

Assessing the Arabic Version of the Prejudice towards People with Mental Illness (PPMI) Scale: Psychometric Validation and Evaluation

Sami S. Alharthi^{1*}, Hadeel H. Altalhi², Ahmed S. Alzahrani³

¹Department of Medicine, College of Medicine, Taif University, KSA.

²College of Medicine, Taif University, KSA.

³Department of Preventive Medicine, Armed Forces Hospital, Madinah, KSA.

*E-mail ✉ sami0saud@gmail.com

Abstract

This study aimed to develop and validate an Arabic version of the Prejudice in Mental Illness (PPMI) scale that is more culturally relevant and suitable for our society, while also being compatible with the Arabic language. A total of 145 Pharm.D. and medical students, men and women participated in this research, they used both the translated and the original version of the PPMI scale. The Arabic translated version demonstrated satisfactory internal consistency, with Cronbach's alphas of .84 for fear/avoidance, .65 for malevolence, .68 for authoritarianism, .76 for unpredictability, and an overall scale score of .80, all were statistically significant ($P < .001$). Test-retest reliability was assessed through interclass correlation coefficients (ICC), revealing values of .79 for fear/avoidance, .67 for authoritarianism, .45 for malevolence, .77 for unpredictability, and .74 for the total items ($P < .001$). Furthermore, factor analysis using Varimax rotation showed that items 11 and 17 loaded on Component 2 with malevolence items, while item 28 loaded on Component 4 with authoritarianism. The Arabic PPMI version demonstrated robust reliability and validity, supporting its use in KSA, including a test-retest correlation of $r = .74$ ($P < .001$) and a Cronbach's alpha of 0.81 for the overall scale.

Keywords: Prejudice, Mental illness, Stigma, Cronbach's alphas

Introduction

Stigma refers to the negative and often stereotypical attitudes toward individuals who possess distinguishing traits or characteristics that set them apart, frequently leading to social exclusion, discrimination, and a loss of empowerment. The term "stigma" originated in ancient Greece, where it described marks or labels used to identify slaves, but over time, its meaning has expanded to include various forms of social and cultural labeling. Scambler and Gray mentioned stigma can manifest in two primary forms: felt stigma and enacted stigma. Felt

stigma, or self-stigmatization, occurs when individuals experience shame or fear of discrimination, causing them to avoid discussing their experiences and refrain from seeking assistance [1, 2]. Enacted stigma, on the other hand, refers to the perception of being unfairly treated by others. Both forms can result in social withdrawal and reduced support from others. Additionally, stigma extends beyond individuals to encompass public stigma, which involves the broader societal devaluation and discrimination of certain groups [3, 4]. While various human traits and experiences can be subject to stigmatization if perceived as abnormal, this study specifically examines the systemic prejudice and stigmatization of individuals with mental illness (MI) in Saudi Arabia. This area is underexplored in the country, and it is crucial to investigate the influence of cultural and religious factors on mental illness stigma, as well as its impact on patients' families, relationships, employment, self-esteem, and rights [5, 6]. Reducing stigma is essential for advancing the psychiatric field. To support

Access this article online

Website: <https://smerpub.com/>

E-ISSN: 3108-4818

Received: 08 January 2021; Revised: 29 March 2021; Accepted: 01 April 2021

How to cite this article: Alharthi SS, Altalhi HH, Alzahrani AS. Assessing the Arabic Version of the Prejudice towards People with Mental Illness (PPMI) Scale: Psychometric Validation and Evaluation. Int J Soc Psychol Asp Healthcare. 2021;1(1):20-6. <https://doi.org/10.51847/IfiDqDMsh4>

this goal, the findings of this study will be compared with national data. Previous literature, such as Koura *et al.*, proposes four strategies to address public stigmatization of psychiatric patients in KSA: providing psychiatric counseling outside of mental health facilities, engaging Muslim clergy for educational purposes, strengthening the role of psychologists in schools, and establishing a consultation hotline.

Stigma has a significant impact on the prognosis of minors with mental health issues, often leading to delays in seeking psychiatric help. Reducing stigma can, therefore, improve outcomes for these individuals. Several reasons contribute to this stigma, as noted in previous studies [4]: (1) Individuals seeking help in mental health facilities are often immediately labeled as "crazy"; (2) Families may attempt to conceal the presence of mental health conditions, particularly to preserve the marriage prospects of female family members; (3) A belief persists that mental health conditions are incurable and that nobody can offer assistance [7]; and (4) Psychiatric medications are often stigmatized due to their negative reputation.

