Original Article

IFOMA after Migration Posttraumatic Impact Scale Development, Validity and Reliability Study

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Abstract

Background: Immigrants often experience stressful and traumatic experiences in the migration process. The immigrants who experience a traumatic event such as migration experience mental health problems at later stages.

Objective: This study aimed to develop a measurement tool that evaluate the exposure of immigrants to the traumatic event experienced in the post-migration process.

Methodology: This methodological study was conducted with 500 migrants living in Turkey between 1-30 November 2021 by using the snowball sampling method, which is among the nonprobability sampling methods. The data was collected by using an introductory information form comprised of 14 questions and the IFOMA Post-Migration Posttraumatic Impact Scale. Literature review, expert opinion, Exploratory factor analysis and confirmatory factor analysis were carried out during the development of the scale.

Results: The Content Validity Index for the scale was determined to be .98, KMO value 0.959, and Barlett's test result χ^2=10113,709 p<0.001. After the factor analysis, factor loads of the relevant items vary between 0.42 and 0.76. The scale consists of 36 items and 4 sub-dimensions including psychological affection, physical affection (somatization), anxiety and social adaptation. The Cronbach alphas of the scale's sub-dimensions vary between 0.586 and 0.943. The total explanation variance of the scale was determined to be 53.614%.

Conclusions: This scale is a validity and reliability tool that can be used to determine the posttraumatic impact situation of migrants. Psychiatric, public health and school nurses who care for migrant patients enable them to provide better quality care by determining the post-traumatic effects of immigrant individuals by using the measurement tool developed in this study before the care. It is a facilitator for psychiatric nurses to use the measurement tool before their care.

Key Words: Scale Development, After Migration Posttraumatic Impact, Validity and Reliability

Introduction

The number of the people forced to emigrate due to exile, violence and persecution has been on the increase day by day. This situation causes people to die, survival to be more difficult, poverty to rise and disease to spread (Benage, 2015). Migration, which is a global phenomenon, carries the risk of being a shocking experience for everyone going through this process, and all individuals who migrate have been affected by this process, however at different levels and in different directions (Topcu et al. 2006). The migrants who experience the migration process are exposed to the conditions and difficulties during and after their migration journey. These conditions and challenges pose risks to the health of migrants (Dembech, 2014; Celia Mc Michael, 2017). Migrants have been experiencing such problems as their legal status in the country, not being aware of their rights, lack of social security, low income, language problems, lack of social support, low awareness of health conditions and the problems that they perceive as normal processes. Furthermore, migrants are not able to use the health care services sufficiently on account of the socio-cultural and religious beliefs, health belief, experience with medical personnel, attitude of the health personnel towards migrants, lack of information about the use of the health system and the level of acculturation (Korkmaz and Avci, 2020).

Since March 2011, in the eleventh year of violence in Syria, the number of migrants in the world has increased unpredictably. According to the data of United Nations High Commissioner for Refugees (UNHCR) dated March 2021, 11.7 million Syrians were displaced, of whom 5.8 million live as migrants primarily in Turkey, as well as in Lebanon, Jordan and Iraq. More than 3.7 million Syrian migrants live in Turkey. This has made Turkey the world's leading migrant country (UNHCR, 2020). Syrian migrants live not only in border areas and camps, but also out of camps and in all parts of Turkey, mainly in big cities (Disaster and Emergency Management Presidency (DEMP), 2013).

Migration which is an act of moving from one region to another for a certain period of time or to settle permanently is a traumatic event in terms of process (Bhugra et al., 2011). All kinds of experiences that harm the physical and mental existence of the individuals in various ways are defined as traumas (Guloglu and Karairmak 2013: Woods and Wineman 2004). However, traumatic events, on the other hand, are such events as natural disasters, traffic accidents, attacks and migration which exceed the individual's ability to cope with, causing serious problems to the individuals and forcing the individuals (Kaplan, Stow and Szwarc, 2016). During the migration process, migrants often experience stressful and traumatic experiences. The migrants who experience a traumatic event such as migration experience mental health problems at later stages. Migrants are within the context of a disadvantaged group in terms of experiencing mental health problems on account of loss of social support networks and isolation resulting from lack of knowledge (Thase, Kingdon and Turkington, 2014).

