



RESEARCH ARTICLE

Developmental Systems Approach Based Sociocultural Adjustment Scale for Migrant Adults: A Scale Development Study

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ABSTRACT

Despite the emphasis placed on the role of context in the acculturation process by some recent models, there remains a necessity for measurement tools that assess the cross-cultural adjustment of immigrant individuals from an ecological and systemic perspective. The objective of this study is to develop a scale to assess the sociocultural adjustment levels of adult immigrants. For this purpose, a total of 3380 adult immigrants living in Türkiye were included in the study. Exploratory and Confirmatory Factor Analyses were conducted to determine the factor structure of the scale by using the R 4.1.2 program. As a result of the analysis, a scale consisting of 14 items and 4 sub-dimensions (Adjustment to Country and Institutional System, Adjustment to Social System, Adjustment to Family System, and Adjustment within Individual System) was developed. The scale has demonstrated adequate psychometric properties and is a reliable and valid instrument for assessing immigrant adults' levels of cross-cultural adjustment. The features of the scale make it both a practical and comprehensive option for psychology researchers, counsellors and other mental health professionals, governments of host countries and policy makers.

Introduction

Contemporary developmental science emphasizes the importance of the relationship between the individual and the context (Lerner et al., 2013). Development is viewed as the ability of individuals to adapt to the contradictions that emerge from developmental tasks and new situations in their lives. In other words, healthy functioning in developmental tasks is seen as an indicator of adjustment (Greve & Wentura, 2007). In an increasingly complex social life, individuals may encounter sudden life events (e.g., wars, pandemics, fires, economic crises) that disrupt their healthy developmental functioning, and consequently, they make efforts to adapt appropriately. One such sudden and challenging life event is migration.

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According to the International Organization for Migration (IOM) (2022), migration is a broad concept that includes individuals who, for various reasons, leave their current place of residence and settle temporarily or permanently in another place within or outside their home country. Nowadays, many people around the world migrate from their home country to another in the hope of finding safer social and political conditions, better job opportunities or living conditions, etc. (Dimitrova et al., 2014). International migration, which leaves deep traces in the development of individuals and societies, is mostly a permanent movement of an individual or a group from one country or region to another, whether forced or voluntary (Rogler, 1994).

Grounded in developmental systems theory, this study conceptualizes migration as a complex life event that disrupts and reorganizes the individual-context relations central to human development. The developmental systems approach integrates the perspectives of general systems theory (von Bertalanffy, 1972) and ecological theory (Bronfenbrenner, 1994). Contemporary developmental theory posits that multiple levels (biology, culture, natural and organized ecology, history, etc.) are systematically integrated into human life (Lerner & Castellino, 2002). Accordingly, individuals are examined both in terms of their own adaptive systems (e.g., the immune system, the self-regulatory system) and in the context of the larger systems with which they are included. Bronfenbrenner (1977) proposes a classification of environmental systems that play a pivotal role in the development of individuals into five distinct categories: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. He further asserts that these five ecosystems are in constant interaction with each other, either directly or indirectly.

Individuals who migrate to a new country for various reasons engage with their environment to establish themselves within a new system, undergoing a process of cultural adjustment to adapt to the ecological system of the host country. According to the developmental systems approach, individuals are members of multiple systems and exert influence on these systems as well as being affected by them, in accordance with the principle of mutual determination. To enhance our understanding of immigrants' experiences, it is necessary to consider the process of migration, acculturation and cross-cultural adjustment in a broad context, including the individual, their family, the social environment, the values of the country they come from, the migration policies, and formal and informal institutions of the host culture.

Acculturation, Acculturation Stress and Adjustment

Regardless of the underlying motivations and forms of migration, individuals who move from one country to another invariably undergo the process of cultural transition (Lee et al., 2014). Even when migration is voluntary, the process of adapting to the changes that occur as a result of cultural transition is a formidable life task. Cultural transition is a multifaceted life experience that is often accompanied by significant stress and numerous challenges. The immigrants must adjust to numerous individual changes (e.g., physical, biological, educational, psychological, behavioural, etc.), as well as to changes in family, work, social, and cultural contexts (Berry et al., 1987; Thomas, 1995; Ward & Geeraert, 2016). Acculturation is a commonly used term that refers to the multidimensional, dynamic process that involves differentiation in many areas, including immigrants' cultural values, identifications and practices (Schwartz et al., 2010; Ward & Geeraert, 2016). It is also influenced by environmental factors and the ecological context in which immigrant individuals live (Ward & Geeraert, 2016).

The efforts to adapt to the changes that occur as a result of migration often give rise to social, cultural, and psychological problems. This phenomenon is referred to in the existing literature as acculturation stress, which encompasses the stressors that are specific to migration experiences (Berry, 1992, 2006). The acculturation process is accompanied by a multitude of stressors, including economic problems in securing employment or suitable housing, uncertainty regarding the future, linguistic adjustment, loss of social support networks or status that they had prior to migration, intergenerational acculturation differences and increased family conflicts, feelings of homesickness, the possibility of experiencing individual and/or institutional cultural racism experiences in the host country, and the negative psychological effects of perceived discrimination, internalised oppression and/or cultural identity confusion (Berry et al., 1987; Kim et al., 2013; Kim et al., 2014; Thomas, 1995; Villalba, 2009). Current research findings have revealed that acculturation stress can complicate immigrants' adjustment to a new culture, negatively impacting their psychological well-being and making them more vulnerable to mental health issues. Studies with immigrant groups have shown that

increased acculturation stress is linked to an increase in depressive symptoms (Hamamura & Laird, 2014; Roley et al., 2014). Those experiencing high levels of acculturation stress report greater psychological discomfort (Bekteshi & Bellamy, 2024; Chung & Epstein, 2014). Furthermore, these stressors may result in low psychological well-being (Lerias et al., 2025) and the onset of psychological ailments, including eating disorders (van Diest et al., 2014), anxiety disorders and substance use problems (Lerias et al., 2025). Additionally, a longitudinal study with US immigrants has revealed that increased stress is associated with low self-esteem, family conflict, and impaired familial cohesion and bonds, which negatively impact long-term adjustment skills (Allen et al., 2025).

Various models have been proposed in the literature to explain immigrants' cross-cultural adjustment. The most well-known of these models is Berry's (1997, 2001) two-dimensional model. Berry (1997) offers a definition of cross-cultural adjustment as the ability to adapt to the culture of the host society by effectively coping with acculturation stressors and managing daily responsibilities in different life roles and areas, such as family, work, and/or school life within the intercultural settings. According to Berry (1992, 2001), immigrants may employ different acculturation strategies depending on their attitudes toward acculturation. These strategies are classified into four categories: assimilation, separation, integration, and marginalization. The integration strategy has been accepted as the effective one that positively affects the cultural and psychosocial adjustment of individuals.