The impact of stigma on mental health patients has been a significant area of research. Emerging evidence confirms that stigma adversely affects individuals with mental illnesses [8]. This stigmatization encompasses various elements, such as prejudice, stereotypes, and discrimination [9]. According to Kenny *et al.* [10] assessing prejudice towards people with mental illness (PPMI) and found that the PPMI scale consistently displayed a four-factor structure (fear/avoidance, malevolence, authoritarianism, and unpredictability) across multiple studies and cultural contexts. Commonly used scales like the Opinion about Mental Illness (OMI) and the Community Attitudes toward the Mentally Ill (CAMI) have not demonstrated the same level of consistency or reliability. So, the PPMI scale has proven to be a valid tool for assessing prejudice, as it coordinates well with the CAMI scale while offering improved psychometric properties [11]. Given that prejudice is a central component of stigma that drives discriminatory behavior, the PPMI scale offers an important avenue for addressing and reducing these negative attitudes.

A recent study conducted in Saudi Arabia revealed that almost 25% of participants believed individuals with PPMI should be prohibited from marrying or having children, and 16.4% felt they should be avoided entirely [12]. In general, stigma is rooted in fear and ignorance, which often contribute to the development of deep-seated

prejudices. Historically, schizophrenia has remained one of the medical conditions that trigger public feelings of fear, distress, and avoidance [13]. Research has shown that people having mental health issues frequently face discrimination in the workplace, with many reporting being rejected for jobs or discouraged from seeking employment due to anticipated bias against their condition [14, 15]. To better understand and address prejudice in our society, it is essential to translate the relevant scales into Arabic and evaluate their cultural relevance. Following the guidelines set by Mallinckrodt and Wang [16], we aim to assess the scale's cross-cultural validity [17], ensuring that it meets the five levels of equivalence required for adaptation: content, semantic, technical, criterion, and conceptual. Content equivalence guarantees that the scale's content is relevant and appropriate across cultures, while semantic equivalence ensures that items in the new version carry the same meaning as their original counterparts. Technical equivalence examines whether the data collection method yields comparable results in both cultures, while criterion equivalence provides evidence of the scale's consistency within cultural norms. Lastly, conceptual equivalence ensures that the meanings of the scale's items are aligned in both cultural contexts. To achieve the desired levels of equivalence, all preceding levels must be fully addressed.

Materials and Methods

This research was conducted with a randomly selected group of Pharm.D. and medical students at Taif University, chosen for their bilingual proficiency. Two separate translation teams were established, each consisting of two members: one assistant professor in linguistics and one expert psychiatrist. Both participants in each team were bilingual and had lived in both Arabic and American cultures. The first team translated the original English version of the scale into Arabic independently. Afterward, the team met to discuss and refine the translated version before finalizing the Arabic scale. This Arabic version was then distributed to the same group of students during two separate sessions, spaced 2 weeks apart. The 2nd team followed a similar procedure, translating the Arabic version back into English independently. Once both translations were completed, the two English versions were compared and discussed for consistency. The validity of the scale and its subscales was assessed at the item level, ensuring that

responses were appropriately aligned across both versions. Students were provided with the translated scales via electronic Google documents. For tracking purposes, students were required to submit their university enrollment numbers as part of the study registration process.

Study population

This research included bilingual Pharm.D. and medical students.

Study design, sampling technique, and sample size

A random distribution of questionnaires was used to select participants, and the study proceeded with the number of students who responded during the initial session.

Study duration

The study was conducted over two months.

Inclusion criteria

The participants of this study were bilingual Pharm.D. and medical students from Taif University who could speak both English and Arabic. Eligible participants were between the ages of 18 and 60 years, and the sample included both genders.

Exclusion criteria

To verify age, participants were required to provide their national identification documents. Students who were either younger than 18 years or older than 60 years were not in the study. Additionally, students were subjected to

basic language proficiency tests in English and Arabic. Those who performed poorly in either test were disqualified from continuing in the study.

Ethical considerations

Before the study, ethical approval was obtained from the Taif University Research Ethics Committee. The researchers provided a clear explanation of the study's purpose to all participants before seeking formal consent to participate. Participation was voluntary, and confidentiality was assured. The anonymity of participants' responses was maintained, and all data was securely encrypted on researchers' laptops with protected passwords.