Migrants are at greater risk in terms of such psychiatric diseases as anxiety disorders, adjustment disorders, depression and schizophrenia (Murthy and Lakshminarian, 2006). According to the studies carried out, it is determined that the stress experienced after migration negatively affects the mental health of individuals (Beiser, 1999; Silove et al., 1997; Westermeyer, Vang and Neider 1983). The individuals experiencing migration are at greater risk of a severe psychosis that may require a need for care. It has also been shown that the incidence of schizophrenia, which is one of the mental health problems in migrant groups having adjustment problems and who suffer from discrimination, is higher than in other groups (Hollander et al., 2016; Selten, van Os and Cantor-Graae, 2016). One of the most common mental health problems experienced by migrants is post-traumatic stress disorder (PTSD) (Kazour et al., 2017; Kartal et al., 2018). There are short and long termed Psychological Impacts of trauma experienced in the post-migration process.

It is important that migrants should be least affected by the events they experience in terms of ensuring the adaptation of society and that the activities aimed at this are carried out accordingly (Kayli et al., 2016). There are trauma measurement tools so as to assess the traumatic events experienced by migrants. The Harvard Trauma Scale is the most commonly used measurement tool (Mollica, 1992). The other scales that assess the trauma experienced by migrants are Comprehensive Trauma Inventory (Hollifield et al., 2009), The New Mexico Refugee Symptom Checklist – 121, The Communal Traumatic Events Inventory and Refugee Trauma History Checklist (Sigvardsdotter et al., 2017).

Besides the measurement tools in which the trauma is evaluated, there are also measurement tools in which the PTSD is evaluated. The PTSD Checklist Civilian (PCL-C) scale is the most widely used PTSD assessment scale on the basis of self-reporting (Weathers et al., 1993). The Posttraumatic Diagnostic Scale (PDS) scale is a measurement tool based on DSM-IV to establish and diagnose the severity of PTSD, which is commonly used in North America and Europe (Foa et al., 1997). The Traumatic Stress Symptom Scale (TSSS) provides an assessment on the basis of self-reporting. This scale was developed by Basoglu et al. (Basoglu et al., 2001). The measuring instruments of PTSD are usually associated with the DSM-IV and DSM-5 criteria (Alarcón, 2014). The common feature of these measurement tools is that migrants handle the issues related to the trauma they have recently experienced. However, the migration process is a situation that needs to be assessed together with its various effects in the long term rather than being evaluated in the short term. In the case of migration, the social adaptation of people and the degree of their adaptation to the society are closely related to their being affected by the process. Therefore, the effects of short-termed traumas that may be suffered by the migrants who do not adapt to society are expected to be more profound in the long term (Priebe et al., 2013: Pedersen et al., 2015). Thus, determining the physical, psychological, social and psychosomatic effects of the events experienced by the migrants shall be more effective in planning the relevant activities to be carried out in this direction.

The present study aimed to develop a measurement tool to assess the socio-demographic and economic characteristics of a group of migrants living in Turkey as well as the effects of the traumatic events they have experienced in the post-migration process.

Method

Population and Sample of the Research: The target population of this methodological research is comprised of the migrants living in Turkey. Data was collected on November 1-30, 2021, by using the snowball sampling method, which is an improbable sampling method. 500 immigrants were included in the sample of the study. The inclusion criteria are the migrants who accept to participate in the study, who are 18-65 years of age, having the technological equipment to access Google forms, and who live in Turkey. In the literature, it is specified that 5-10 times as many individuals should make up the sample of scale items in scale development studies (Akgul, 2005; Esin, 2014). Due to the fact that a total of 42 items were included in this scale, it was aimed to reach 210-420 immigrant individuals and the research was completed with 500 individuals who agreed to participate in the study.