Ward (1996) also posits a widely recognized approach to understanding how immigrants adjust to a new cultural environment. This theoretical framework delineates a dichotomy between psychological adaptation and sociocultural adaptation. Psychological adaptation, as defined by Ward (1996), is the emotional domain of cross-cultural adjustment and is associated with immigrants' personal well-being, life satisfaction, and positive mental health indicators within the new sociocultural environment. Conversely, sociocultural adaptation, as delineated by this model, pertains to the behavioural domain of adjustment and is defined as the individual's social competence in managing their daily lives in the intercultural setting.

For many years, existing acculturation and sociocultural adjustment models have tended to focus on either psychological or behavioural domains, overlooking the systemic and ecological contexts within which immigrants' adjustment occurs. In recent years, some models have been proposed that conceptualise acculturation not merely as a result of individual preferences, but as a dynamic process shaped by the multi-level interactions between the individual, family, community, society, institutions and host country.

Cross-Cultural Adjustment from an Ecological and Systemic Perspective

In accordance with the developmental systems approach, the individual is influenced by all the systems in which he or she is immersed. In his ecological systems theory, Bronfenbrenner (1989) underscores the significance of environmental, social, and cultural influences on the development of the individual, asserting that no living entity exists in isolation within nature and that it perpetually interacts with its environment. Individuals are incorporated into these systems over the course of their lives, commencing with their entry into school, the initiation of employment, the formation of families, the expansion of social circles, the continuation of interactions with both private and public institutions, and the direct or indirect exposure to the conditions of the nation and era in which they reside. As with the views expressed in the developmental systems approach, some recent models of acculturation emphasise that the ecological context in which immigrants live affects both the acculturation process and cultural adjustment.

For example, according to Ward et al. (2001), the culture learning approach conceptualises sociocultural adjustment as a learning process. According to this model, the key factor influencing adjustment is the acquisition of intercultural skills, and individuals must learn social norms, communication rules, and culturally specific behavioural repertoires to increase their level of sociocultural adjustment within the host community. Therefore, adjustment is shaped by a combination of ecological factors such as cultural skill level, the nature of intercultural contact, previous experiences, and the openness of the host society.

Another model addressing the cross-cultural adjustment from an ecological-systemic perspective has been proposed by Inman et al. (2002). The model focuses on how immigrant experiences and adjustment can be assessed based on an ecological perspective, and how culturally sensitive psychological interventions can be effectively structured. According to the model, the immigrant's experience and adjustment have a complex

structure that cannot be explained solely by individual psychological characteristics (self-perception, coping styles, etc.). It is argued that the immigrant experience must be understood within multiple interacting contexts. In addition to the individual system, the microsystem (e.g., family, occupational status), mesosystem (e.g., peer and school environment), and broader societal-institutional structures (service systems, language policies), as well as socio-political processes at the macro level, such as migration, racism, and structural inequalities, all interact to influence the experiences of immigrant individuals. Accordingly, when assessing the experiences and adjustment of immigrant individuals or planning culturally sensitive psychological interventions, professionals should not focus solely on individual characteristics/symptoms. The immigrant's family relationships, peer and school/work context, experiences related to the migration process and racism should also be systematically screened and evaluated, and multi-layered intervention strategies such as family-based interventions, advocacy with schools and institutions, and community-level support mechanisms should be designed together (Inman et al., 2002; Inman & Tummala-Narra, 2015).

Schwartz et al. (2010) have also addressed acculturation and adjustment from an ecological and systemic perspective in their model. The model defines acculturation within a more comprehensive framework than classical models, arguing that acculturation is a broad set of constructs encompassing multiple cultural processes such as values, identification, and practices. They also consider the individual's relationship with the culture of origin and the host culture to be a multifaceted transformation linked to developmental processes. Furthermore, according to the model, the context perceived by immigrants is effective in shaping their cultural adjustment orientations, creating either harmony or disharmony between them and their surroundings.

Similarly, in their model, Ward and Geeraert (2016) criticized existing models for not sufficiently considering the impact of ecological context on acculturation. This model, which views acculturation as a dynamic process unfolding over time, argues that individual characteristics (personality, expectations), social relationships (family, peer, and community support), and macro-contextual factors (immigration policies, discrimination, host society attitudes) interact with each other. According to the model, acculturation emerges as psychological, sociocultural, and identity processes change over time to adjust to the new environment.

Assessment Tools Developed or Adapted to Measure Sociocultural Adjustment

A review of existing measurement tools reveals that one of the scales developed to assess the cross-cultural adjustment of immigrant individuals is the Socio-cultural Adaptation Scale. This scale, developed by Ward and Kennedy (1999), assesses the sociocultural adaptation of immigrants in terms of their behavioural competence in the host culture. Behavioural competence is defined as understanding social norms, effective interpersonal communication, and successful functioning in daily life, etc. The Socio-cultural Adaptation Scale has also been revised by Wilson (2013). The revised version of this scale aims to measure individuals' cultural adjustment levels using five sub-dimensions: interpersonal communication, academic/work performance, personal interests and community involvement, ecological adaptation, and language proficiency. Another assessment tool is the Intercultural Adjustment Potential Scale, developed by Matsumoto et al. (2001) to measure the cultural adjustment potential of Japanese soldiers living in the USA. This scale places particular emphasis on assessing psychological traits and abilities that contribute to successful intercultural adjustment, such as resilience and emotional regulation. Another widely recognized scale was developed based on Berry's acculturation framework, which assists experts in comprehending the preferred acculturation strategies (integration, assimilation, separation, and marginalization) employed by immigrants (Berry et al., 1989). Notably, the number of scales available for assessing the sociocultural adaptation of immigrant populations in Türkiye remains limited. In addressing this limitation, Şeker and Akman (2016) translated Ward and Kennedy's sociocultural adaptation scale into Turkish, adapting it to a sample of international students. A similar adaptation study was conducted by Yalçın (2018), who adapted the Revised Sociocultural Adaptation Scale to the Arabic language for a sample of Syrian refugees residing in Türkiye. A review of the extant literature reveals a paucity of measurement tools designed to assess the social integration of adult immigrants in Türkiye. The Social Cohesion Scale, a tool developed to address this gap, has emerged as the sole measurement instrument identified in the literature. The Social Cohesion Scale, developed by Kaya (2022) with data obtained from immigrants residing in Türkiye's capital city, measures the social adaptation of immigrants. The sub-

dimensions of the scale include exclusion, belonging, psychological and social support, individual factors, hope, and past experience.