Results and Discussion

Participants characteristics

The average age of the 145 participants was 21.4 years ($SD = 1.3$). Among them, 28 (19%) were men and 117 (81%) were women 80% of the participants reported that they had neither experienced PPMI nor used psychiatric medications. Additionally, over 85% never had a visit with a psychiatrist or any psychiatric facility. A significant portion (82%) of the participants expressed no reluctance in seeking psychiatric help. Furthermore, 110 participants completed the questionnaires a second time on the fourteenth day to assess test-retest reliability. The demographic characteristics (age and gender) remained consistent with those in the first round of data collection, as shown in **Table 1**.

Table 1. Characteristics of study participants

Characteristic	Day 14 (n = 110)	Day 0 (n = 145)
Mean age (Years (SD))	21.5 (1.3)	21.4 (1.3)
Gender (n (%))		
Male	21 (19%)	28 (19%)
Female	89 (81%)	117 (81%)
Have you ever had a mental illness?		
Yes	17 (15.5%)	20 (14%)
No	93 (84.5%)	125 (86%)
Have you used any psychiatric medications?		
Yes	11 (10%)	11 (8%)
No	99 (90%)	134 (92%)
Have you ever been to a psychiatrist?		
Yes	6 (5.5%)	14 (10%)
No	104 (94.5%)	131 (90%)

Have you visited a psychiatric facility?		
Yes	15 (14%)	21 (14.5%)
No	95 (86%)	124 (85.5%)
Are there people in your vicinity with mental illnesses?		
Yes	76 (69%)	104 (72%)
No	34 (31%)	41 (28%)
Do you mind visiting a psychiatrist?		
Yes	8 (7%)	10 (7%)
No	102 (93%)	135 (93%)
Is your field related to psychiatry?		
Yes	59 (54%)	66 (45.5%)
No	51 (46%)	79 (54.5%)
Do people in your area work in psychiatry?		
Yes	17 (15.5%)	22 (15%)
No	93 (84.5%)	123 (85%)
The preferred location for visiting a psychiatrist		
Private clinic	47 (67.3%)	93 (64%)
Mental health facility	13 (11.8%)	19 (19%)
Primary-care clinics (health centers)	14 (12.7%)	13 (9%)
General clinics	9 (8.2%)	20 (14%)

Validity of the PPMI-Arabic version

Before conducting the principal component analysis (PCA) on the 28 items of the PPMI-Arabic scale, we assessed the appropriateness of the data for factor analysis. The correlation matrix revealed multiple correlation coefficients of 0.3 or higher, with the strongest correlations observed between items 23 and 25, and items 25 and 26. The Kaiser–Meyer–Olkin (KMO) measure was found to be 0.71, which surpasses the recommended threshold [18, 19], and Bartlett's test of sphericity was significant, indicating the correlation matrix's suitability for analysis. The PCA identified 8 components with eigenvalues exceeding 1.0, explaining the following percentages of the total variance for the 28 items: 20.5%, 12.6%, 7.7%, 6.8%, 5.6%, 4.5%, 4.4%, and 3.9%, which cumulatively accounted for 65.9% of the variance (**Table 2**). The scree plot indicated a prominent first factor (eigenvalue = 5.7) followed by 3 smaller factors with eigenvalues of 3.5, 2.2, and 1.9, with 24 additional smaller factors. Based on the theoretical structure of the original PPMI proposed by Kenny and Bizumic, we chose to retain four factors. To confirm this decision, a parallel analysis was conducted, which supported the retention of the four factors [20].

The results of the principal component analysis (PCA) were performed on the 28 items of the Arabic version of

the Prejudice Towards People with Mental Illness (PPMI) scale. The analysis revealed four factors with eigenvalues greater than 1, explaining a cumulative variance of 47.5% across the scale. The first factor accounted for 20.5% of the variance, followed by the second factor with 12.6%, the third with 7.7%, and the fourth with 6.8%. The scree plot confirmed the presence of a dominant first factor, with the remaining three factors showing progressively smaller eigenvalues. Parallel analysis indicated that retaining four factors was appropriate, aligning with the theoretical structure of the original PPMI scale.

The components identified in the analysis were malevolence, fear/avoidance, authoritarianism, and unpredictability. Both varimax and oblimin rotations were applied in sequence. The varimax rotation resulted in a clean factor structure, where each item was predominantly loaded onto a single component. Items 11 and 17 were associated with component 2, which corresponds to malevolence, while item 28 loaded onto component 4, corresponding to authoritarianism. It is worth noting that items 11, 17, and 28 had factor loadings of less than 0.3 on the original PPMI model as mentioned by Kenny and Bizumic [21].