This research consists of the generation of the item pool following the literature review for forming the scale items, generation of the draft scale and submission of the research to expert opinion, conducting a pilot study of the scale and collecting and analyzing data.

Item pool construction: During the construction of the item pool, the scales assessing posttraumatic stress at home and abroad, the concept of posttraumatic stress, the DSM-V criteria, and theoretical information containing the characteristics of immigrants were examined by the researcher team. The construction of the item pool was carried out with the consultation of a senior researcher, who has previous experience in the studies conducted on migrants, having

methodological research experience. During the construction of the scale items, post-traumatic stress diagnosis criteria, the concept of post-trauma, the means of measuring risk factors, assessing post-traumatic stress, migration and migrant health as well as the means of measuring the levels of stress and trauma of migrants were analyzed (Mollica, 1992; Kocabasoglu et al., 2005; Hollifield et al., 2009; Alarcón, 2014; Evren et al., 2016, Sigvardsdotter et al., 2017; Sangalang et al., 2018; Malm et al., 2020). Consequently, the scale expressions containing 52-items, five-point likert were generated in order to determine the posttraumatic stress levels of migrants.

Data Collection Tools

Introductory Information Form: The questionnaire contains 14 questions related to migrants, including age, gender, marital status, educational status, employment status, economic status, the socio-demographic information, the years they have been living in Turkey, their current legal status and their state of psychological problem after they come to Turkey.

IFOMA Posttraumatic Impact Scale after Migration: The scale was initially consisting of 52 items and was reduced to 42 items after pilot application. The scale consisting of 42 items was applied to 500 persons, 7 scales with factor load below .30 were not included in the scale, and thus a scale consisting of 36 items and 4 sub-dimensions was obtained. The scale prepared in the five likert type is scored as follows: 1=never, 2=seldom, 3=occasionally, 4=frequently, and 5=always. The scale has no overall score. The total score of each dimension is evaluated at the scale. The highest and the lowest scores received from the sub-dimensions of the scale are as follows: 1. sub-dimension Psychological Affection: 17-85, 2. sub-dimension Physical Affection (Somatization): 9-45, 3. sub-dimension Anxiety: 6-30 and 4. sub-dimension Social Adaptation: 4-20. Higher scores from the sub-dimensions related to psychological affections, physical affections and anxiety indicate a high level of affect experienced at these sub-dimensions and a problem. The fact that obtaining a high score in the sub-dimension of social adaptation indicates a

problem in social adaptation; the scale has no reversely scored items.

Data Collection: Data collection is performed in two stages. A pilot application was done in the first stage, and a validity-reliability study was conducted in the second stage. In the pilot application stage, the scale was applied by meeting 50 migrants face to face, and the second stage of the revised draft scale validity-reliability study was initiated. At this stage, 500 individuals who volunteered to participate in the study completed the scale. The scale form was prepared in Arabic and converted into Google Form. In terms of Arabic language, the forms were sent to three language specialists for evaluation. One of these linguists is a Syrian national academician and the other two are Saudi Arabian national academicians. The announcement of the study was made by means of social media networks such as WhatsApp, Facebook, Instagram and Twitter, and those who met the selection criteria who will participate in the study completed the study by filling out the form prepared with the approval of experts.

Content Validity: The scale was initially consist of 52-items statements and then sent to the experts in their fields, who are 2 psychiatrists, 3 psychologists, 2 professors on public health nursing and 2 faculty members in psychiatric nursing. There was no reduction in the number of items after receiving the notifications from experts, and the contents of the statements were revised. The revised form was translated into Arabic and submitted to expert opinion. No revision was needed in Arabic. The compliance between the experts was calculated as CVI 0.98.

