Original Article

Reliability and validity of the Turkish version of the prejudice toward people with mental illness scale

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Abstract

Objectives: This study was conducted to assess the validity–reliability and psychometric properties of the Turkish version of the Prejudice toward People with Mental Illness scale.

Methods: This was a methodological study conducted between June 1, 2021, and September 1, 2021. The sample of this study consisted of 297 people who were registered at a family health center in Gaziosmanpaşa. The personal information form consisted of 17 questions. It had eight sociodemographic characteristics questions and nine situations participants might find themselves in with people with mental illness . In the data analysis, descriptive statistics, confirmatory factor analysis, item–total correlation , test–retest correlation, Pearson correlation, and Cronbach's alpha coefficient were used. According to experts' opinions, the content validity index of the items was 0.97.

Results: As a result of confirmatory factor analysis, it was determined that the scale had a four-factor structure and consisted of 19 items. The item–total correlations of the Turkish version of the scale ranged from r=0.30 to r=0.68. The total Cronbach's alpha coefficient of the scale was found to be 0.86. Test–retest correlations were found to be statistically significant for the total scale and subscales (r=0.48; p<0.01).

Conclusion: The Turkish version of the Prejudice toward People with Mental Illness scale is a valid and reliable measurement tool that can be used in the evaluation of prejudice toward people with mental illness in the Turkish community. This scale is also suggested to be used for assessing the efficacy of interventions to reduce public prejudice toward people with mental illness.

Keywords: Mental disorders; prejudice; reliability; validity.

Stigma is a "social process characterized by exclusion, rejection, or devaluation resulting from the experience, perception, or reasonable expectation of a negative social judgment about a person or group".[1] Although stigmatizing behaviors are mostly seen in the community, they are also becoming increasingly common in workplaces and healthcare services.[2,3] Stigma in mental health consists of three components: lack of knowledge, attitude problems (prejudice), and behavioral problems (discrimination).[4] Although we have accumulated a large body of information about mental disorders in the last

two decades, we have not had much improvement in how we treat people with mental illness.[5] Attitudes toward people with mental illness have three structures: stereotype, prejudice, and discrimination. Stereotypes are cognitive structures that divide people into groups or categories.[6] Prejudice is generally regarded as an emotional reaction to a group such as anger and fear.[6] Stereotypes and prejudices cause people with mental illness to internalize stigmas.[7] The prejudice that causes anger can lead to hostile behavior, such as physically harming an individual against a minority group. From the

What is presently known on this subject?

• Although there are scales to determine attitudes and beliefs toward mental illnesses in the Turkish literature, there is no scale to determine prejudice toward people with mental illnesses .

What does this article add to the existing knowledge?

• It will contribute to the acquisition of a valid and reliable scale for evaluating prejudice against people with mental illness in the Turkish literature.

What are the implications for practice?

• The Turkish version of the Prejudice toward People with Mental Illness scale is a valid and reliable measurement tool for healthcare professionals to assess public prejudice toward people with mental illness. It can also assess the efficacy of interventions to reduce public prejudice toward people with mental illness.

viewpoint of mental disorders, a prejudice that causes anger may lead to a decrease in health care and social assistance services for individuals with mental disorders. The prejudice that causes fear can lead to avoidance behaviors, such as employers not hiring people with mental disorders.[8] Discrimination is a result of prejudice, but it is also common either at the individual or structural level due to systemic problems.[7] Therefore, prejudice is the most important construct used to conceptualize stigma about people with mental illness.[9] Prejudice and discrimination adversely affect a person's mental and physical well-being, may hinder treatment-seeking behavior, disrupt interpersonal relationships, and lead to a decrease in self-esteem. For this reason, it is an important requirement to determine the prejudices of individuals who make up the society against mental illness.[10]

Researchers in Türkiye use the "Community Attitudes toward the Mentally Ill (CAMI)" and the "Beliefs toward Mental Illness Scale (BMI)" to evaluate attitudes and beliefs toward people with mental illness. CAMI was developed by Taylor and Dear (1981) and adapted to Turkish by Bağ and Ekinci (2006).[11] The instrument consists of 21 items and 3 subscales: "fear/exclusion ,""community mental health ideology," and "benevolence." Hirai and Clum (2000) developed BMI, and Bilge and Çam (2008)[12] established its Turkish validity and reliability. The instrument consists of 21 items and 3 subscales: "incurability and disturbance in interpersonal relationships," "dangerous," and "shame." When these scales in the Turkish literature are examined, it is seen that the scales deal with the subscales of stigmatization and prejudice is not evaluated . Moreover, there is no Turkish scale that can be used to evaluate public prejudice toward people with mental illness. The Prejudice toward People with Mental Illness (PPMI) scale developed by Kenny, Bizumic, and Griffiths (2018)[13] is the only valid and reliable measurement tool for evaluating public prejudice against people with mental illness. The scale was adapted to German and Arabic.[14,15] Therefore, this study aimed to establish the Turkish validity and reliability of the PPMI scale.

