Translation and Psychometric Evaluation of the Persian Version of the refugee post-migration stress scale (RPMS)

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Research Article

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Abstract

Background

Refugees usually face stressful events both in their destination country and during migration. So far no scale has been designed to reflect the post-migration stress in Persian-speaking refugees based on their current life conditions. Therefore, this study was conducted to determine the psychometric properties of the Persian version of the refugee post-migration stress scale (RPMS).

Methods

This methodological and cross-sectional study was conducted in 2022 on 355 Iranian refugees in Turkey. Inclusion criteria were being literate and willingness to participate in the study. Also, people who were unwilling to continue cooperation and incompletely filled questionnaire were excluded from the study. First, the original version of the scale was translated into Farsi using the standard Forward-Backward method. Then the validity of the scale was assessed through face validity, content validity, and construct validity using exploratory factor analysis, confirmatory factor analysis, and convergent validity using two scales of WHO-5 and HSCL-25. The reliability of the scale was evaluated by the internal consistency (Cronbach’s alpha). SPSS version 16 and LISREL version 8.8 software packages were used for data analysis.

Results

The face validity and content validity of the scale were confirmed, respectively, by refugees and experts with slight changes. In the exploratory factor analysis, 3 new dimensions named Communicational Distress, Supportive Distress, and Social Distress were extracted with a cumulative variance of 56.19%. Also, confirmatory factor analysis revealed a good fit of the model (RMSEA: 0.1, NFI: 0.91; CFI: 0.93; IFI: 0.93; GFI 0.79; standardized RMR: 0.085). The convergent validity assessed by the Pearson correlation between RPMS and Hopkins Symptom Checklist 25 and World Health Organization-Five Well-Being Index, respectively, were ((r = 0.33, P = 0.001) and (r = -0.30, P = 0.00)). The internal consistency of the scale (Cronbach’s alpha coefficient: 0.88) indicated its appropriate reliability.

Conclusion

According to the psychometric results of this scale in the Persian-speaking refugee population, it is a suitable scale to be used in measuring post-migration stress in refugees. Another advantage of this scale is its brevity and shortness, and it takes a short time to complete.

Introduction
Refugees are people who are forced to leave their country due to reasons such as war, violence, or fear of persecution (1). Forced migration is rising due to increasing challenges and conflicts worldwide, resulting in people seeking refuge in other countries (2, 3). In recent years, we have witnessed an unprecedented number of forced refugees, i.e., around 70 million people around the world (1). More than 25 million people worldwide are registered as refugees (4). Meanwhile, 3.5 million people are also seeking asylum (5). Currently, 15% of the world's refugees are resettled in high-income host countries (2).

Rapid population growth, economic problems, political instability, ethnic and racial conflicts, war, and unemployment in developing countries have caused the population of immigrants and refugees to increase sharply in recent years (6). According to Iranian immigration statistics, there is a variety of domestic and international information, which is sometimes official and sometimes confidential. According to the Migration Policy Institute report, the number of Iranian immigrants in 2020 was about 1,325,000. In the same year, the Department of Information and Communications of Iranians Abroad reported more than 4 million Iranian immigrants. Iran's migration outlook in 2020 has listed the number of Iranian immigrants as 1,325,113 people based on international sources. In this yearbook, Iran ranks 54th out of 232 countries in sending immigrants (7). Since 2019, Turkey has become one of the most attractive destinations for Iranians. The population of Iranians in Turkey in 2019, 2020, and 2021 has been more than that of Iranians in the European Union, Great Britain, and Australia. In 2021, according to the Turkish Statistics Center, the population of Iranians in Turkey was 155,000 people (8).

Refugees usually face various traumatic events such as harassment, physical and sexual violence, and life-threatening situations both in the destination country and during migration (9, 10). These experiences can leave long-term consequences on people's mental health (11, 12). Also, living conditions are difficult for refugees living in neighboring countries. Resettlement in a socially and culturally unfamiliar country, as well as being away from home, may bring additional challenges and place extra pressure on individuals exposed to multiple risk factors (5).