Construct Validity: In order to determine the structural validity of the model, factor structures were examined. Within this context, Kaiser Meyer Olkin (KMO) analysis was used so as to determine whether the sample size was sufficient or not. Furthermore, the factor structure of the scale was evaluated with Exploratory Factor Analysis and Confirmatory Factor Analysis by using Principal Components Analysis and Varimax rotation methods. The KMO value was determined to be 0.959 and the Barlett

test result was χ²=10113,709 p<0.001, and it was concluded that the data set was suitable in terms of factor analysis. In order to test the internal consistency within the scope of reliability, the Chronbach Alpha test was used.

Pilot Study: As a result of obtaining the expert opinion, the revised scale consisting of 52 items was applied to 50 migrants. The application was made face-to-face. According to the assessment carried out on the scale, 10 incomprehensible items were removed, and the number of items was reduced to 42 items. The data obtained from the pilot application and the individuals who participated in the study were not included in the validity and reliability study.

Data analysis: IBM SPSS 22 and AMOS 22 programs were employed to evaluate the data. In the evaluation of informative data, number, percentage, and average values were used. Normality tests were carried out to compare the variables. Cronbach alpha and item-total score analyses were used for the reliability analysis. The Pearson correlation test was used in order to evaluate the item total score correlations. For the validity analysis, Kaiser Meyer Olkin (KMO) and Barlett tests were carried out to evaluate the sample adequacy and exploratory factor analysis and confirmatory factor analysis were used to determine the structural validity. In this study, the meaningfulness level was accepted as .05 (Figure 1).

The Ethical Aspect of the Research: Prior to starting this research, the permission of the ethics committee was obtained from the XXXXX. The decision about accepting to participate in the study was questioned as the first question of the questionnaire. Furthermore, the first page of the Google form contains general information on the purpose of the study, confidentiality of the information, and participation in the research, and the informed consent of the participants was asked. The individuals participating in the research completed the other sections of the form by stating their acceptance. Therefore, the study was carried out on the basis of obtaining approval in terms of voluntariness and informed consent. The research and publication ethics principles were followed at all stages

throughout the study. All phases of the research were conducted in accordance with the ethical principles stated in the Helsinki Declaration (2013).

Results

53.8% of the participants in the study were male, 54.8% were married, and 41.8% were university graduates. 55.8% of the participants have a moderate economic situation, 12% have social security, and 33.4% work in a job. 97.2% of the participants are from Syria, 87.6% are currently residing in Şanlıurfa, 77.6% are in temporary protected status, and 65.6% have experienced a psychological problem after migrating (Table 1).

After Exploratory Factor Analysis, the KMO coefficient value was found to be 0.959 and the Barlett test result was found to be χ²=10113,709. The factor loads of the scales vary in the range of 0.42 - 0.76 . The sub-dimensions of the scale were determined as following: 1. sub-dimension: Psychological Affection, 2. sub-dimension: Physical Affection (Somatization), 3. sub-dimension: Anxiety and 4. sub-dimension: Social Adaptation. The total explanation variance of the scale was found to be 53.614%. The internal consistency reliability coefficients of the scale (Cronbach's alpha) were found to be 0.943 for the Psychological affection sub-dimension, 0.892 for the Physical affection (Somatization) sub-dimension, 0.798 for the Anxiety sub-dimension and 0.586 for the Social Adaptation sub-dimension (Table 2).

According to the Confirmatory Factor analysis, the Structural Equation Modeling Results of the IFOMA Posttraumatic Impact Scale after Migration were determined to be meaningful at the p=.000 level for 36 items and the structure of scale with four dimensions. An improvement was made for the variables that reduced compliance in the model. For this purpose, new covariances were generated for those with higher covariances among the values (e1-e2, e9-e10, e16-e17, e31-e34). Afterwards, it is shown in table 3 that the accepted values for the compliance indices are provided in the subsequently renewed compliance index calculations. According to the results of the

first-level, multi-factor analysis, the goodness of the fit indexes of the scale are at an acceptable level with the values CMIN/DF 2.69, RMSEA 0.06, NFI 0.85, CFI 0.90, IFI 0.90, GFI 0.84, TLI 0.89, AGFI 0.82 (Table 3).