Materials and Method

Population and Sample

This methodological study was conducted between June 1,

2021, and September 1, 2021. The study population consisted of all people registered to a family health center in Gaziosmanpaşa, Istanbul. This family health center performs the follow-up of all pregnant women, puerperant women, babies, and children registered in the center within the scope of primary healthcare services. It also provides examinations, laboratory testing, screening services, home visits, family planning, and education services. According to Erdoğan et al.[16] (2020), a scale adaptation study should recruit people 5–10 times the number of scale items. The target sample size was 280 because the PPMI scale consists of 28 items. The sample consisted of 297 people. The inclusion criteria were (1) having at least a primary school degree, (2) having no hearing or vision problems, (3) volunteering to participate, and (4) having no psychiatric disorder. Accordingly, individuals who met the inclusion criteria as a result of the family physician's evaluation were directed to the researchers.

Data Collection Tools

The personal information form was developed by the researchers and consists of two parts. The first part has eight items: pseudonym, age, gender, education, marital status, occupation, family structure, and income. The second part has nine situations (have seen people with mental illness in TV shows, movies, or documentaries; have family friends, colleagues, or neighbors with mental disorders; etc.) participants might find themselves in with people with mental illness.

The PPMI scale is a self-report measurement tool. It has 28 items and 4 subscales: fear/avoidance (8 items), malevolence (8 items), authoritarianism (6 items), and unpredictability (6 items). The items are rated on a 9-point Likert-type scale (from −4, very strongly disagree; to +4, very strongly agree). The validity and reliability study of this scale was conducted with university students and individuals from the community. Fourteen items (2–5, 10, 13–15, 18, 20, 21, and 26–28) are reverse scored. The total score of the scale is calculated by dividing the sum of all items by 28. The scale has Cronbach's alpha of 0.91 [13]. Cronbach's alpha coefficients of the subscales were 0.87, 0.83, 0.82, and 0.79 for fear/avoidance, malevolence, authoritarianism, and unpredictability, respectively.[13]

Language Validity

The researchers and two linguists translated the PPMI scale from English into Turkish. Another two linguists back-translated it. The researchers finalized it after they evaluated both Turkish and English items.

Content Validity

For content validity, 10 experts (seven faculty members specialized in psychiatric nursing, two clinical psychologists, and one professor of psychiatry) were consulted to assess the Turkish version conceptually. The content validity index (CVI) was calculated using the Davis technique. A CVI >0.80 refers to adequate content validity.[17] The items in this study had a CVI of 0.97. In line with expert opinions, it has been suggested to

convert the 9-point Likert type of the scale to the 7-point Likert type, because the distinction between Likert ratings in the Turkish language becomes difficult in terms of meaning. The Turkish version of this scale was revised following the experts' opinions, and a pilot study was conducted on 10 people who were excluded from the sample size. No revisions were made to the scale after the pilot study.

Data Collection

The data were collected between June 1, 2021, and September 1, 2021. Data were collected in the education room of the family health center. Participants completed the scale via a self-report. It was stated to the participants that they could ask the researchers for help when they needed it. Test–retest was performed to determine whether the Turkish version of the PPMI (PPMI-TR) scale provided consistent results over time. There was a 2-week interval between the first and second tests.[16] Data collection took approximately 20 min.

Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (v. 25.0) and Analysis of Moment Structures (v. 22.0) at a significance level of 0.05. Numbers, percentages, means, and standard deviations were used for descriptive statistics. Validity was analyzed using confirmatory factor analysis (CFA).

Moreover, reliability was analyzed using Pearson's correlation, Cronbach's alpha coefficient, test–retest correlation (TRC), and item–total score correlation (ITSC).

Ethical Considerations

Authorization was received from the developer of the PPMI scale . The study was approved by the XXX Non-Invasive Clinical Research Ethics Committee (19.04.2019 –Decision Number: 317). Written permission was obtained from the XXX Directorate (09/03/2021 –Decision Number: 2021/08). People were briefed about the research purpose and procedure, and written consent was obtained from volunteers.