The Present Study

The present study aims to develop a scale that can be used to identify the post-migration sociocultural adjustment levels of immigrant adults coming from outside the international borders of the Republic of Türkiye. The Sociocultural Adjustment Scale developed in this study exhibits notable distinctions from other adapted and/or developed scales. As previously mentioned, adult immigrants are in a state of mutual relations and interactions with both themselves and their environment (i.e., their family, social environment, formal-informal institutions of the host culture and society). Although some recent models of acculturation (e.g., Schwartz et al., 2010; Ward & Geeraert, 2016) emphasize the impact of the ecological context in which immigrant individuals live, it is seen in the literature that there is a need for measurement tools that assess the cultural adjustment of immigrant individuals from an ecological and systemic perspective. Consequently, the development of this scale has been undertaken from a holistic perspective, underpinned by the developmental systems approach. The measurement tool has been meticulously developed to assess immigrant individuals' sociocultural adjustment, taking into account all the sub- and upper systems within which they operate. The scale treats cross-cultural adjustment as a multidimensional structure, providing valuable measurement results about the level of adjustment experienced by the individual in their inner world, family subsystem, social environment, and institutional and host-country systems. Furthermore, in contrast to other measurement tools, the scale development studies were conducted on a substantial sample residing in various provinces of Türkiye and migrating from different countries.

Türkiye occupies a central position in contemporary migration dynamics, both as a major host country for forcibly displaced populations and as a transit and destination state for labour and irregular migration in the wider Europe–Middle East region. According to government and international agency data from mid-2025, Türkiye is hosting several million foreign nationals, the largest group of whom are Syrians under the country's Temporary Protection regime. There are also substantial populations of applicants and holders of international protection from Afghanistan, Iraq, Iran and other countries (IOM, 2025; UNHCR, 2025). These significant numbers make it imperative for Türkiye, as the host country, to develop holistic, systemic, inclusive, and culturally sensitive policies and practices regarding immigrants. The transition process is frequently characterised by challenges and stress for adult immigrants. To enable a conducive cultural adjustment process and develop comprehensive and culturally sensitive policies and practices, it is imperative that policymakers, government units working with immigrants, counsellors, and other mental health professionals working with immigrants possess a comprehensive understanding of the cross-cultural adjustment processes of immigrants by assessing them in a multidimensional and systemic manner. These kinds of comprehensive and systemic assessments may have the potential to improve the quality of the policies and practices addressing cultural adjustment.

Method

In this study, we aimed to explain the underlying structure of immigrant adults' sociocultural adjustment, consistent with the explanatory function of scientific inquiry. For this purpose, the study was designed as an instrument development (scale development) study. In such studies, the relationships between latent constructs and their manifest indicators are examined to clarify the conceptual structure of the phenomenon under investigation. Accordingly, exploratory and confirmatory factor analyses were employed to determine how the observed variables come together to represent the latent construct of sociocultural adjustment (DeVellis, 2011). This approach enabled us to identify, describe, and explain the underlying dimensions of sociocultural adjustment in a statistically grounded manner.

Participants

Within the scope of the study, it was aimed to reach adults who had immigrated to Türkiye from diverse cultural backgrounds for various reasons. In this context, the developed scale was sent online to K-12 schools across the country that had immigrant students in their classes. Support from the Ministry of National Education was obtained in selecting the schools. The data were collected from adult participants who voluntarily agreed to take part in the study via all teachers with immigrant students. Teachers working in these

schools were asked to share the online link with the families of immigrant students. The majority of participants in the study resided in the Aegean, Marmara, Central Anatolia, and Mediterranean regions of Türkiye. Before moving on to the scale items, a section containing various demographic information about the adults was also added to the scale. The distribution of participants according to their demographic information is presented in Table 1.

Table 1. Demographic distribution of participants

Variables	N	Variable	N
Gender		Reason for Migration	
Female	2807	Family (Father's work, etc.)	9
Male	1418	Economy	146
Marital Status		Education	24
Married	3382	War	3715
Single	634	Health	4
Other	209	Political and religious	18
Job Status		Education Level	
Working on a job	1232	Primary	803
Unemployed	2993	Secondary	879
		High School	646
		University	485

An examination of Table 1 reveals that immigrant adults exhibit diversity with regard to the subcategories of the determined variables. However, this was not the case with regard to the motivations behind migration. The primary motivation for the majority of the group to migrate was the war. The mean age of the group was found to be 36.46 years ($SD = 7.76$).

Development of the Scale and Data Collection Process

Ethical permissions were obtained from the Social Sciences Ethics Committee of Ankara University prior to conducting this study (date: 02/15/2022, number: 5/20). The informed consent form of the study was incorporated at the commencement of the data collection instrument to apprise all participants of the study's objectives and procure their consent prior to the initiation of the data collection process. The scale development process was explained below.

Determining the Purpose and Scope of the Scale

The objective of this scale is to concentrate on international immigrants who come to Türkiye from other countries, irrespective of the underlying motivations (e.g., war, terror, natural disaster, economic conditions, etc.). Individuals who immigrate often assume distinct immigration statuses in the country they immigrate to. The scale has been meticulously designed to encompass individuals who have immigrated to Türkiye from other countries and have obtained one of the following immigration statuses: "temporary protection," "immigrant," "asylum seeker," "refugee," "conditional refugee," "secondary protection," "foreigner," or "stateless" and the individuals who have subsequently acquired citizenship status in the Republic of Türkiye. However, students who are in Türkiye for a temporary purpose, such as undergraduate or postgraduate studies at Turkish universities, are not included in the scope of this scale. The criteria of the scale include age, with a minimum age of 18 years. The primary focus of the scale is on the adjustment levels of foreign nationals who are adults aged 18 and over. The average length of stay in Türkiye for participants is 8.28 years with a 5.55 standard deviation.

A review of the literature revealed behavioural patterns that may be indicative of the cross-cultural adjustment of immigrant adults. Subsequently, the behavioural sub-dimensions that resulted from the convergence of these behaviours were determined. As indicated in the introduction, the phenomenon of international immigration requires individuals to adapt to many systems in the country they have newly arrived in. For this reason, ecological and systemic perspectives regarding cultural adjustment were also taken into account when designing the scale. The developmental systems approach integrates the views of general systems theory and ecological theory. In this measurement tool, in order to measure the sociocultural adjustment process of adult

immigrants, the context of the upper and lower systems they are in was considered. Therefore, this measurement tool was developed to determine the sociocultural adjustment levels of foreign adult individuals (aged 18 and over) based on systemic theory and ecological perspective.