The results of the first-level, multi-factor confirmatory factor analysis of the scale are shown in Figure 2. Accordingly, it is concluded that the lowest factor load value of the scale consisting of 36 items is 0.42 and the highest value is 0.76 (Figure 2).

Table 1- Pre-modification and post-modification multifactor confirmatory factor analysis compliance index values for IFOMA Posttraumatic Impact Scale after Migration

Fit indices	Perfect values	Acceptable values	Pre-modification	Post-modification
CMIN/Df	$0 \leq \chi^2/df \leq 3$	$3 \leq \chi^2/df \leq 5$	3.49	2.69**
GFI	$0.90 \leq GFI$	$0.80 \leq GFI$	0.80	0.84*
AGFI	$0.90 \leq AGFI$	$0.80 \leq AGFI$	0.78	0.82*
CFI	$0.95 \leq CFI$	$0.85 \leq CFI$	0.85	0.90*
RMSEA	$0.0 \leq RMSEA \leq 0.05$	$0.06 \leq RMSEA \leq 1.0$	0.07	0.06*
NFI	$0.95 \leq NFI$	$0.80 \leq NFI$	0.80	0.85*
TLI	$0.90 \leq TLI$	$0.80 \leq TLI$	0.84	0.89*
IFI	$0.95 \leq IFI$	$0.85 \leq IFI$	0.85	0.90*

*Acceptable values, **Perfect values

Table 2. Descriptive characteristics of participants

	n	%
Gender		
Female	231	46.2
Male	269	53.8
Marital status		
Marriage	274	54.8
Single	179	35.8
Widow/husband missing	47	9.4
Education status		
Illiterate	118	23.6
Primary school	79	25.8
High school	94	18.8
University	209	41.8
Economic status		
Good	32	6.4
Moderate	279	55.8
Bad	189	37.8
Social security status		
Yes	60	12
No	440	88
Working status		
Yes	167	33.4

No			333	66.6	
Goming country					
Syria			486	97.2	
Iraq			12	2.4	
Saudi Arabia			2	0.4	
Current Legal Status					
Temporary protection			388	77.6	
Turkish citizen			66	13.2	
Refugee			41	8.2	
Asylum seeker			5	1.0	
The status of having psychological problems after migration					
Yes			328	65.6	
No			172	34.4	

Table 3. IFOMA posttraumatic impact scale after migration exploratory factor analysis

	Factor loading	Item mean	SD	Mean±SD	Cronbach Alpha	Exp.Variance
FACTOR 1: PSYCHOLOGICAL AFFECTION						
Item 1	.494	2.82	1.22			
Item 2	.572	2.84	1.21			
Item 3	.420	2.78	1.22			
Item 4	.574	2.72	1.30			
Item 5	.585	2.83	1.41			
Item 6	.567	2.65	1.32			
Item 7	.525	2.70	1.29			20.791%
Item 8	.570	2.73	1.30			
Item 9	.588	2.75	1.29			
Item 10	.620	2.67	1.30			
Item 11	.578	2.56	1.30			
Item 12	.664	2.65	1.27			
Item 13	.476	2.67	1.25			
Item 14	.747	2.79	1.32			
Item 15	.644	3.07	1.34	49.77±17.91	0.943	
Item 16	.710	2.76	1.28			
Item 17	.760	2.72	1.29			
FACTOR 2: PHYSICAL AFFECTION (SOMATIZATION)						
Item 18	.490	2.27	1.25			
Item 19	.575	2.66	1.23			
Item 20	.647	2.66	1.29			
Item 21	.723	2.54	1.29			
Item 22	.631	2.58	1.28	23.21±9.08	0.892	15.427%
Item 23	.575	2.13	1.25			
Item 24	.710	2.61	1.29			
Item 25	.582	2.87	1.28			
Item 26	.520	2.60	1.27			
FAKTOR 3: ANXIETY						
Item 27	.500	2.41	1.28			
Item 28	.581	2.43	1.28			
Item 29	.549	2.38	1.31			
Item 30	.510	2.32	1.33	13.67±5.85	0.798	10.243%

