable. Thus, the scale has been considered to have achieved convergent as well as discriminant validity.

Table 3
Fornell-Larker Criterion

	APH	DR	ISK	Misconception	RFK	STK	Stigma_
APH	0.899						
DR	0.457	0.718					
ISK	0.029	-0.005	0.823				
Misconception	0.240	0.321	0.008	0.717			
RFK	0.255	0.289	0.035	0.182	0.905		
STK	0.005	0.064	-0.103	0.045	-0.023	0.861	
Stigma_	0.021	0.040	0.494	0.096	0.042	0.007	0.715

NOTE: DR, Disorder Recognition, RFK, Risk Factor Knowledge, APH, Available Professional Help, ISK, Information Seeking Knowledge, STK, Self-treatment knowledge

The table above shows the Fornell-Larker criterion which has been calculated by taking the square root of the AVE values. The Fornell-Larker criterion is a

measurement tool of discriminant validity which state that items of one latent variable must have high correlation with its own latent variable and low or no correlation with other latent variables in scale. The Fornell-Larker criterion values of all the items with its own latent variable and with other latent variables are given in above table. For the scale to be reliable and valid it is necessary that items must be strongly correlated with its own latent variable. Thus, in the table above, the top value in each column must be higher than values in same column which confirms that items are strongly loading on its own variable and not on other variable. In the table above the APH has highest correlation with its own APH variable which is 0.899 while all the values in that column as less than this value which confirms that APH items are reliable and valid. In table above all the top values in each column are greater than values under that which means all the items are loading on items which were supposed to and items of every factor are strongly correlated with its own variable strongly than other variables in scale.

Table 4
Heterotrait-Monotrait Ratio (HTMT)

	APH	DR	ISK	Misconception	RFK	STK	Stigma_
APH							
DR	0.502						
ISK	0.049	0.076					
Misconception	0.282	0.389	0.098				
RFK	0.307	0.350	0.072	0.212			
STK	0.051	0.212	0.158	0.100	0.037		
Stigma_	0.083	0.105	0.561	0.128	0.100	0.100	

NOTE: DR, Disorder Recognition, RFK, Risk Factor Knowledge, APH, Available Professional Help, ISK, Information Seeking Knowledge, STK, Self-treatment knowledge

According to Henseler et al. (2015)Henseler, Ringle & Sarstedt (2015) the loading, cross loading, AVE and Fornell-Larker criterions are widely used measures of discriminant validity but these tools have some discrepancies which can be fulfilled by the HTMT ratio. The HTMT ratio is actually the geometric mean of heterotraithetero method correlation (correlation among all the items measuring various factors) divided by the monotraithetero method correlation (correlation among items measuring the same variable). Thus in a well fitted model the HTMT ratio must be less than 1 to achieve discriminant validity of scale. This means the monotraithetero method correlation must be higher than monotraithetero method correlation. In other words the correlation among items measuring the same variable must be higher than the correlation of items of one variable with items of another variable. Thus, the HTMT ratio must be less than 1 achieved (Henseler, Ringle, &Sarstedt 2015). Henseler et al., (2015) used cutoff value for HTMT is 0.9. On the basis of this cut off value

recommended by various scholars, the discriminant validity of all the MHLS scale, except the one, dropped in early stages have been achieved.

Discussion

The main objective of the current endeavor was to translate and validate the psychometric properties of Mental Health Literacy Scale developed by Matt O'Conner in 2015. The scale has first 15 items on 4 point Likert Scale while the reaming on the 5 point Likert Scale. There are some questions which are reverse coded i.e. No. 10, 12, 15 and 20-28. These questions must be reverse coded before analyzing the data collected with MHLS. To the best of our awareness the MHLS is the best measure of mental health literacy in general population. The MHLS adequately assessed all the necessary dimensions of MHLS confirmed with statistical analysis. The final 34 items scale of MHLS has good reliability, internal consistency, convergent validity, discriminant validity, construct and face validity and good factor loading. The 34 items scale consist of 6 dimensions or subscale measuring mental disorder recognition having 7 items, Risk factor knowledge having 2 items, self-treatment knowledge having 2 items, available professional help having 3 items, information seeking knowledge 4 items, misconception having 9 items and stigma having 7 items.

The first attribute of the scale is mental disorder recognition which was confirmed with 7 items, one item related to the drug use was dropped due to low reliability and validity. All other attributes of MHLS was validated with the same number of items as in the original scale of MHLS. The results of current study are consistent with (Jafari et al., 2020; O'Connor & Casey, 2015).

Conclusion

The MHLS questionnaire has been used in different studies and has been validated in different languages (Longva, 2016). However, no study prior to this has been conducted on its validation in Pakistan. We did not get any literature on its translation plus validation in Pakistan's National Language Urdu. The results show that the MHLS questionnaire in Pakistan has a good level of understanding, is very reliable with a valid and consistent multi factorial constructs, therefore, it can be included in mental health surveys in a cost and time effective way.

Only one item related to drug use has been dropped due to low reliability and validity and coinciding with those of greater difficulty on the scale of the MHLS. Some studies have suggested slight modifications to the original MHLS questionnaire in order to adopt it to different population groups (Jafari et al., 2020; Kutcher et al., 2016; Wong et al., 2017).

Recommendation

The MHLS in Pakistan is a brief, adequate and valid instrument to measure the level of mental health literacy of the Pakistani population which recommends its use to detect the needs related to the management of health information.

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