Original Article

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

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Abstract

We set out to generate a validated Arabic version of the Prejudice towards Mental Illness scale cases that are and easier and more compatible with our society as it is compatible with our language and culture. One hundred forty-five medical and Pharm.D. Students of both genders participated in this study using both the original and translated versions of the PPMI scale. The Arabic PPMI scale showed acceptable internal consistency, with the following Cronbach's alphas: fear/avoidance (.84), malevolence (.65), authoritarianism (.68), unpredictability (.76), and a total-scale score of (.8); all of which were significant (p< .001). Test-retest reliability of the PPMI Arabic version was shown using interclass correlation coefficient (ICC) as follows: ICC = .79 for fear/avoidance, .45 for malevolence, .67 for authoritarianism, .77 for unpredictability, and .74 for all items (p < .001). Finally, Varimax rotation was performed and indicated that Items 11 and 17 had loaded on Component 2, with the malevolence items. 28 loaded on Component 4, together with authoritarianism. The Arabic version of the PPMI clarified acceptable reliability and validity results for using in Saudi Arabia, including test–retest analysis of the overall items (r = .74, p< .001, Cronbach's alpha = 0.81).

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

Introduction

Stigma is often a stereotypical negative perception towards someone because they have distinguishing characteristics or traits that put them at a disadvantage, often resulting in social seclusion, discrimination, and disempowerment. Originally referring to a mark or label on Greek slaves to distinguish them from slaves, the word *stigma* has evolved to encompass a variety of contextual definitions and classification. According to Scambler and Gray stigma, a stigma exists in two major forms: *felt stigma* and *enacted stigma*. Felt stigma, or self-stigmatization, is defined as shame or probability of discrimination that leads persons to avoid talking about their experiences and prevents them from asking for help [1, 2]. Enacted stigma, or perception, is the feeling of being treated unfairly by others. Both forms of stigma can lead to withdrawal and limitation of social support. Stigma is not just related to patients; there is also the public stigma, which includes devaluation and discrimination towards certain people [3, 4]. While many aspects of human characteristics and experiences may be stigmatized if deemed abnormal, this report will focus on systemic prejudice and stigmatization of people with PPMI in Saudi Arabia., especially because there are existing gaps in the study of stigma and PPMI in Saudi Arabia. There is an imperative need to investigate the effects of religion and culture on the stigma of mental illness (MI), as well as the latter's consequences on patients' families, relationships, jobs, rights, and self-esteem [5, 6]. In order to improve the psychiatric field, we should strive to reduce stigma. Finally, we will establish how the findings of the study are compared with national results. In the literature, Koura *et al*. suggest four ways to mitigate public stigmatization of psychiatric patients in Saudi Arabia: first, providing psychiatric counseling outside the mental hospital such as in primary health-care centers (PHCs); second, asking Muslim clergymen to help in education; third, activation of the psychologist's role in schools; and fourth, establishing a hotline for consultation.

Stigma affects prognosis in minors, which can cause a delayin seeking help from a psychiatrist thus, reducing stigma will

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lead to improving prognosis; Some reasons for this are mentioned in [4]: (1) If anyone goes to these hospitals, s/he is immediately considered crazy. (2) Families try to hide their patients to allow the girls in the family to get married. (3) Some people think that there is no cure and that no one can help [7]. (4) Psychiatric drugs have bad reputations.

Researchers have extensively studied the stigma associated with mental illness. Emerging proves stigma effects on patients [8]. Stigmatization includes many components, such as stereotypes, prejudice, and discrimination [9]. Amanda Kenny and her colleagues focused on prejudice assessment [10], claiming that the Prejudice PPMI scale demonstrated a consistent 4-factor structure (fear/avoidance, malevolence, authoritarianism, &unpredictability) across three studies and in different cultural groups. Commonly used assessments of attitudes towards people with PPMI such as reported about PPMI (OMI (Opinion about Mental Illness)) and Community Attitudes Toward the Mentally Ill (CAMI), did not have replicable structures. Therefore, the PPMI scale is valid by correlating it with the CAMI scale [11], the PPMI scale is shorter and improves psychometric characteristics [10]. Since prejudice in stigma central component drives behavior, PPMI was avenue with mostly modifying for decrementing effects of those attitudes.