Generally, the immigration process is stressful for any reason or duration (6). During resettlement, these people often face unemployment, loneliness, and uncertainty about asylum procedures and the future (13). Limited access to food and medical care is another issue (14). Other significant post-migration stressors include perceived discrimination, poor language and communication skills, separation from family, financial problems and unemployment, lack of private accommodation, social isolation, and loss of position. In addition, refugees pointed out poor social support and conflicts between spouses, parents, and children (2). Studies have shown that these stressful factors not only have direct negative effects on people's mental health but also intensify the adverse effects of other stressful factors related to the refugee experience (15, 16). According to two studies, there is a correlation between mental illnesses and socioeconomic adversities and poor living conditions (11, 12). Although the statistics in the studies have been reported differently; But it is clear that refugees are at risk of long-term mental disorders, such as post-traumatic stress disorder (PTSD), anxiety and depression. (17, 18). In this regard, studies have reported the prevalence of depression between 5 and 80 percent and the prevalence of post-traumatic stress disorder between 3 and 88 percent in the refugee population (17, 19, 20). The results of Morina et
al.’s study also confirmed this issue. According to these authors, they experience many changes not only in the prevalence of mood and anxiety disorders but also in alcohol dependence and psychosis symptoms (21).

Considering the mentioned problems and the high prevalence of stress in refugees, there is a need for a tool that can show the post-migration stress of refugees by reflecting their current life conditions after resettlement. However, tools such as The Harvard Trauma Questionnaire (22) and the questionnaire designed by Lindencrona et al. in 2007 (23) have been designed and used. It seems that the main focus of these tools was on stressful factors and they acknowledged the stressfulness of situations, events and life conditions by themselves. These tools have not paid enough attention to how these factors are perceived and interpreted by people. Other tools that cover stressful experiences related to immigration, such as Migration- and Acculturation Related Stress (MIGSTR10) and Demands of Immigration Scale (DI) (24, 25), but are not specifically related to refugee experiences.

The refugee post-migration stress scale questionnaire (RPMS) designed by Malm et al. (2020) has 22 items and 7 subscales. These subscales that specifically measure the stress of refugees after migration are perceived discrimination, lack of specific qualifications of the host country, material and economic pressures, loss of the mother country, family and home country concerns, social pressure, and family conflicts (5). This tool has been used in some countries, such as Sweden and Norway (2, 3, 26). However, no standard tool has been used to examine the post-migration stress of Persian-speaking refugees. Therefore, the present study aims to translate and assess the psychometric properties of the Persian version of the RPMS in Iranian refugees.

**Methods**

**Study design**

This methodological and cross-sectional study was conducted in 2022 on the population of Iranian refugees in Turkey. Inclusion criteria were being literate and willingness to participate in the study. Also, people who did not want to continue participating in the study or filled the questionnaire incompletely were excluded from the study.

**Study instruments**

**Demographic information**

This information included age, gender, marital status, and education level.

**The refugee post-migration stress scale (RPMS)**

The RPMS was developed by Malm et al. (2020). This scale was developed to investigate the post-migration stress of Syrian refugees in Sweden. The seven dimensions of the scale were including; perceived discrimination, lack of host country-specific competencies, material and economic strain, loss
of home country, family and home country concerns, social strain, and family conflicts. The face validity and content validity of the scale were respectively examined by using cognitive interview and assessment of Content validity index (CVI). In addition, its construct validity was examined using exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and concurrent validity. Answers to the items of the scale are scored in the form of a 5-point Likert scale as follows; never (1), rarely (2), sometimes (3), a lot (4), and very much (5). The range of scores obtained from this questionnaire is between 21 and 105 (5).

**The Hopkins Symptom Checklist (HSCL-25)**

The short form of HSCL was designed in Iran in 2001, and its psychometric properties were investigated. This version was revised in 2016 and its construct validity was confirmed. The Persian version was prepared through exploratory factor analysis (EFA). The participants’ responses on a Likert scale included; never (0), a few (1), somewhat (2), great (3), and very great (4) according to the original scale. Higher scores mean more psychological distress. Najarian and Davodi assessed its validity through factor analysis, convergent and divergent validity, and reliability were assessed through internal consistency and test-retest. They reported Cronbach’s $\alpha$ of the new version as 0.97 for women and 0.98 for men. In addition, the intraclass correlation coefficient 5 weeks was 0.78 for the total sample, 0.77 for women, and 0.79 for men (27, 28).