Writing Scale Items

During the item writing process, interviews were conducted with three experts who worked in the adjustment processes of immigrant adults. These experts were academics in the field of guidance and psychological counselling, one of whom was a professor and the other two held doctoral degrees. In the interviews, general behavioural patterns exhibited by these adults were examined. Thus, 10 Turkish individuals who were familiar with immigrant adults were interviewed regarding the general behavioural patterns of these adults. These Turkish participants were selected through purposive sampling to ensure that they had direct contact and sufficient experience with the immigrant adults involved in the study. In addition to the experts, the Turkish participants suggested that the items could be developed regarding the involvement of immigrant adults in their children's educational processes. They also indicated that immigrant adults tended to prefer meeting individuals from other cultural backgrounds within their homes rather than in public or social settings.

Based on the literature review and information obtained from experts and individuals, 65 draft items were written under five possible dimensions (individual-personal system, family system, social system, institutional system, country system) for the scale. The researchers discussed the written items among themselves. As a result of these discussions, items that were similar in wording were reworded as a single item. As a result, the number of items in the draft form decreased to 45.

Obtaining Expert Opinions

Expert opinions were taken for the clarity of the written items and their suitability in terms of structure and measurement. In this context, the items were sent via an expert form to a Turkish language expert, four field experts working on cultural adjustment, and two measurement experts. All experts held doctoral or higher academic degrees and also had experience in scale development. In the expert form, they were asked to express their opinions about the extent to which the items represented the relevant dimensions. Experts expressed their feedback on a three-point scale as sufficient, should be corrected and should be removed from the scale. Consequently, evidence for content validity was also obtained.

Preliminary Trial Application

Before the trial application, the draft form of the scale was applied to a small group (approximately 9 adults). In this way, the opinions pertaining to the usability of the product were obtained from two distinct groups of individuals: adults and individuals who were acquainted with the adults. Individuals and adults were asked to express their opinions within the framework of the following questions: "1. Is there anything unclear about the wording of the scale items? If so, please indicate with the item number. 2. Is there any behaviour exhibited by immigrant adults that is not included in the scale? 3. Have you had any difficulty in applying the scale and scoring the items? 4. Is there an item in the scale that you think is not an indicator of sociocultural adjustment?"

Since the preliminary trial was conducted on a small group, statistical calculations could not be made. As a result of this application, a decision was made to reduce demographic information. Instead, the items were adjusted according to the feedback given by the adults and the observations of the researchers during the application. As a result of feedback and observations, it was determined that the wording of items 3, 5, 10, 13, 14, 15, 20, and 22 needed to be corrected. Of these, it was determined that the concept of "social" in item 3 was not fully understood. Similarly, it was determined that the expression "make an effort" in other items was also difficult to understand. It was posited that items 15 and 22 were more appealing to male participants in terms of content. Furthermore, it was determined that 17 items were not applicable due to reasons such as not being comprehensible, having the same meaning, or being biased in terms of content. Consequently, it was determined that the trial application would commence with 28 items.

Trial Application

Subsequent to the collation of expert opinions, the researcher's observations and individual feedback, a trial application was made with the 28-item version of the scale. This application was conducted online and was completed within approximately three months. The link created in the Google Drive application for the online

application was disseminated to adults via teachers. The scale was completed by immigrant adults using the provided link. The scale items were designed to be completed by adult immigrants themselves. It has been asserted that adults have the capacity to solicit assistance from their children or pedagogues in educational institutions on subjects with which they are unfamiliar. The scale items were evaluated using a 5-point Likert scale. It is important to note that the scale did not include reverse-scored items.

Data Analysis

Before proceeding with the analysis of the data, preliminary examinations were conducted. It was determined that 495 of the 4225 forms were completed by individuals outside the target group, such as children of adults and minors under the age of 17. Therefore, these forms were excluded from the analysis. Subsequently, 350 forms were found to contain incorrect data entries regarding the reason for migration and identity/immigration status. These forms were also excluded from the analysis as invalid. The remaining 3,380 forms were then subjected to assumption analysis, as was required by the research questions.

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to determine the factor structure of the scale. For this purpose, the assumptions of these analyses were first tested. Since the scale was completed online, and it was mandatory to respond to each scale item, there was no missing data. Since there was no reverse-scored item, no action was taken in this regard. Then, the entire data set was separated for EFA and CFA. Approximately 60% of the entire data set (2,000 individuals) was used for EFA, and the rest was used for CFA.

In the context of the EFA, an outlier analysis was carried out; a total of 95 forms were eliminated from the data set on the basis that they exhibited univariate outlier features, and while 390 forms were excluded due to their multivariate outlier features ($\chi^2_{28, .05} = 41.337$). There was no form showing a univariate outlier feature in CFA. A total of 232 forms exhibited multivariate outlier features, and these forms were subsequently removed from the data set that had been allocated for CFA ($\chi^2_{14, .05} = 23.685$).

In EFA, it was observed that the skewness values for the item scores were between -2.246 and -.404, and the kurtosis values were between -.090 and 2.169. The means of the item scores varied between 3.43 (se = .037) and 4.71 (se = .016), and the standard deviations varied between .639 and 1.421. In CFA, it was observed that the skewness values were between -1.771 and -.3991, and the kurtosis values were between -1.109 and 1.969. The mean of the item scores varied between 3.46 (se = .041) and 4.43 (se = .029), and the standard deviations varied between .982 and 1.398. Thus, univariate normality was approximately met in both analyses.

For multicollinearity, inter-item correlations (rpolychoric = -.13 - .82 in EFA, and rpolychoric = .38 - .82 in CFA) and tolerance values ($> .10$) were examined. Some items (i24-i25 in EFA; i10-i11 and i25-i27 in CFA) were suspicious for multicollinearity and were flagged for examination along with their factor loadings. Bartlett's Test of Sphericity and Kaiser Meyer Olkin (KMO) Sampling Adequacy Criterion were examined to check the factorability of the correlation matrix between the items. According to the analysis results (in EFA KMO = .96, Bartlett $\chi^2 = 2997.3$, df = 27, $p < .0001$; in CFA KMO = .94, Bartlett $\chi^2 = 429.61$, df = 13, $p < .001$), it was seen that both in the two data sets, the polychoric correlation matrix was suitable for factorization.

Since the data were in Likert-type, they were treated as rank-order level; therefore, a polychoric correlation matrix was used as the correlation matrix in the factor analysis and Principal Axis Factoring, which does not require multivariate normality (Field, 2018), was used as the factor extraction method. The operations after this stage were carried out using the R 4.1.2 program (R Core Team, 2023) "psych" (Revelle, 2024), "lavaan" (Rosseel, 2012), "lavaanPlot" (Lishinski, 2024), and "semTools" (Jorgensen et al., 2022) packages. The codes used are presented in Appendix A.