Item 31	.611	2.44	1.29			
Item 32	.734	2.31	1.31			
FACTOR 4: SOCIAL ADAPTATION						
Item 33	.532	2.66	1.15			
Item 34	.647	2.96	1.20	11.84±3.69	0.586	7.153%
Item 35	.616	2.91	1.28			
Item 36	.628	2.89	1.25			
				Total Explained Variance %53.614		
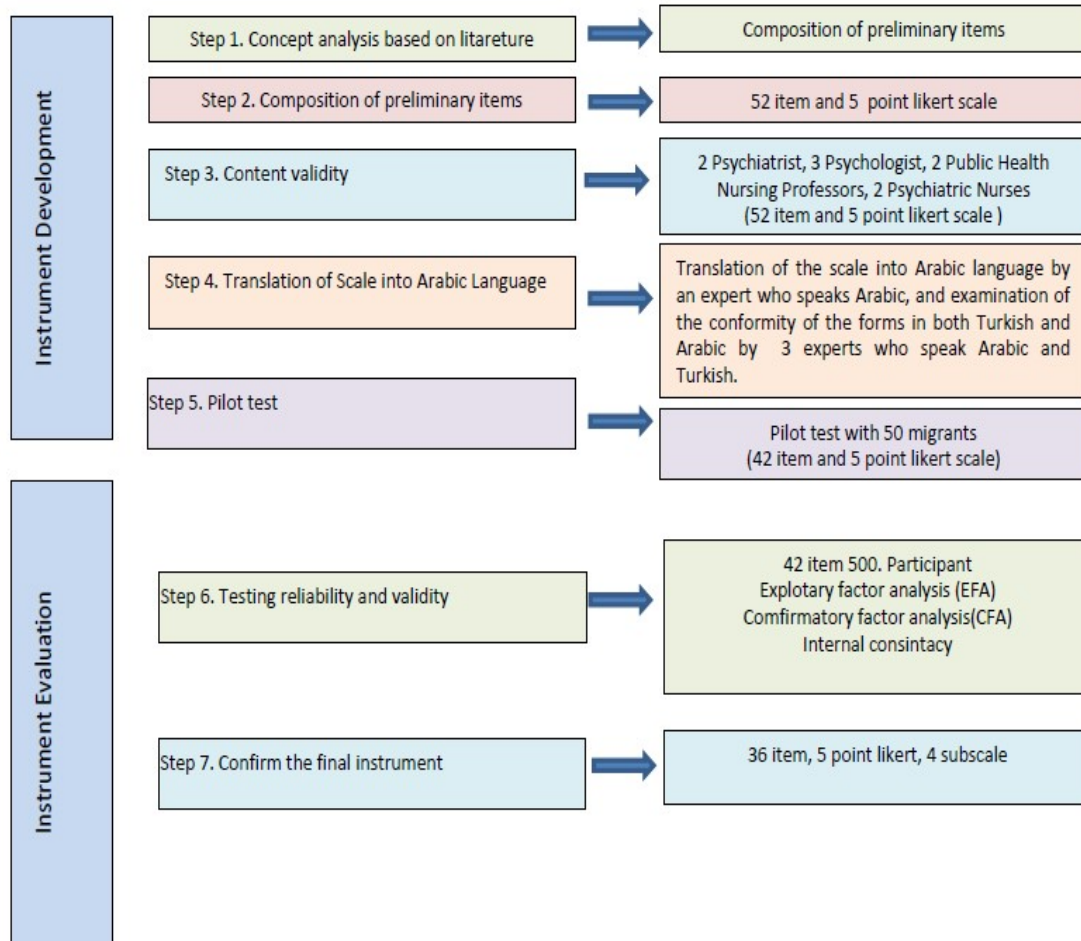