**World Health Organization-Five Well-Being Index (WHO-5-P)**

The WHO-5-P is a positively worded instrument designed to assess the level of emotional well-being over a 14-day period. This scale had acceptable internal consistency ($\alpha = 0.94$), and it has shown good convergent validity with GHQ-28 ($r = 0.66; P < 0.001$). Also, the one-dimensional EFA included five items with positive wording, where the presence of positive emotions in the last 2 weeks is scored on a 6-point Likert scale from 0 (absence) to 5 (constantly present). Here, high scores indicate an increased sense of well-being, while a score below 13 indicates poor well-being (29).

**Translation procedure**

The scale was translated in a forward-backward manner. In the forward translation stage, the original English version was translated into Persian separately by two translators specialized in English. The translation was performed according to the International Quality of Life Assessment (IQOLA) protocol after obtaining permission from its developer (30). Then, in the incorporation stage, two versions were translated and examined in a meeting with the presence of researchers. Finally, a preliminary common translation was obtained upon the researchers’ agreement. In the backward translation stage, the prepared Persian translation in the previous stage was translated into English by two local people fluent in Persian and English who were blind to the original version, and an English version was obtained. Next, these two English translations obtained in the previous step were sent to the developer of the RPMS. The questionnaire was conceptually checked and confirmed with the original version of the questionnaire. Finally, cultural adaptation and other psychometric steps were carried out in the following order.

**Face validity**
Cognitive interviewing has been proposed as one of the most prominent methods for identifying and correcting problems in survey questions. Cognitive interviewing is the administration of draft survey questions that help clarify the questions. The purpose of the cognitive interview is to determine whether the questions are appropriate to assess the quality of the response and also determine whether the question provides the desired information or not. 10 refugees were asked to evaluate the legibility, clarity, and structure of items, ease of understanding, confusing words, classification of items, ease of answering the items, linguistic forms, and word arrangements (31).

**Content validity**

Content validity refers to the degree to which an instrument has an appropriate sample of items for the construct being measured. The content validity of the instrument is necessarily based on judgment. There is no completely objective way to ensure complete coverage of a tool's content. Researchers have suggested the use of a group of skilled experts to evaluate and document the content validity of the tools. Researchers calculate a formal content validity index (CVI) for each item's relevance. One of the methods is for the experts to rate all the items on a four-point scale (from 1 = not relevant to 4 = very relevant). A CVI score of 0.80 or better indicates good content validity of the scale (32). In this study content validity was assessed by opinion of 8 experts.

**Construct validity**

In order to determine the “construct validity” of the proposed scale, the three methods of exploratory factor analysis, confirmatory factor analysis, and convergent validity were used.

**Exploratory factor analysis**

Keiser-Meyer-Olkin (KMO) of 0.883 was found, and Bartlett’s test of sphericity was significant ($X^2 = 3524.156513$, $df = 210$, $p = 0.00$). Three factors were extracted and named as Communicational Distress, Supportive Distress, and Social Distress. These three factors explained 56.19% of the total variance of the Refugee Post-Migration Stress Scale (Table 2).

**Result**

**Demographic status**

This research studied and investigated 355 refugees who immigrated to Turkey with an average age of $32.72 \pm 7.60$ years. About 58.3% of patients were male and 41.7% were female. Also, 36.3% were married and 32.7% were single. In terms of education, 60.3% had a university education, and 39.7% did not have a university education. Table 1 shows the demographic characteristics.
Table 1
Demographic characteristics of refugees

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>148</td>
<td>58.3</td>
</tr>
<tr>
<td>Female</td>
<td>207</td>
<td>41.7</td>
</tr>
<tr>
<td>Age (Mean ± SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.72 ± 7.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–20</td>
<td>19</td>
<td>5.4</td>
</tr>
<tr>
<td>21–40</td>
<td>288</td>
<td>81.1</td>
</tr>
<tr>
<td>&gt;40</td>
<td>48</td>
<td>13.5</td>
</tr>
<tr>
<td>marital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>116</td>
<td>32.7</td>
</tr>
<tr>
<td>Married</td>
<td>129</td>
<td>36.3</td>
</tr>
<tr>
<td>Divorce /widow</td>
<td>110</td>
<td>31.0</td>
</tr>
<tr>
<td>education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>up to diploma</td>
<td>141</td>
<td>39.7</td>
</tr>
<tr>
<td>BS</td>
<td>180</td>
<td>50.7</td>
</tr>
<tr>
<td>MS &amp; PhD</td>
<td>34</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Translation procedure

After completing the translation and approval of the translated version of the scale by Malm, the Persian version of the scale was finalized for psychometric properties.