In CFA, the unweighted least squares (ULS) estimation method was used because it is more suitable for the nature of the data and more effective than other estimation methods for categorical/ordinal variables (Koğar & Yılmaz Koğar, 2015) in estimating factor loadings and standard errors. Given that normality is a distribution that should be examined for continuous variables, and ULS does not require multivariate normality, it was not examined whether the data showed multivariate normality. It was observed that the degree of freedom of the model was greater than 0. This demonstrated that the precondition for the reliability of the estimation results

was met. In the process of scaling the factors, the unstandardized factor loading of the first item was fixed at 1.00 and the reference variable method (Kline, 2011) was used.

Results

Results Regarding Exploratory Factor Analysis

The number of dimensions was determined by means of Horn's Parallel Analysis, Scree Plot and Kaiser criterion. Accordingly, the parallel analysis yielded six dimensions, whereas the scree plot and Kaiser criterion results yielded five and two dimensions, respectively (Figure 1). Following a comprehensive evaluation of the results, the EFA analyses were initiated with six dimensions and employing the Promax oblique rotation method. Given the theoretical predictions regarding the potential correlation between the sociocultural adjustment dimensions, the utilisation of oblique rotation was deemed the optimal approach.

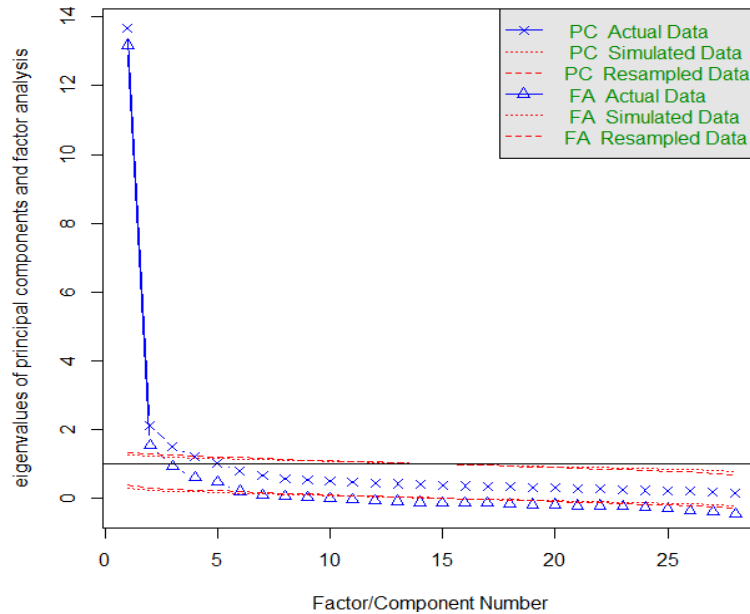


Figure 1. Parallel analysis scree plot

The items were examined in terms of insufficient loading, overlapping, high correlations (.80 and above) with other items, content, and sufficient loading (.40 and above, Fabrigar et al., 1999) of an item on more than one dimension. First, i22, which was found to have insufficient loading (below .40), was removed, and the analyses were repeated. The items were continued to be examined in terms of overlap (a difference of .10 or less between the loadings of the same item for different factors), and i23, i12 were removed from the analysis, respectively, and the analyses were repeated. The dimensions that were formed afterwards and the items under the dimensions were examined in terms of content. Since it was thought that one of the three items under the 6th dimension (i6) was compatible with dimension 1 in terms of content, and the other two items (i4 and i5) could be indicators of other structures along with the sociocultural adjustment, i4 and i5 were removed, and the analysis was repeated by fixing the number of dimensions to five.

Following a thorough examination of the available data, it was determined that i6 was loaded on dimension 1. A re-examination of the items was conducted, with particular attention being paid to the issues of insufficient loading and overlap. It was seen that there was no item that gave insufficient loading, but i4, i7, i13, i18 and i19 were overlapped. Since i7 was both overlapping and had a high correlation (.70 and above) with other items, it was removed, and the analyses were continued. In terms of overlap, i13, i4, i5 and i26 were removed from the scale, respectively. Since they gave sufficient loadings (.40 and above) on two dimensions, i18 and i19 were also removed. Since two items remained under one dimension, i20 and i21 were also removed from the scale. Subsequently, the items were examined in terms of content. In this examination, it was seen that i25 and i24 were similar, and the analysis was repeated by removing i24 from the scale. In this final stage, the number of dimensions was also fixed at 4. In the final examination, i15 was removed from the analysis in terms of complexity. In the final examination, the amount of variance explained by the four dimensions

obtained in the items varied between .51 and .85. In addition, the complexity indices of the items ranged from 1.00 and 1.50 with an average of 1.10. Consequently, the scale was given its final form. In the final version of the scale, the number of items was reduced to 14, and the original four dimensions were retained. The contents of the items collected under each dimension were considered together, and the names to be given to the dimensions were discussed among the authors. At this stage, each author initially designated the dimensions separately, and then the authors proceeded to evaluate the names given to the dimensions. Upon the authors' collaboration, the items were subjected to a renewed evaluation of their content. Following extensive analysis, it was determined that the nomenclature of the dimensions should be designated as "Adjustment to Country and Institutional System (SIS)", "Adjustment to Social System (SOS)", "Adjustment to Family System (AIL)," and "Adjustment within Individual System (DUY)." There were 4 items in the dimension called Adjustment to Country and Institutional System, 3 items in the Adjustment to Social System, 4 items in the Adjustment to Family System, and 3 items in the Adjustment within Individual System. Information on the factor loadings of the items in the dimensions is presented in Table 2. The Adjustment to Country and Institutional System dimension explained 20% of the total variance, the Adjustment to Family System explained 19%, the Adjustment within Individual System explained 14% and the Adjustment to Social System explained 13%. The total variance explained is 66%. It was seen that the correlation values between the dimensions varied between .58 and .76. Finally, the TLI value for model-data fit was calculated as .977 and the RMSEA value as .046 [.039, .053], and it was determined that the model provided a perfect level of fit with the data (Brown, 2015; Kline, 2011; Tabachnick & Fidell, 2013).