Figure 1. Study flow chart.
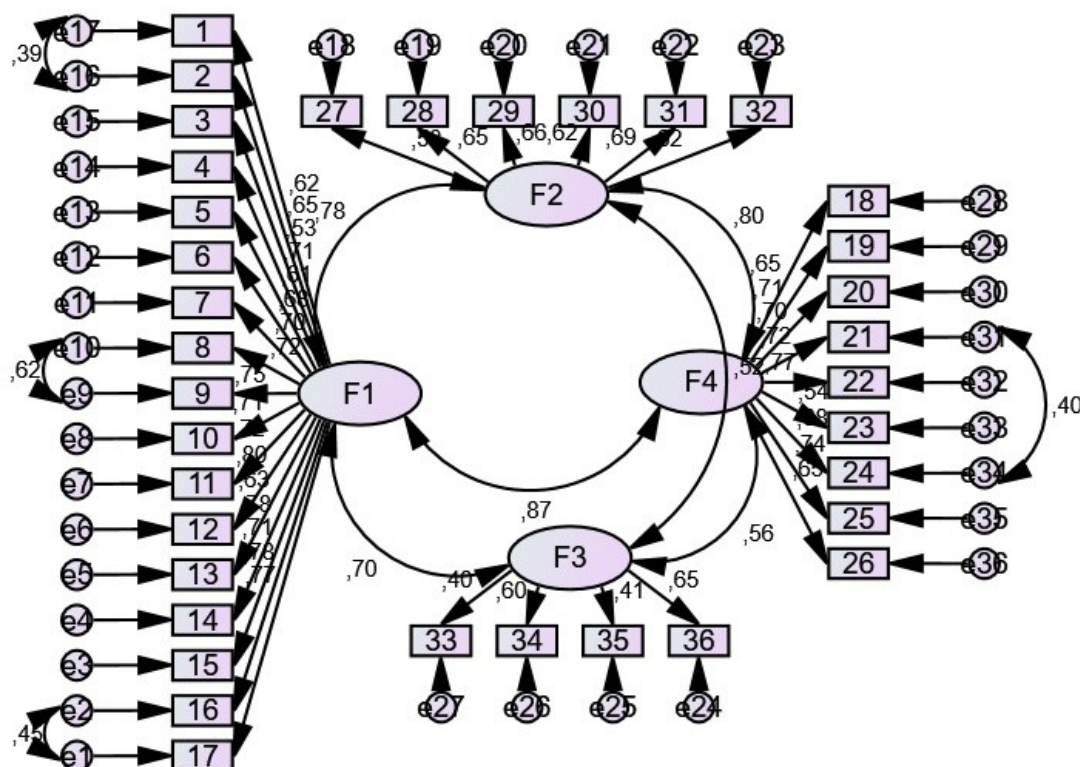
Figure 2. Examination of the factor structure of the *IFOMA Posttraumatic Impact Scale after Migration* with the PATH diagram (F1= Psychological Affection; F2= Anxiety; F3= Social Adaptation; F4= Physical Affection (Somatization))