Face and Content Validity

Face validity was determined by asking 10 refugees to express their opinions regarding the questions of the scale. It is noteworthy that all these people answered the questions clearly and expressively. Experts were also consulted to check Qualitative Content Validity. Experts also acknowledged that the scale’s items adequately reflect the content of post-migration stress. Due to the simplicity and clarity of the items, a brief change was made in the form content validity.

Construct validity
The construct validity of the proposed scale was determined using the three methods of EFA, CFA, and convergent validity.

**Exploratory factor analysis**

A KMO value of 0.883 was found, and Bartlett’s test of sphericity was significant ($X^2 = 3504.15$, $df = 210$, $p = 0.00$) for the questionnaire. Three factors were extracted and named as Communicational Distress, Supportive Distress, and Social Distress. These three factors explained 56.19% of the total variance of the RPMS (Table 2). Also, item number 9, "Frustration for not being able to support myself financially" was not included in any of the three factors. Therefore, it was deleted.
### Table 2
Exploratory Factor Analysis for the Farsi Version of RPMS

<table>
<thead>
<tr>
<th>Factor</th>
<th>Items</th>
<th>Factor Loading %</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicational Distress</strong></td>
<td>RPMS1</td>
<td>0.91</td>
<td>32.75</td>
</tr>
<tr>
<td></td>
<td>RPMS2</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS3</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS4</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS5</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS6</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS7</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td><strong>Supportive Distress</strong></td>
<td>RPMS8</td>
<td>0.47</td>
<td>14.64</td>
</tr>
<tr>
<td></td>
<td>RPMS10</td>
<td>0.41</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS12</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS13</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS14</td>
<td>0.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS15</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td><strong>Social Distress</strong></td>
<td>RPMS11</td>
<td>0.42</td>
<td>8.82</td>
</tr>
<tr>
<td></td>
<td>RPMS16</td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS17</td>
<td>0.48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS18</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS19</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS20</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RPMS21</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td><strong>Cumulative %</strong></td>
<td></td>
<td></td>
<td>56.19</td>
</tr>
</tbody>
</table>

**Confirmatory Factor Analysis**

The model had a good fit in the CFA. The examined goodness fit indices were as follows; normal fit index (NFI) = 0.91, root mean square error of approximation (RMSEA) = 0.1, goodness-of-fit index (GFI) = 0.79, standardized root mean square residual (SRMR) = 0.085, comparative fit index (CFI) = 0.93, and incremental fit index (IFI) = 0.93. The results of the CFA are presented in Fig. 1.

**Convergent validity**
The results showed a statistically significant correlation between the total scores of RPMS with HSCL-25 ($r = 0.33$, $p = 0.1$) and WHO-5-P ($r = 0.30$, $p = 0.00$).

**Reliability**

In terms of reliability, internal consistency using Cronbach's Alpha was 0.88 for total RPMS, 0.89 for the Communication Distress factor, 0.76 for the Supportive Distress factor, and 0.82 for the Social Distress factor.

**Discussion**

Despite research on factors affecting the mental health of refugees after immigration, there is no reliable scale to assess the level of stress after immigration of Persian-speaking refugees. The present study aimed to determine the psychometric characteristics of the Persian version of the questionnaire (RPMS). In this research, the face validity and content validity of the scale were confirmed by participants and experts. Also, the results of construct validity using EFA, CFA, and convergent validity showed that the studied instrument has a suitable structure. The scale's reliability was calculated by the internal consistency test (Cronbach's alpha coefficient: 0.88), which indicated the appropriate reliability of the scale.

The scale was carefully translated until to obtain the final Persian version. The face validity of the instrument using the comments of 10 refugees showed that the items are simple and clear. Similar to the results of this study, Malm et al. investigated the face validity in the original English version of the scale with a sample size of 7 Iraqi refugees in Sweden (5). The scale's content validity in this study was checked using experts’ opinions, which confirmed the items. In the original version, the opinions of 6 experts were used. The results showed an I-CVI of 0.8 to 1 and S-CVI of 0.95 (5).