Table 2. Factor analysis results of sociocultural adjustment scale for immigrant adults

Sociocultural Adjustment Scale for Immigrant Adults Items	Dimension Loadings			
	1	2	3	4
Adjustment to Country and Institutional System (SIS)				
6. Yeni geleneklere ve kurallara uyum sağlamak için davranışlarımı düzenlerim.	.59	.18	.13	-.09
25. Türkiye’de yaşamak için yazılı ve sözlü kuralları öğrenmeye çaba harcarım.	.96	.00	-.13	-.03
27. Kendi kültürel değerlerimi koruyarak Türkiye’nin kültürel değerlerine uygun davranırım.	.85	.04	-.05	.02
28. Türkiye’ye uyum sağlamak için gündemi (TV, sosyal medya, internet gibi) takip ederim.	.64	.01	-.06	.16
Adjustment to Family System (AIL)				
8. Ailem ile etkinlikler (piknik, çay içme, sohbet gibi) yaparım.	-.21	.72	.06	.25
9. Aile içindeki sorumluluklarımı (temizlik, yemek, alışveriş gibi) yapmaya çabalarım.	.15	.72	-.01	-.08
10. Ailemdeki bireyleri (eş, çocuk, kardeş) dinlemek için vakit ayırmaya çabalarım.	.06	.91	-.03	-.08
11. Problemlerimi ailemle konuşarak çözmeye gayret ederim.	.14	.72	-.03	.01
Adjustment within Individual System (DUY)				
1. Kendimi güvende hissedirim.	.14	-.03	.66	-.01
2. Kendimi mutlu hissedirim.	-.21	-.03	1.00	.05
3. Güne umutla başlarım.	.15	.04	.67	-.06
Adjustment to Social System (SOS)				
14. Farklı kültürlerden arkadaşlarım ile çeşitli aktivitelere (kafe, çay-kahve, aile ziyareti gibi) katılırım.	-.09	-.02	.00	.89
16. Sosyal ortamlarda kendi kültürümü (gelenekler, kıyafet, yemek gibi) tanıtmak için çabalarım.	.22	.01	.06	.52
17. Farklı kültürlerin sosyal etkinliklerine (düğün, kutlama, bayram gibi) katılırım.	.07	-.04	.02	.78
Correlations between dimensions				
Institutional/Country System				

Family System	.76		
Individual System	.64	.62	
Social System	.61	.60	.58

Note. N = 1515. Promax oblique rotation method and principal axis factorization were used as the factor extraction method. Factor loadings above .40 were bolded.

Results Regarding Confirmatory Factor Analysis

The CFA model was established with the Country/Institutional, Family, Individual and Social dimensions of the Sociocultural Adjustment Scale for Adult Immigrants Form and the items under these dimensions were tested. As a result of the analysis, it was seen that the fit was obtained (RMSEA [90% CI] = .051 [.045, 0.57]; SRMR = .036; CFI = .994 and TLI = .993). Accordingly, the results of the analysis demonstrated that the model exhibited an optimal fit with the data when the RMSEA value was less than .06, the SRMR value was less than .05, and the CFI and TLI values were greater than .98 (Brown, 2015; Kline, 2011; Tabachnick & Fidell, 2013).

In light of the optimal model-data fit, no modifications were deemed necessary for the model. Consequently, the first-order model was determined. All parameters estimated as a result of the CFA, the average variance explained (AVE) and internal consistency coefficients (McDonald omega) related to the dimensions are given in detail in the Appendix Table.

As seen in the Appendix Table, it was observed that all factor loadings and covariances were significant ($p < .001$), and standardized factor loadings were greater than .66 (Stevens, 2009). Accordingly, it was determined that error variances were between .251 and .560. This finding showed that dimensions were significant predictors of the items related to them. Moreover, each dimension explained 44% and more of the variance of the items related to it. In addition, the correlation values between the dimensions ranged from .627 to .856.

Following the examination of the average variance extracted (AVE) values calculated for the dimensions, it was established that they were .599, .605, .650 and .581 for the Country/Institution, Family, Individual and Social Adjustment dimensions, respectively. It was further determined that all of these values were higher than .50 (Hair et al., 2019). These findings were interpreted as the items brought together to measure the relevant dimensions exhibited high correlations within themselves (Brown, 2015; Kline, 2011) and that at least 58% of the variance in the items was explained by these dimensions. In summary, evidence of convergent validity was provided. Conversely, McDonald Omega was calculated from the factor analysis-based reliability coefficients in terms of internal consistency. The Omega values were subsequently determined to be .857, .858, .848 and .807, respectively. Accordingly, it was stated that these values were above .75 and the structure intended to be measured was confirmed. It is evident that, in accordance with the aforementioned values, the model exhibits a satisfactory degree of compatibility with the data. In addition, the structure intended to be measured by the scale demonstrated high validity and internal consistency.

As emphasized in models that address cultural adjustment from an ecological and systemic perspective, the sociocultural adjustment of an immigrant individual emerges as a result of the adaptation in individual, family, social and institutional/national systems, and a change in one dimension of the system affects both overall adjustment and all other systems (Inman et al., 2002; Ward & Geeraert, 2016). Therefore, it is clear that there is a basic dimension (overall cultural adjustment of immigrants) underlying all four dimensions theoretically. In accordance with this theoretical perspective and the correlations between the dimensions, which were generally moderate in nature, a second-order CFA analysis was conducted to provide empirical evidence on the possibility of deriving a total score from the scale. It was also observed that the emergence of four dimensions in the first stage and the presence of at least three items under each dimension allowed the statistical definition of the second-order model. The second-order confirmatory factor analysis (CFA) results obtained indicated that the model exhibited a satisfactory fit to the data (RMSEA [90% CI] = .056 [.050, .063]; SRMR = .041; CFI = .993 and TLI = .991). Accordingly, it was determined that a total score can be obtained from the

scale. The path diagram of the standardized estimation results of the factor loadings, error variances and covariances of the second-order model is given in Figure 2 and Table 3.

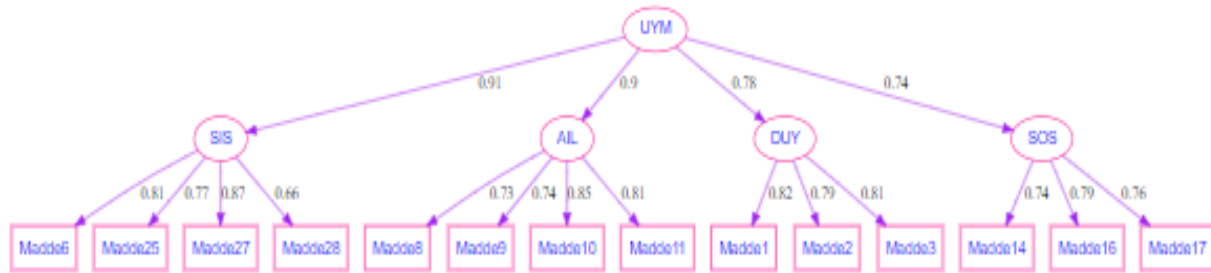


Figure 2. Second order CFA diagram

Table 3. Second-Order CFA results

	B	SH(B)	z	p	β	ε	AVE	Omega
SIS							.599	.857
i6	1.00				.815	.336		
i25	0.977	0.021	46.422	.000	.773	.402		
i27	1.100	0.023	48.498	.000	.866	.251		
i28	0.979	0.021	46.463	.000	0.664	.558		
AIL							.605	.858
i8	1.00				.726	.473		
i9	0.854	0.019	45.138	.000	.736	.458		
i10	1.008	0.021	48.364	.000	.852	.275		
i11	0.935	0.020	46.978	.000	.808	.346		
DUY							.650	.848
i1	1.00				.817	.333		
i2	1.034	0.021	48.602	.000	.790	.376		
i3	1.042	0.021	48.708	.000	.813	.338		
SOS							.581	.807
i14	1.00				.737	.456		
i16	0.951	0.019	49.940	.000	.792	.373		

i17	0.992	0.020	50.514	.000	.764	.417
Sociocultural Adjustment (UYM)						
SIS	0.964	0.022	42.998	.000	.908	.175
AIL	0.999	0.023	43.805	.000	.896	.198
DUY	0.956	0.022	43.965	.000	.781	.391
SOS	1.00				.738	.455