A recent study in Saudi Arabia found that nearly a quarter of respondents believed that patients with PPMI should not marryor have children, while 16.4% believed that one should avoid any form of interaction with them [12]. Generally, stigma is caused by both ignorance and fear, which form the basis of ingrained prejudices. Looking back through history, schizophrenia continued to be one of the few medical illnesses associated with feelings of distress, fear, prejudice, and avoidance among the public [13]. According to research, "There is evidence that people with mental health problems report being turned down for a job because of their mental health problem or get discouraged to look for work because they anticipate discrimination" [14, 15]. To assess prejudice in our society, we need to translate the scale into the Arabic language and assess its compatibility with our culture. We will follow the rule of Mallinckrodt and Wang [16] and will consider cross-cultural validity [17], and the five equivalence levels that the adapted version must have: content, semantic, technical, criterion, and conceptual. Content equivalence ensures the relevance and appropriateness of the content domain for the two cultures. Semantic equivalence ensures that the new measure's respective items convey the same message as their parallel items on the first scale. Technical equivalence answers whether the method of gathering the data brings out comparable results from each of the cultures. Criterion equivalence shows evidence of the comparisons within the cultural norms. Conceptual equivalence looks at the similarity of meanings in each culture. To realize the subsequent levels of ordered equivalence, there must be equivalence in all preceding levels.

Materials and Methods

Study Setting

The study included randomly selected medical and Pharm.D. students from different levels at Taif University. Students were suitable for this study because of their bilingual abilities. We came up with two translation groups, each with two participants (an assistant professor of linguistics &an expert psychiatrist). Each of the two participants were bilingual and would have lived in both American and Arabic cultures. The first team independently translated the original scale (the English scale) into the Arabic language. The members met and discussed the various scales before revalidating the Arabic scale. The scales were distributed to the same sample of students in two sittings, two weeks apart. The second team then independently translated the Arabic version into a new English version following the same procedure used by the first group. The original English scale and the new version were discussed twice and compared with each other. We sought validity at the scale and subscale (each item) levels and matched the responses. The students accessed the scales sent to them through electronic Google documents. After sending the scales to the sample, researchers conducted a longitudinal follow-up with the students by asking them to give their university numbers, which was a mandatory requirement for enrollment into the study.

Study Population

The study involved bilingual medical and Pharm.D. students from Taif University.

Study Design, Sampling Technique, and Sample Size

Researchers sent random questionnaires to the participants and the study proceeded with the number of students that responded at the first sitting.

Study Duration

The study spanned two months.

Inclusion Criteria

Participants of this study included medical and Pharma.D. students of Taif University who spoke both the English and Arabic languages. Researchers recruited participants aged between 18 and 60 years old. This sample included both male and female students chosen based on willingness to participate, upon qualifying for the set inclusion criterion.

Exclusion Criteria

Participants were asked to provide their national identification documents to establish their ages. Students below 18 years and above 60 years were excluded from the study. Researchers exposed the students to basic English and Arabic tests to test their language competencies. Students who underperformed in either of the tests were automatically disqualified from proceeding with the study.

Ethical Considerations

The researchers obtained ethical approval from Taif University Research Ethics Committee before launching the study. Besides, the researchers explained the purpose of the study to the participants before obtaining formal approval to participate in each of them. Participation in the study was voluntary, and the anonymity and confidentiality of the participants' responses were assured to participants before they commenced filling out the questionnaires. The researchers then encrypted the obtained data into their laptops with protected passwords.

Participants' Characteristics

The mean age of all participants (N=145) was 21.4 years (SD=1.3). Twenty-eight participants were male (19%), and 117 (81%) were female. Over 80% of the sample never had a PPMI or used any psychiatric medications. Also, over 85% had never been to a psychiatrist or visited a psychiatric facility. The majority of the 145 participants (82%) did not mind visiting a psychiatrist. Moreover, 110 cases completed questionnaires for the second time on the day forteens, for calculating test-retest reliability. ±M age and gender % were not different from the first administration of the questionnaire, as shown in **Table 1**.