This study used EFA, CFA, and convergent validation to confirm construct validity. In general, the fit indices of the Persian version of the RPMS model produced 3 factors with a cumulative variance of 51.85%. Here, the goodness of fit indices were confirmed in all three factors. Acceptable values for the RMSEA index and its 90% confidence interval should be less than or equal to 0.08, which was obtained at 0.1 in this study.

The convergent validity was checked by asking the respondents simultaneously to respond to the Hopkins Symptom Checklist 25 (HSCL-25) and WHO-5 Well-being Index (WHO-5) scales in addition to the RPMS scale. The Pearson correlation between the RPMS scale and the Hopkins Symptom Checklist 25 scale was 0.33 with a significance level ($r 0.33$, $P = 0.001$). In other words, these two post-migration stress scores have a significant relationship. Also, there was a significant negative correlation between the RPMS scale and the WHO-5 Well-being Index (-0.30), with a significance level of $P = 0.00$. In other words, the lower the feeling of well-being, the higher the stress experienced by the refugee. The results showed a suitable correlation and confirmed the convergent validity of this scale. In Malm et al.'s study, convergent validity was confirmed using HSCL anxiety and depression scales and HTQ questionnaires in measures.
of anxiety, depression, and post-traumatic stress disorder. Meanwhile, well-being measurements revealed a negative correlation with the WHO well-being scores tool of 5, but the overall scale showed a similar correlation pattern (5). Likewise, the present study showed a significant correlation of the RPMS with HSCL-25 and WHO-5.

In the present study, the reliability of the Persian version of the RPMS scale was confirmed using the internal consistency for the entire scale, Cronbach’s alpha (0.88), the Communication Distress factor (0.89), the Supportial Distress factor (0.76), and the Social Distress factor (0.82). This result was similar to those of the original version of the RPMS scale, with good reliability (Cronbach's alpha = 0.86) (5). Alexander et al. (2021) also applied this scale to investigate post-migration stressors and psychological well-being in Syrian refugees living in Sweden and calculated Cronbach’s alpha from 0.84 to 0.80 (2). Dangmann et al. also used this scale and calculated Cronbach’s alpha as 0.77 (3), which is in line with the results of the present study.

**Conclusion**

Regarding the psychometric results of the instrument in the Persian sample, it can be said that it is efficient for measuring post-migration stress in refugees. Another advantage of the scale is brevity and shortness.

**Limitations**

One of the major limitations of the current study, like most cross-sectional studies, is choosing the participants based on the available sampling. This sampling method was used due to the special study conditions in another country. In this research, since only Iranian Farsi speakers abroad completed the scale, the generalization of the findings to non-Iranian Farsi speakers is ambiguous. Due to the limited access to the participants for revisiting, only internal consistency was used to check the instrument’s reliability, and test-retest was not possible.

**Abbreviations**

RPMS
refugee post-migration stress scale
PTSD
post-traumatic stress disorder
WHO
world health organization
HSCL-25
Hopkins Symptom Checklist-25
EFA
exploratory factor analysis
CFA
confirmatory factor analysis
KMO
Keiser-Meyer-Olkin
S-CVI
scale- content validity scale
IQOLA
International Quality of Life Assessment
RMSEA
root mean square error of approximation
NFI
normal fit index
CFI
comparative fit index
IFI
incremental fit index
GFI
goodness-of-fit index
Standardized RMR
standardized root mean square residual

Declarations

Acknowledgements

Not applicable

Authors' contributions

Conceptualization: S.B, SQ.M; Methodology: S.B, F.H; Data collection: S.KH; Formal analysis: S.B, F.H;
Writing - review and editing: SKH, S.B, SQ.M, and F.H. All authors have read and approved the manuscript.

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Data Availability

All data generated or analyzed during this study are included in this published article.

Ethics approval and consent to participate in the study
The study was conducted after obtaining permission from the Ethics Committee of Baqiyatullah University of Medical Sciences with code IR.BMSU.REC.1400.093. The translation process was done after obtaining written permission via email from the scale developer. Verbal and written informed consent was obtained from the participants according to the criteria of Helsinki et al. The participants were also informed that the research data would remain confidential and they could leave the study anytime.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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potentially traumatic events with mental health outcomes among populations exposed to mass


**Figures**
Figure 1

The final structure of the model