Table 2. Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization.

Component	1	2	3	4
Fear/Avoidance				
Do you find it difficult to talk to someone with a mental illness?	.622			
I am less likely to get romantically involved with someone if I know they have a mental illness.	.574			
It is better to avoid people with mental illness.	.627			
I feel unsafe around someone who has a mental illness.	.783			
I would be just as happy to invite someone with PPMI to my home as I would anyone else*	.715			
I feel at ease when talking to someone with a mental illness*	.712			
I am not afraid of people with mental illness*	.673			
It is easy to interact with people with mental illness*	.462			
Malevolence				
People with mental illness avoid challenges.		.343		
People with PPMI are self-sufficient.		.461		
People with PPMI are genetically inferior.		.327		
People with PPMI do not deserve our sympathy.		.609		
We should invest more resources to help people with mental illness*		.727		
People with mental illness do not experience failures in life*		.660		
We must offer support and care for people with mental illness*		.619		
Anyone could experience mental illness under certain circumstances*		.663		
Authoritarianism				
People with mental illness must be controlled by any means necessary.			.383	
People with PPMI should not be allowed to have children.			.547	
People with mental illness should be forced to receive treatment.			.552	
People with mental illness should have the freedom to make their own decisions*			.662	
People with mental illness should be allowed to live freely*			.753	
Society should not restrict the freedom of people with mental illness*			.553	
Unpredictability				
The behavior of people with PPMI is unpredictable.				.846
People with PPMI often engage in unexpected behaviors.				.683
It is hard to predict how a person with PPMI will behave.				.771
The behavior of people with PPMI is just as predictable as that of mentally healthy individuals*				.755
The behavior of people with PPMI is foreseeable*				.551
I generally find people with PPMI to be consistent in their behavior*				.413

* Item was reverse-scored.

P < .001

Reliability of the PPMI-Arabic version

The PPMI-Arabic version demonstrated a high level of internal consistency, with a Cronbach's alpha of .81 across all 28 items. Excluding any item from the scale resulted in a decrease in the overall alpha, except for Item 10, which led to a slight increase of .02. The Cronbach's alpha values for the 4 subscales were as follows: fear/avoidance = .84; authoritarianism = .68, malevolence = .65; and unpredictability = .76. In terms of test-retest reliability, the intraclass correlation

coefficients (ICCs) were found to be .79 for fear/avoidance, .45 for malevolence, .67 for authoritarianism, .77 for unpredictability, and .74 for the entire set of items, with all values being statistically significant ($P < .001$).

Conclusion

The Arabic adaptation of the PPMI scale has shown satisfactory reliability and validity for use in Saudi Arabia, including strong results in test-retest reliability (r

= .74, $P < .001$) and a Cronbach's alpha of .81. The translation process involved two distinct teams: the first team translated the original English scale into Arabic, then both teams collaborated to refine the translated version. The second team independently re-translated the Arabic version back into English, following the same procedures. Factor analysis of the translated version confirmed its reliability with acceptable results. While the scree plot suggested the retention of two components, the researcher opted for parallel analysis, which indicated that four factors should be retained based on eigenvalue criteria. The four factors were validated using orthogonal rotation, which aligns with the theoretical structure of the original PPMI, underscoring the importance of using both varimax and oblimin rotation methods. The varimax rotation revealed that Items 11 and 17, related to malevolence, and Item 28, linked to authoritarianism, loaded onto the respective components as expected.