Results and Discussion

Table 1. Study Participants' Characteristics

Characteristic		Day 0 (n=145)	Day 14 (n=110)
Mean age, years (SD)		21.4 (1.3)	21.5 (1.3)
Gender, n (%)	Male	28 (19)	21 (19)
	Female	117 (81)	89 (81)
Have you ever had a mental illness?	Yes	20 (14)	17 (15.5)
	No	125 (86)	93 (84.5)
Have you used any psychiatric medications?	Yes	11 (8)	11 (10)
	No	134 (92)	99 (90)
Have you ever been to a psychiatrist?	Yes	14 (10)	6 (5.5)
	No	131 (90)	104 (94.5)
Have you visited a psychiatric facility?	Yes	21 (14.5)	15 (14)
	No	124 (85.5)	95 (86)
Are there any people in your vicinity who have mental illnesses?	Yes	104 (72)	76 (69)
	No	41 (28)	34 (31)
Do you mind visiting a psychiatrist?	Yes	10 (7)	8 (7)
	No	135 (93)	102 (93)
Is your field related to psychiatry?	Yes	66 (45.5)	59 (54)
	No	79 (54.5)	51 (46)
Do people in your area work in the field of psychiatry?	Yes	22 (15)	17 (15.5)
	No	123 (85)	93 (84.5)
Do you prefer to visit a psychiatrist at	A private clinic	93 (64)	47 (67.3)
	A mental-health facility	19 (19)	13 (11.8)
	Primary-care clinics (health centers)	13 (9)	14 (12.7)
	General clinics	20 (14)	9 (8.2)

SD: Standard Deviation

The Validity of the PPMI-Arabic Version

Before performing the principal component analysis (PCA) on the 28 PPMI-Arabic scale items, data suitability for factor analysis evaluated. The correlation matrix gave the presence of many correlations coefficients of three and more. The highest correlation evidence was among 23 and 25, and 25 and 26, respectively. The Kaiser–Meyer–Olkin measure was .71, exceeding the recommended value [18, 19], the test of sphericity reached statistical significance, supporting the ability of the correlation matrix. Principal component analysis showed the presence of eight components with eigenvalues greater than 1.0, explaining 20.5%, 12.6%, 7.7%, 6.8%, 5.6%, 4.5%, 4.4%, and 3.9% of the variances of all 28 items, respectively (accumulated total of 65.9%), **(Table 2)**.

The scree plot comprised a large first factor (eigenvalue = 5.7) [10] followed by three smaller factors (eigenvalues = 3.5, 2.2, &1.9) and 24 smaller factors. Following the theoretical structure of the original PPMI proposed by Kenny and Bizumic, it was decided to extract four factors. Confirming retained factors number, parallel analysis were undertaken, and outcomes indicated that the 4 factors might be retained [20].

Table 2. Explaining the Variance of the Summary of the PPMI Arabic Scale (N = 145)

Factor	No. of Items	Initial Eigenvalues	Variance%	Cumulative Percentage	The eigenvalue for Parallel Analysis
1	8	5.7	20.5	20.5	2
2	7	3.5	12.6	33	1.9
3	7	2.2	7.7	40.7	1.7
4	6	1.9	6.8	47.5	1.6

The applied components were fear/avoidance, malevolence, authoritarianism, and unpredictability. Varimax and oblimin rotation were used consecutively. With varimax, the rotated component matrix gavea simple structure with every item loaded on one component. Items 11 and 17 were loaded on component 2, with malevolence items. Item 28 loaded on component 4, with authoritarianism. Items 11, 17, and 28 showed factor loadings of less than .3 on the original PPMI proposed by Kenny and Bizumic [21].

Table 3. Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization.

	Component			
	1	2	3	4
Fear/Avoidance				
Do you find it hard to talk to somebody with mental illness?	.622			
I am less likely to become romantically involved with one if I knows/he is a mentally ill case.	.574			
It is best to avoid people who are mental illness cases.	.627			
I feel unsafe around someone who is mentally ill.	.783			
I will be just as happy to invite one with PPMI to my home as I invite anyone else*.	.715			
I feel relaxed if I have to talk to a mentally ill case*.	.712			
I am not afraid of mentally illcases*.	.673			
Itis easy to interact with mentally ill case*s.	.462			
Malevolence				
Mentally ill cases avoid difficulties.			.343	
PPMI cases support themselves.			.461	
PPMI cases are genetically inferior.		.327		
PPMI cases do not deserve our sympathy.			.609	
We should spend more money to help mentally illcases*.			.727	
Mentally ill cases do not have failures in life*.			.660	
We need to support and care for mentally ill people *.			.619	
Under certain circumstances, anyone can experience mental illness*.			.663	
Authoritarianism				
Mentally ill cases need to be controlled by any necessary means.		.383		
PPMI cases should not be allowed to have children.				.547
Mentally ill cases should be forced to receive treatment.				.552
Mentally ill cases should be free to make their own decision*.				.662
Mentally ill cases should be allowed to live life*.				.753