Results

Demographic Characteristics

Participants had a mean age of 37.13±10.27 years. More than half of the participants were women (58.9%; n=175), married (65.7%; n=195), and had nuclear families (68.4%; n=203). Less than half of the participants had high school degrees (39.1%; n=116) and were workers (42.5%; n=126). Half the participants had a neutral income (income=expense).

The majority of the participants stated that they had seen people with mental illness in movies or TV shows (83.5%; n=248). Less than half of the participants noted that they had

| Table 1. Factor Loadings Obtained After CFA	
Items	**Factor loadings**
Factor 1: Fear/Avoidance	
1. I would find it hard to talk to someone who has a mental illness.	0.52
2. I would be just as happy to invite a person with mental illness into my home as I would anyone else.	0.69
3. I would feel relaxed if I had to talk to someone who was mentally ill.	0.72
4. I am not scared of people with mental illness.	0.57
5. In general, it is easy to interact with someone who has a mental illness.	0.48
6. It is best to avoid people who have a mental illness.	0.64
7. I would feel unsafe being around someone who is mentally ill.	0.74
Factor 2: Unpredictability	
8. The behavior of people with mental illness is unpredictable.	0.59
9. The behavior of people with mental illness is just as predictable as that of people who are mentally healthy .	0.37
10. In general, you cannot predict how people with mental illness will behave.	0.78
11. People with mental illness often do unexpected things.	0.73
12. I usually find people with mental illness to be consistent in their behavior.	0.68
13. People with mental illness behave in ways that are foreseeable .	0.40
Factor 3: Authoritarianism	
14. People who are mentally ill should be free to make their own decisions.	0.76
15. People who are mentally ill should be allowed to live their life any way they want.	0.43
16. Society does not have a right to limit the freedom of people with mental illness.	0.44
Factor 4: Malevolence	
17. People who are mentally ill are avoiding the difficulties of everyday life.	0.55
18. People who develop mental illness are genetically inferior to other people.	0.74
19. People with mental illness do not deserve our sympathy.	0.34
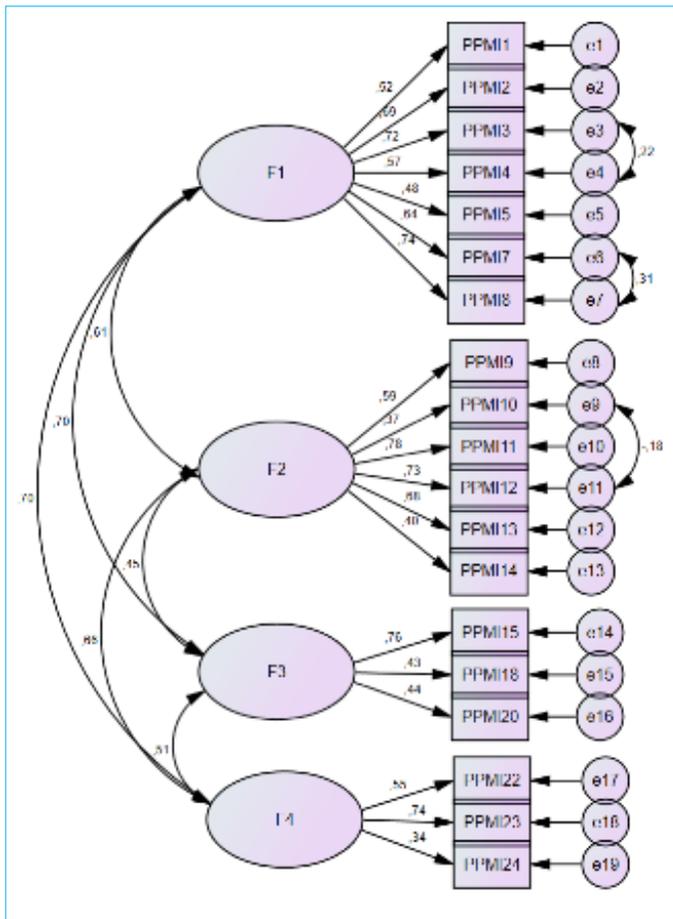
Figure 1. Model of First-level Multifactor CFA of the Scale

seen people with mental illness in documentaries (39.7%; n=118). More than a quarter of the participants remarked that they had never seen people with mental illness before (28.6%; n=85), worked with people with mental illness (27.6%; n=82), had family friends with mental disorders (27.9%; n=83), had friends with mental disorders (27.6%; n=82), and had relatives with mental disorders (27.3%; n=81). Less than a quarter of the participants noted that they had neighbors with mental

disorders (23.6%; n=70). Only eight participants stated that they lived with people with mental illness (2.7%).

