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Measuring immigration stress of first-generation female Korean immigrants in California: Psychometric evaluation of Demand of Immigration Scale

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Abstract

Objectives—Immigration involves challenges and distress, which affect health and well-being of immigrants. Koreans are a recent, fast growing, but understudied group of immigrants in the US, and no study has established or evaluated any immigration stress measure among this population. This study explores the psychometric properties of Korean-translated Demands of Immigration (DI) Scale among first-generation female Korean immigrants in California. Analyses included evaluation of factor structure, reliability, validity, and descriptive statistics of subscales.

Design—A surname driven sampling strategy was applied to randomly select a representative sample of adult female Korean immigrants in California. Telephone interviews were conducted by trained bilingual interviewers. Study sample included 555 first-generation female Korean immigrants who were interviewed in Korean language. The 22-item DI scale was used to assess immigration stress in the study sample.

Results—Exploratory Factor Analysis suggested six correlated factors existed in the DI scale: language barriers, sense of loss, not feeling at home, perceived discrimination, novelty, and

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occupation. Confirmatory Factor Analysis validated the factor structure. Language barriers accounted for the most variance of the DI Scale (29.11%). The DI scale demonstrated good internal consistency reliability and construct validity.

Conclusion—Evidence has been offered that the Korean-translated DI scale is a reliable and valid measurement tool to examine immigration stress among Korean immigrants. The Korean-translated DI scale has replicated factor structure obtained in other ethnicities, but addition of cultural-specific items is suggested for Korean immigrants. High levels of language and occupation related stress warrant attention from researchers, social workers and policy makers. Findings from this study will inform future interventions to alleviate stress due to demands of immigration.

Keywords

Immigration; immigrant; stress; distress; Korean; Demand of Immigration; Exploratory Factor Analysis; Confirmatory Factor Analysis

Introduction

International migration has increased dramatically during the last few decades (United Nations 2004). In 2005, about 3% of the world's and 20% of the US population were international migrants (United Nations 2009). The process of adaptation to the host culture, e.g., "acculturation," requires psychological, social, cultural, and emotional adjustment, which applies stress to the individual (Aroian et al. 1998; Dalla et al. 2008; Miller and Chandler 2002). This study evaluated psychometric properties of an existing measure for immigration stress (the Demands of Immigration Scale; Aroian et al. 1998) applied to a novel population: Korean immigrants in the United States.

Immigration, stress, and health

New immigrants face challenges and experience distress, such as loss of familiar environments and social networks (Tartakovsky 2007), demands for new skills, (e.g., a different language), loss of employment status, wages, and social class (Dean and Wilson 2009; Foner 2001; Kandel and Newman 2004), downward social mobility (Borjas 2006), "culture shock" (Oberg 1960), family conflicts, social isolation, and loneliness (Hofstetter et al. 2008).

Researchers have linked immigration to significant stressors in life and to negative health outcomes, such as depression and other mental illness (Ayers et al. 2009; Choi, Miller, & Wilbur, 2009; Mui and Kang 2006; Shin, Han, & Kim, 2007). The distress immigrants experience requires attention from researchers, policy makers, health providers, and social workers (Dalla et al. 2008). Successful interventions should be based on thorough understanding of the sources and domains of immigration stress (Aroian et al. 2007). Aroian and colleagues emphasized that immigration specific measures, instead of general stress measures, were needed to identify stressors unique to immigrants (Aroian et al. 1998).

Korean immigrants in United States

Koreans are a recent and fast-growing immigrant population in the United States. In 2005, there were more than 1.4 million Korean Americans (United States Census Bureau 2006), a 27-fold increase from 1970 (United States Department of Homeland Security 2008). Most Korean immigrants are first-generation, and most reside in California, New York, and New Jersey (United States Census Bureau 2006). Korean Americans usually retain strong ties to their home country, and maintain their traditional cultural values, such as Confucianism, gender role, collectivism (Hurh and Kim 1984; Hyun 2001). Depression is well documented

among Korean immigrants, especially women (Choi et al., 2009; Shin, 1993). An earlier study suggested a higher prevalence of depression among Korean American immigrants than other Asian ethnic groups in the US (Kuo, 1984). Possible explanations for high prevalence of depression and high levels of stress among Korean immigrants include shorter residence in the US, language difficulty, traditional cultural values, and "non-mainstream" lifestyles (Choi et al., 2009; Lim, Yi, & Zebrack, 2008). However, research on immigration stress has been limited in this specific population, and no measurement instrument has been evaluated.