Note. B: Unstandardized factor loading, SH(B): Standard error of unstandardized factor loading, β : Standardized factor loading, ϵ : Standardized error (unique) variance, AVE: Average variance extracted and Omega: Internal consistency coefficient.

Discussion

The objective of this study was to develop a scale to assess the sociocultural adjustment levels of adult immigrants. The analysis yielded the development of a 14-item scale, comprising 4 subscales. The scale demonstrated adequate psychometric properties. To ascertain the scale's factor structure, a series of analytical procedures was conducted, including EFA, first-order CFA, and second-order CFA. The analysis yielded the identification of four subscales: Adjustment to Country and Institutional System, Adjustment to Social System, Adjustment to Family System, and Adjustment within Individual System. The subscales comprised 4, 3, 4, and 3 items, respectively. It is noteworthy that the scale did not include reverse-scored items. It is widely accepted that elevated scores on the scale were indicative of a high level of socio-cultural adjustment exhibited by adult immigrants. Conversely, elevated scores on the subscales were indicative of an optimal level of adjustment within the specific system to which the individual was assigned. The results of the EFA demonstrated that the total variance explained was 66% and the correlation values between the dimensions varied between .58 and .76. The results of the CFA demonstrated that the tested model provided a perfect fit with the data.

According to the developmental systems approach, migrant adults are in mutual relationships and interactions with both themselves and their environment (e.g. their families and social environments, formal-informal institutions and society, etc.). Recent models draw attention to the fact that the acculturation process takes place in a comprehensive ecological context and suggest understanding acculturation and cultural adjustment processes from an ecological perspective (e.g., Schwartz et al., 2010; Ward & Geeraert, 2016). The measurement tool developed in this study will contribute to understanding and measuring the socio-cultural adjustment levels of international immigrant adults living in Türkiye within the context of the upper and lower systems in which they have from a systemic theory and ecological perspective.

The measurement tool has been designed to benefit both counsellors and other mental health practitioners working with adult migrants, field researchers, host governments and policy makers. Consequently, researchers specializing in the study of migration and migrant populations can utilize this measurement tool to access data concerning the sociocultural adjustment levels of individuals residing within a particular region. From a systemic perspective, researchers can glean specific information about the lower/upper systems in which individuals or migrant groups encounter greater difficulties in terms of cross-cultural adjustment. Furthermore, it facilitates the execution of studies investigating the factors that either facilitate or hinder individuals' adjustment to both general and specific systems. It is recommended that counsellors and other mental health professionals working with migrants can similarly utilize this measurement tool to assess individuals' general sociocultural adjustment levels and the various dimensions of adjustment exhibited by their immigrant clientele. This instrument can be utilized as a metric to assess the efficacy of individualized and group interventions, such as group counselling or psychoeducational services, in supporting the sociocultural adjustment processes of adult immigrants. It can also be employed to assist them in effectively coping with acculturation-related stressors they encounter. In addition to the aforementioned points, governments of countries conducting policy studies on immigration, especially units conducting studies on

immigration and immigrants, can obtain information about the sociocultural adjustment levels of immigrants living in their countries by using an adapted version of this scale. Consequently, governments and their affiliated entities can formulate more precise and efficacious policies to support the adjustment process. Furthermore, governments can utilize this measurement tool to assess the efficacy of awareness, support, or educational initiatives, as well as the implementation of policies designed to enhance immigrants' socio-cultural adjustment levels.

In this study, the verification of the structure of the scale with the second-order CFA model coincides with the encounter of second-order CFA models in real data-based applications. Accordingly, the sociocultural adjustment of foreign adults to the Turkish culture was indirectly measured through their adjustments to country/institutional, family, social and individual systems at the first level. In factor analysis studies on small sample sizes ($N < 200$), the Bayesian approach performs better in terms of the accuracy of parameter estimates (Lee & Song, 2004). It can be recommended that researchers who will work on small samples using this scale should conduct their CFA studies with Bayesian CFA.

The measurement tool that has been developed enables an assessment of cross-cultural adjustment from a multidimensional and ecological perspective. Having examined its psychometric properties with a large sample of adult immigrants, it is believed that the scale will yield valid and reliable measurement results. Despite these features, which distinguish the scale from other measurement tools in the literature, this study has several limitations. Further studies can be conducted to examine the psychometric properties of the scale. For instance, future research might also focus on assessing the concurrent validity of the scale by using some similar scales or examining the potential relationships between some variables that are positively or negatively associated with cross-cultural adjustment and the adjustment scores obtained from the scale. Furthermore, the reliability of the scale can be assessed through test-retest analysis, which evaluates the consistency of the scale over time.

Conclusion

The findings of this study demonstrated that the Sociocultural Adjustment Scale-Adult form is a reliable and valid instrument for assessing immigrant adults' levels of cross-cultural adjustment. The instrument offers a comprehensive perspective on the sociocultural adjustment of adult immigrants across diverse contexts and sub-systems. The instrument's brevity, coupled with its demonstrated validity and reliability, facilitates efficient and reliable measurement of adjustment. The aforementioned characteristics position the scale as a practical and comprehensive instrument for psychology researchers, counsellors and other mental health professionals working with immigrants, and immigration units of governments of host countries.

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Data Availability: The data that support the findings of this study are not publicly available. Data are however available from the authors upon reasonable request and with permission of Turkish Ministry of National Education General Directorate of Lifelong Learning.

Ethical Approval: Ethical approval was obtained from the Social Sciences Ethics Committee of Ankara University prior to conducting this study (approval: 5/20) on 02/15/22.

Consent to Participate: Informed consent has been received to participants.