Validity

The study focused on construct validity. A first-level multifactor CFA was conducted. The CFA revealed that the scale had 19 items with factor loadings of 0.34–0.78 (Table 1). Nine items were removed from the Turkish version of the scale because they had a factor loading of <0.30. Those items were (1) "I would be less likely to become romantically involved with someone if I knew they were mentally ill" in the "fear/avoidance" subscale; (2) "People who are mentally ill should be forced to have treatment," (3) "Those who have serious mental disorders should not be allowed to have children," and (4) "People who are mentally ill need to be controlled by any means necessary" in the "authoritarianism" subscale; and (5) "We, as a community, should be spending much more money on helping the mentally ill," (6) "The mentally ill should support themselves and not expect handouts," (7) "People who become mentally ill are not failures in life," (8) "We need to support and care for people who become mentally ill," and (9) "Under certain circumstances, anyone can experience mental disorders" in the "malevolence" subscale. According to the CFA, the structural equation model was significant (p<0.001), and the items and four subscales were related to the scale structure. The model was improved to determine the variables reducing the goodness of fit and to create new covariances for residual values with high covariance. Then, fit indices were calculated again and determined to be within acceptable ranges (Fig. 1). The root mean square error of approximation, goodness-of-fit index, adjusted goodness-of-fit index, and comparative fit index were within acceptable limits, whereas x2/df had perfect goodness of fit. The results suggested high construct validity (Table 2).

Reliability

Reliability was assessed using ITSC, TRC, and coefficient alpha. The "upper and lower 27% rule" was used to ascertain discriminative power (Table 3). An item–total test correlation >0.30

Table 2. Fit İndices Calculated As A Result of Confirmatory Factor Analysis of The Scale			
Fit indices	**Good fit indices**	**Acceptable fit indices**	**CFA fit values (Post-modification)**
X^2/df	0-3	3-5	2.76
RMSEA	0.0≤RMSEA≤0.05	0.06≤RMSEA≤1.0	0.07
CFI	0.95≤CFI	0.85≤CFI	0.85
NFI	0.95≤NFI	0.85≤NFI	0.85
NNFI	0.90≤TLI	0.80≤TLI	0.82
GFI	0.90≤GFI	0.80≤GFI	0.87
AGFI	0.90≤AGFI	0.80≤AGFI	0.83

χ2/df: Chi-square/ degree of freedom; RMSEA: Root mean square error of approximation; CFI: Comparative fit index; NFI: Normed Fit Index; NNFI: Non-normed Fit Index; GFI: Goodness of fit index; AGFI: Adjusted goodness of fit index.

Table 3. Item-Total Correlations of The Scale

Items	Item-total correlations	t value	p value
Item_1	0.47	12.01	0.000***
Item_2	0.61	15.53	0.000***
Item_3	0.68	18.99	0.000***
Item_4	0.51	12.97	0.000***
Item_5	0.40	11.93	0.000***
Item_6	0.57	16.34	0.000***
Item_7	0.63	18.20	0.000***
Item_8	0.51	13.03	0.000***
Item_9	0.30	8.30	0.000***
Item_10	0.67	14.82	0.000***
Item_11	0.51	12.68	0.000***
Item_12	0.62	13.93	0.000***
Item_13	0.35	9.58	0.000***
Item_14	0.27	13.57	0.000***
Item_15	0.26	13.88	0.000***
Item_16	0.29	17.83	0.000***
Item_17	0.43	19.27	0.000***
Item_18	0.31	20.57	0.000***
Item_19	0.38	7.91	0.000***

is adequate.[18] The items had item–total correlations of 0.30–0.68, and all items were related. The upper and lower 27% were analyzed for item discrimination. The PPMI-TR scale was able to differentiate the two groups, suggesting discriminative power.

The PPMI-TR scale had Cronbach's alpha of 0.86, suggesting high reliability. The "fear/avoidance," "unpredictability," "authoritarianism," and "malevolence" subscales had Cronbach's alpha of 0.82, 0.75, 0.55, and 0.56, respectively (Table 4). The scale had a mean total item score of 0.18±0.80 (min: −1.90, max: 2.34) (Table 4). Moreover, test–retest was used to determine whether the PPMI-TR scale provided similar results over time. The total scale had a moderate TRC (r=0.48; p<0.01). The "fear/avoidance" (r=0.55; p<0.01), "unpredictability" (r=0.65; p<0.01), and "authoritarianism" (r=0.50; p<0.01) subscales had a moderate TRC, whereas the "malevolence" subscale had a weak correlation (r=0.37; p<0.01).