Society does not have a right to limit the freedom of mentally ill cases*.		.553
Unpredictability		
The behavior of PPMI cases is unpredictable.	.846	
PPMI cases often do unexpected things.	.683	
You cannot predict how a PPMI case will behave.	.771	
PPMI cases behavior is just as predictable as mentally healthy people*.	.755	
PPMI cases behave in ways that are foreseeable*.	.551	
I usually find PPMI cases consistent in their behavior*.		.413

* Item was reverse-scored.
$p < .001$

Reliability of the PPMI-Arabic Version

Cronbach's alpha for 28 items of the PPMI-Arabic questionnaire is .81. If deleted, all items will decrease the total scale of Cronbach's alpha, except Item 10 which would increase Cronbach's alpha by .02. Alpha scores for the four subscales are as follows: fear/avoidance,.84; malevolence, .65; authoritarianism, .68; and unpredictability, .76 **(Table 3)**. Results for the test-retest reliability are shown in **Table 4**. Intraclass correlation was .79 for fear/avoidance, .45 for malevolence, .67 for authoritarianism, .77 for unpredictability, and .74 for the overall items ($p< .001$).

Table 4. Internal Consistency and Test-Retest Reliability of the PPMI-Arabic scale

	Cronbach's alpha		ICC*
	Day 1 (n=145)	Day 14 (n=110)	
Fear/avoidance	0.84	0.78	0.79
Malevolence	0.65	0.61	0.45
Authoritarianism	0.68	0.78	0.67
Unpredictability	0.76	0.87	0.77
Overall items	0.81	0.86	0.74

*Intraclass Correlation Coefficient

Conclusion

The Arabic version of the PPMI has demonstrated acceptable reliability and validity outcomes for use in Saudi Arabia, including test-retest analysis of the overall items ($r = .74$, $p< .001$, Cronbach's alpha = .81). The translation of the study instrument involved two teams. The first team independently translated the original scale (the English scale) into the Arabic language. The members of each team sat together to discuss various scales before revalidating an Arabic scale. The second team then independently translated the Arabic version back to English following the same procedure taken by the first team. Assessment of the translated instrument's reliability revealed acceptable outcomes in factor analysis, although the scree plot shows two components to be preserved; this indicated retention of the two factors, following the theoretical structure of the original PPMI proposed by [10]. The researcher decided to ignore that the scree plot confirmed the Arabic PPMI instrument's ability to produce consistent results concerning the outcome for the sake of parallel analysis [22], reported the performing a parallel analysis to precisely assess the situation to retain factors by eigenvalues where exceed criterion value from the parallel analysis. Four factors retained [23], found to be used in orthogonal rotation for instrument development. which supports the need to use the rotation method, reinforcing the original author's instrument PPMI measure and multidimensional facets. For obtaining the best possible results, both rotation methods either varimax or oblimin should be used. The varimax method indicated Items 11, "People who develop PPMI are genetically inferior to other people," and 17, "People who are mentally ill need to be controlled, loaded on Component 2, together with malevolence items. Item 28, "I usually find people with PPMI to be consistent in their behavior," loaded on Component 4, together with the authoritarianism group. No significant difference in results of using2 methods. The researcher continued one analysis with varimax rotation related to its interpretation simplicity according to [23]. The original author's instrument supports using both the subscales and the total scale. The four factors of the original instrument were reliable, with Cronbach's alphas above .90 (Study 1, $\alpha = .93$; Study 2, $\alpha = .91$; Study 3, $\alpha = .91$). Cronbach's alpha for the 28 items was .81. The four subscales' alpha scores were as follows: fear/avoidance, .84; malevolence, .65; authoritarianism, .68; and unpredictability, .76. Although the original authors did not assess the PPMI scale for test-retest reliability, this scale was administered two weeks apart in another experiment [21]. Partial correlations suggest good test-retest reliability: .73 (PPMI), .75 (fear/avoidance), .63 (malevolence), .71 (authoritarianism), and .63 (unpredictability). Test-retest reliability of the PPMI Arabic version scale was shown using intraclass correlation as follows: ICC = .79 for fear/avoidance, .45 for malevolence, .67 for authoritarianism, .77 for unpredictability, and .74 for the overall items ($p< .001$). In conclusion, the Arabic version of the PPMI demonstrated acceptable reliability and validity of outcomes for use in Saudi Arabia, including test-retest analysis of the overall items ($r = .74$, $p< .001$, Cronbach's alpha = 0.81).

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Consent was taken before participants' enrollment.

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