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Appendix A

R Codes Used in the Analysis

```
veri_y.afa <- read.csv2(file.choose(), header = TRUE, sep = ";")
str(veri_y.afa)
head(veri_y.afa)

library(psych)
kor.mat.afa_y <- polychoric(veri_y.afa)$rho
korelasyon.afa_y <- round(kor.mat.afa_y, 2)
korelasyon.afa_y
kmo.deger_y <- KMO(kor.mat.afa_y)
kmo.deger_y
bartlet.deger_y <- bartlett.test(veri_y.afa)
bartlet.deger_y

fa.parallel(veri_y.afa, cor = "poly", fm = "pa")

##### EFA Codes #####
afa.sonuc6.0 <- fa(veri_y.afa, nfactors = 6, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.0
afa.sonuc6.1 <- fa(veri_y.afa[, -22], nfactors = 6, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.1
afa.sonuc6.2 <- fa(veri_y.afa[, -c(22, 23)], nfactors = 6, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.2
afa.sonuc6.3 <- fa(veri_y.afa[, -c(22, 23, 12)], nfactors = 6, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.3
afa.sonuc6.4 <- fa(veri_y.afa[, -c(22, 23, 12)], nfactors = 5, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.4
afa.sonuc6.5 <- fa(veri_y.afa[, -c(22, 23, 12, 7)], nfactors = 5, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.5
afa.sonuc6.6 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13)], nfactors = 5, rotate = "Promax", fm = "pa", cor = "poly")
afa.sonuc6.6
afa.sonuc6.7 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13, 4, 5)], nfactors = 5, rotate = "Promax", fm = "pa", cor =
  "poly")
afa.sonuc6.7
afa.sonuc6.8 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13, 4, 5, 18, 19)], nfactors = 5, rotate = "Promax", fm = "pa",
  cor = "poly")
afa.sonuc6.8
afa.sonuc6.9 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13, 4, 5, 18, 19, 26)], nfactors = 5, rotate = "Promax", fm =
  "pa", cor = "poly")
afa.sonuc6.9
afa.sonuc6.10 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13, 4, 5, 18, 19, 26, 20, 21)], nfactors = 4, rotate = "Promax",
  fm = "pa", cor = "poly")
```

```
afa.sonuc6.10
afa.sonuc6.11 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13, 4, 5, 18, 19, 26, 20, 21, 24)], nfactors = 4, rotate =
  "Promax", fm = "pa", cor = "poly")
afa.sonuc6.11
afa.sonuc6.12 <- fa(veri_y.afa[, -c(22, 23, 12, 7, 13, 4, 5, 18, 19, 26, 20, 21, 24, 15)], nfactors = 4, rotate =
  "Promax", fm = "pa", cor = "poly")
afa.sonuc6.12
```

CFA Codes

```
veri.dfa_y <- read.csv2("dfaveri_y.csv", header = TRUE, sep = ";")
str(veri.dfa_y)
head(veri.dfa_y)
```

```
library(psych)
kor.mat.dfa_y <- polychoric(veri.dfa_y)$rho
korelasyon.dfa <- round(kor.mat.dfa_y, 2)
korelasyon.dfa
kmo.deger.dfa <- KMO(kor.mat.dfa_y)
kmo.deger.dfa
bartlet.deger.dfa <- bartlett.test(veri.dfa_y)
bartlet.deger.dfa
```

```
library(lavaan)
modelim <- "SIS =~ Madde6 + Madde25 + Madde27 + Madde28
  AIL =~ Madde8 + Madde9 + Madde10 + Madde11
  DUY =~ Madde1 + Madde2 + Madde3
  SOS =~ Madde14 + Madde16 + Madde17"
```

```
dfa.sonuc <- cfa(model = modelim, data = veri.dfa_y, estimator = "ULS")
summary(dfa.sonuc, standardized = TRUE, fit.measures = TRUE, modindices = TRUE)
```

```
library(semTools)
reliability(dfa.sonuc)
```

```
library(semPlot)
semPaths(dfa.sonuc, what = "std", style = "lisrel", layout = "tree2",
  residuals = TRUE, nCharNodes = 3, nCharEdges = 3, rotation = 2, edge.color = "darkblue",
  edge.label.cex = .8)
```

Second Order CFA Codes

```
modelim2 <- "SIS =~ Madde6 + Madde25 + Madde27 + Madde28
  AIL =~ Madde8 + Madde9 + Madde10 + Madde11
  DUY =~ Madde1 + Madde2 + Madde3"
```

SOS =~ Madde14 + Madde16 + Madde17

UYM =~ SOS + SIS + DUY + AIL"

```
dfa.sonuc2.0 <- cfa(model = modelim2, data = veri.dfa_y, estimator = "ULS")
```

```
summary(dfa.sonuc2.0, standardized = TRUE, fit.measures = TRUE, modindices = TRUE)
```

```
anova(dfa.sonuc, dfa.sonuc2.0)
```

```
install.packages("lavaanPlot")
```

```
library(lavaanPlot)
```

```
lavaanPlot(model = dfa.sonuc2.0, covs = TRUE, node_options = list(shape = "box", fontname = "Helvetica",  
fontcolor = "blue", color = "deeppink"), coefs = TRUE, stand = TRUE, sig = .05,
```

```
edge_options = list(color = "purple"))
```

```
reliability(dfa.sonuc2.0)
```

Appendix B

First Order CFA Results

	B	SH(B)	z	p	β	ε	AVE	Omega
SIS							.599	.857
i6	1.00				.815	.336		
i25	0.978	0.021	46.490	.000	.775	.400		
i27	1.099	0.023	48.535	.000	.865	.251		
i28	0.977	0.021	46.469	.000	0.663	.560		
AIL							.605	.858
i8	1.00				.724	.476		
i9	0.858	0.019	45.166	.000	.738	.456		
i10	1.012	0.021	48.357	.000	.852	.273		
i11	0.939	0.020	46.978	.000	.809	.345		
DUY							.650	.848
i1	1.00				.815	.336		
i2	1.039	0.021	48.658	.000	.792	.372		
i3	1.044	0.021	48.725	.000	.813	.339		
SOS							.581	.807
i14	1.00				.738	.455		
i16	0.949	0.019	49.993	.000	.791	.374		
i17	0.991	0.020	50.580	.000	.764	.417		
SIS~~AIL	0.586	0.013	44.831	.000	.856			
SIS~~DUY	0.517	0.012	41.811	.000	.688			
SIS~~SOS	0.539	0.013	42.597	.000	.646			
AIL~~DUY	0.529	0.013	41.718	.000	.672			
AIL~~SOS	0.559	0.013	42.774	.000	.641			
DUY~~SOS	0.601	0.014	43.059	.000	.627			

Note. B: Unstandardized factor loading, SH(B): Standard error of unstandardized factor loading, β: Standardized factor loading, ε: Standardized error (unique) variance, AVE: Average variance extracted and Omega: Internal consistency coefficient.