Table 4. Cronbach's alpha, Correlation, and Mean Scores for the Total Scale and Subscales

Total Scale and Subscales	Cronbach's Alpha	Correlation of total scale and subscales	Mean±SD (min–max)
Fear/Avoidance	0.825	0.83	-0.09±1.21 (-2.57 - 3.00)
Unpredictability	0.753	0.71	1.23±0.94 (-2.17 - 3.00)
Authoritarianism	0.558	0.67	0.28±1.12 (-3.00 - 3.00)
Malevolence	0.564	0.71	-0.69±1.09 (-3.00 - 3.00)
Total Scale	0.861	-	0.18±0.80 (-1.90 - 2.34)

Discussion

The results of this study, which was conducted to determine the Turkish validity and reliability of the PPMI scale, were discussed in two parts.

Discussing the Validity Results of the Study

This study adapted the PPMI scale into Turkish. Validity was determined using language, content, and construct validity methods. A scale is valid if it measures what it intends to measure.[16] The researchers converted the PPMI-TR scale into a 7-point Likert-type scale because the experts stated that the translated version of the response categories of the 9-point Likert-type scale failed to achieve distinction. The fewer the response categories, the lower the measurement sensitivity in rating-type scales. Reliability is significantly high up to the seventh rating category. However, the increase in reliability loses importance when the number of categories is more than seven.[19] In this context, researchers generally do not prefer more than seven response categories because it is difficult for them to write meaningful response categories and for respondents to determine the appropriate response category.[19] The researchers converted the PPMI-TR scale into a 7-point Likert-type scale because they thought it allowed respondents to distinguish the response categories and choose the appropriate one.

A factor analysis was performed for construct validity. CFA is sufficient in scale adaptation research.[16] It tests the prediction that variables will take place predominantly on predetermined factors based on a theory.[18] In this study, CFA yielded 4 subscales and 19 items. Nine items were removed from the Turkish version of the scale because they had a factor loading of <0.30.[18,20] Fit indices in CFA should be within acceptable levels to achieve construct validity.[16] According to the CFA, the 19 items of the PPMI-TR scale did not have model fit indices within acceptable ranges. In this situation, researchers suggest that modification indices be improved.[21] After improvement, fit indices were at the desired level.

Discussing the Reliability Results of the Study

Reliability was determined through the item–total score, Cronbach's alpha, and TRCs. A scale is reliable if it yields similar and consistent results when repeated over time (invariance).[18] The 19 items had ITSCs of 0.30–0.68, indicating acceptable item–total score reliability.[22] The original scale has Cronbach's alpha of 0.91.[13] The Arabic version of the scale has Cronbach's alpha of 0.80, and the "fear/avoidance," "malevolence," "authoritarianism," and "unpredictability" subscales have Cronbach's alpha of 0.84, 0.65, 0.68, and 0.76, respectively.[15] The total German long and short versions of the scale have Cronbach's alpha of 0.91 and 0.87, respectively.[14] In this study, the total Cronbach's alpha coefficient of the scale was determined to be 0.86. When compared with the results of other validity–reliability studies, Cronbach's alpha coefficient of the scale in this study is similar to that of other studies. Furthermore, when Cronbach's alpha values of the subscales of the scale are examined, the values of the fear/avoidance and unpredictability subscales are similar to those of other scales, and the values of the authoritarianism and malevolence subscales are lower than those of the original scale, but they are similar to those of the Arabic version of the scale. At this point, it is thought that the results differ in the sample groups because prejudice is highly influenced by culture. Additionally, it can be said that the coefficients for the subscales are similar because of the comparable characteristics of Turkish and Arab cultures.

A test–retest was performed to determine invariance. Opinions regarding the ideal interval between a test and a retest differ. However, the recommended interval is 2 to 3 weeks.[16] The closer the correlation coefficient is to 1, the better the invariance.[18] In this study, the correlation coefficients showed that the scale had moderate invariance.

Limitations

This study has two limitations. First, the data were based on a self-report. Second, the percentage of individuals with mental disorders in family friends, relatives, colleagues, or neighbors in the study was determined to be approximately 28%. This shows that almost one out of every three people has had prior contact with a person with a mental disorder. This may have affected the results of the study.

Conclusion

In conclusion, the PPMI-TR scale is a valid and reliable measurement tool for healthcare professionals to assess public prejudice toward people with mental illness. Furthermore, this measurement tool is suggested to be used to assess the efficacy of interventions to reduce public prejudice toward people with mental illness.

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