The researcher chose to use varimax rotation for its simplicity, as no significant differences were found between the two methods. The original PPMI scale demonstrated high reliability, with Cronbach's alpha values above .90. For the Arabic version, Cronbach's alpha for all 28 items was .81, with the subscales showing the following alpha values: fear/avoidance = .84; malevolence = .65; authoritarianism = .68; and unpredictability = .76. While the original study did not assess test-retest reliability, a similar study indicated good results with partial correlations ranging from .63 to .75. The Arabic version also demonstrated strong test-retest reliability, confirmed by intraclass correlation (ICC) scores between .45 and .79. Overall, the Arabic PPMI version proved reliable and valid for use in Saudi Arabia.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Scambler G. Stigma and disease: changing paradigms. *Lancet*. 1998;352(9133):1054-5. doi:10.1016/S0140-6736(98)08068-4
2. Gray AJ. Stigma in psychiatry. *J Royal Soc Med*. 2002;95(2):72-6. doi:10.1258/jrsm.95.2.72
3. Mann CE, Himelein MJ. Factors associated with stigmatization of persons with mental illness. *Psychiatry Serv*. 2004;55(2):185-7. doi:10.1176/appi.ps.55.2.185
4. Koura M, Al-Sowielem L, Al-Dabal B, Raja'a AS, Al-Halal A, Al-Mahfoodh N, et al. Qualitative research: stigma associated with psychiatric diseases. *Middle East J Family Med*. 2012;1;10(6):44-7.
5. Wahl OF. Mental health consumers' experience of stigma. *Schizophr Bull*. 1999;25(3):467-78. doi:10.1093/oxfordjournals.schbul.a033394
6. King M, Dinos S, Shaw J, Watson R, Stevens S, Passetti F, et al. The stigma scale: development of a standardised measure of the stigma of mental illness. *Br J Psychiatry*. 2007;190(3):248-54. doi:10.1192/bjp.bp.106.024638
7. Dubow EF, Lovko Jr KR, Kausch DF. Demographic differences in adolescents' health concerns and perceptions of helping agents. *J Clin Child Psychol*. 1990;19(1):44-54. doi:10.1207/s15374424jccp1901_6
8. Fox AB, Earnshaw VA, Taverna EC, Vogt D. Conceptualizing and measuring mental illness stigma: the mental illness stigma framework and critical review of measures. *Stigma Health*. 2018;3(4):348-76. doi:10.1037/sah0000104
9. Corrigan PW, Shapiro JR. Measuring the impact of programs that challenge the public stigma of mental illness. *Clin Psychol Rev*. 2010;30(8):907-22. doi:10.1016/j.cpr.2010.06.004
10. Kenny A, Bizumic B, Griffiths KM. The prejudice towards people with PPMI (PPMI) scale: structure and validity. *BMC Psychiatry*. 2018;18(1):293. doi:10.1186/s12888-018-1871-z
11. Taylor SM, Dear MJ. Scaling community attitudes toward the mentally ill. *Schizophr Bull*. 1981;7(2):225-40. doi:10.1093/schbul/7.2.225
12. Saad SY, Almatrafi AS, Ali RK, Mansouri YM, Andijani OM. Stigmatizing attitudes of tertiary hospital physicians towards people with mental disorders in Saudi Arabia. *Saudi Med J*. 2019;40(9):936-42. doi:10.15537/smj.2019.9.24510
13. Thompson AH, Stuart H, Bland RC, Arboleda-Florez J, Warner R, Dickson RA. Attitudes about schizophrenia from the pilot site of the WPA

- worldwide campaign against the stigma of schizophrenia. *Soc Psychiatry Psychiatr Epidemiol.* 2002;37(10):475-82. doi:10.1007/s00127-002-0583-2
14. Brohan E, Thornicroft G. Stigma and discrimination of mental health problems: workplace implications. *Occup Med.* 2010;60(6):414-5. doi:10.1093/occmed/kqq048
 15. Brohan E, Slade M, Clement S, Thornicroft G. Experiences of mental illness stigma, prejudice and discrimination: a review of measures. *BMC Health Serv Res.* 2010;10(1):80. doi:10.1186/1472-6963-10-80
 16. Mallinckrodt B, Wang CC. Quantitative methods for verifying semantic equivalence of translated research instruments: a Chinese version of the experiences in close relationships scale. *J Couns Psychol.* 2004;51(3):368. doi:10.1037/0022-0167.51.3.368
 17. Flaherty JA, Gaviria FM, Pathak D, Mitchell T, Wintrob R, Richman JA, et al. Developing instruments for cross-cultural psychiatric research. *J Nerv Ment Dis.* 1988;176:257. doi:10.1097/00005053-198805000-00001-63
 18. Kaiser HF. A second generation little jiffy. *Psychometrika.* 1970;35:401-15.
 19. Bartlett MS. A note on the multiplying factors for various χ^2 approximations. *Journal of the Royal Statistical Society. Series B (Methodological).* 1954;1:296-8.
 20. Pallant J, Manual SS. A step by step guide to data analysis using SPSS for windows. *SPSS Survival Manual (3rd ed).* England: Open University Press McGraw Hill; 2007. p.150-65.
 21. Kenny A, Bizumic B. Learn and ACT: changing prejudice towards people with PPMI using stigma reduction interventions. *J Context Behav Sci.* 2016;5(3):178-85. doi:10.1016/j.jcbs.2016.06.004