Discussion

In this study, the validity and the reliability of the IFOMA Posttraumatic Impact Scale after Migration, which was generated on the basis of the literature in order to measure the levels of posttraumatic impact after migration at migrants were tested. In the item analysis conducted to assess the internal consistency of the scale, the correlation coefficient for each item is desired to be at least 0.30 (Samuels, 2016). Seven items with a total item score correlation below .30 were removed from the scale and were not included in the analysis. The total item score correlation values of the remaining items are in the range of 0.35 to 0.76, and it was determined that all items comply with the theoretical structure and are related to each other. The lowest factor load value of the scale items is 0.42 and the highest value is 0.76.

The adequacy of the sample size for the application of the exploratory factor analysis is assessed by the KMO (Kaiser-Meyer-Olkin) coefficient and Bartlett test (Chan and Idris, 2017). Due to the fact that the KMO value of the scale in the study is 0.96 and the Bartlett test is significant (p<0.001), the sample size is considered perfectly sufficient to carry out factor analysis and data is regarded as resulting from a multivariable normal distribution (Chan and Idris, 2017).

After having determined that the data were suitable for factor analysis, exploratory factor analysis was performed by using the Principal Components Analysis and Varimax rotation methods of the scale. As a result of the analysis performed, four factors having an eigenvalue of more than 1 were

determined for the 36 items included in the analysis. The total specified variance value of these factors is 53.61%. The fact that a scale has an exploratory variance ratio corresponding to between 40% and 60% is considered sufficient enough in terms of interpreting the concept to be measured (Samuels, 2016). This result shows that the concepts have been well measured with the scale. The contribution of the factors to the total variance was found to be 20.79% for the Psychological affection dimension, 15.43% for the Physical affection (somatization) dimension, 10.24% for the anxiety dimension, and 7.24% for the social adaptation dimension.

The reliability coefficient Cronbach Alpha was used in order to assess the internal consistency of the scale, which is among the confidence criteria in terms of the scale. The Cronbach alpha value of the scale is 0.94 for the Psychological Affection dimension, 0.89 for the Physical Affection (somatization) dimension, 0.80 for the anxiety dimension and 0.59 for the social adaptation dimension. In this case, it is considered that the measurement tool developed is a reliable measurement tool (Bujang et al., 2018).

As a result of the confirmatory factor analysis that examines the validity of the scale's structure, more than one compliance index is obtained. The accuracy of the model is evaluated not with a single compliance index, but with all co-existing indices (Capik, 2014). After the analysis, for model compliance purposes, the χ^2/sd below 3 is regarded as excellent, its being in the range of 3 and 5 is regarded as good compliance, RMSEA value below .08 is regarded as good compliance, the values of NFI, CFI, IFI, GFI above .90 are regarded as good compliance, the value of AGFI above .85 is regarded as acceptable compliance (Byrne, 2016; Gurbuz and Sahin, 2018; Hu and Bentler, 1998; Kline, 2016). The model was modified. During the modification, the variables that decreased compliance were determined and new covariances were generated for those with higher covariance between the values (e1-e2, e9-e10, e16-e17, e31-e34). Subsequent to the modifications made as a result of the confirmatory factor analysis, the

compliance statistics of the scale are as follows: CMIN/DF (2.69) value is regarded as excellent and the RMSEA (0.06), NFI (0.85), CFI (0.90), IFI (0.90), GFI (0.84), TLI (0.89), AGFI (0.82) values showed acceptable compliance. When the model compliance values and the factor load values of the scale items are evaluated together, for the IFOMA Posttraumatic Impact Scale after Migration,   four sub-dimensions and its structure consist of 36 items are verified and thus, it may be stated that the established model has sufficient compliance values.

Conclusion: In conclusion, the psychometric properties of the IFOMA Posttraumatic Impact Scale after Migration were examined and introduced to the literature. The results obtained reveal that the scale is valid and reliable for determining the Posttraumatic impact of migrants. This scale can be particularly used to determine the post-traumatic impact levels of the migrants living in communities with high migrant populations and Arabic-speaking migrants by the researchers. The scale is consisting of 36 items and four sub-dimensions classified as Psychological Affection, Physical Affection (somatization), anxiety and social adaptation. It can be suggested to increase the widespread effect of the scale by repeating the validity and reliability of the scale in different migrant groups. This scale can be used to analyze the post-traumatic impact levels of migrants and to shape the interventional works in this direction by translating this scale into different languages. Psychiatric, public health and school nurses who care for migrant patients or people enable them to provide better quality of care by determining the post-traumatic effects of immigrant individuals by using the measurement tool developed in this study before the care for them. It is a facilitator for psychiatric, public health and school nurses to use the measurement tool before their care.

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