Demands of Immigration Scale

The Demands of Immigration (DI) Scale is one of the most widely used measures for immigration-specific stress. It was developed using grounded theory methodology to explore stressful aspects of immigration among immigrants from former Soviet Union, Ireland, and Poland to the US (Aroian et al. 1998). The DI scale had six content domains: "Language" concerned immigrants' perceived barriers in communication due to accent and difficulty in speaking a new language; "loss" pertained to emotional attachment to people, places, and experience in home country, and a sense of loss after immigration; "not at home" referred to not feeling at home in the host country; "novelty" involved difficulties in dealing with new situations and in acquiring new skills in a new country; "discrimination" reflected the perception of not being treated equally as native-born people, and being an outsider in the host society; and "occupation" pertained to disadvantages in the job market. The DI scale was used among several ethnic groups. While the original factor structure was replicated among some immigrant groups, such as Arab immigrants, (Aroian et al. 2007), a different factor structure was found in Taiwanese-Chinese immigrants (Tsai 2002). To date, the DI scale has not been used among Korean immigrants, therefore the factor structure, reliability and validity need to be established with this population.

Having a reliable and valid measure of immigration stress is critical for accurate assessment of individuals' health-related risk factors. It facilitates population-level health surveillance, and development of intervention strategies for populations in need. Furthermore, testing the psychometric properties of a measure in specific populations establishes the generalizability of a measure across different populations. In the current study, the DI scale was translated into Korean, and used among first generation female Korean immigrants. This study tested the dimensionality (factor structure) of the DI scale, provided descriptive statistics for each subscale, correlations among subscales, and evaluated the internal consistency reliability and construct validity for each subscale of immigration stress.

Methods

Sample

About one-third of all Koreans in the US live in California, constituting a substantial population. Data for the analysis were drawn from a larger study of women's health issues in California (Smoking and ETS: California Residents of Korean Descent; Hofstetter, 2004-2011). A surname driven sampling strategy was used to represent adult females of Korean descent in California. The sample was randomly selected from all households in California listed in the telephone directory under a Korean surname. Individuals whose surnames are common among both Korean and other Asian nationalities (e.g. Cho, Lee, Ho) were kept in the sample if their first names were not identified as another non-Korean Asian nationality. Those with Anglicized first names were kept in the sample. In each household contacted, the female Korean adult (18 years or older) with the most recent birthday was selected as the person to be interviewed. Participants were screened to ensure that they were of Korean descent. Up to seven attempts were made to contact selected individuals.

Individuals were eligible if they were Korean, and spoke Korean or English. About 70% of the contacted eligible individuals completed interviews.

The original sample included 592 participants aged between 18 and 82 years (mean=46.0, SD=14.4). About 78.0% were married and 37.6% reported working outside the home. Most respondents (96.3%) were born in Korea, and 60.1% were US citizens. Time lived in the US ranged from less than 1 year to 50 years (mean=17.4, SD=10.1), and 47.4% of the participants had lived in US for less than 10 years. On average, participants had completed 12.7 years (SD= 4.8) of formal education in Korea, and 2.4 years (SD=4.4) in the US. For the purpose of psychometric evaluation of the Korean translated DI scale, final sample for data analysis included 555 participants meeting both criteria: 1) first-generation immigrants (born outside US), and 2) being interviewed in the Korean language.

Interview

Telephone interviews were conducted by professional bilingual interviewers in Korean or English depending on participant preference. Most of the respondents (94.9%) chose to be interviewed in Korean. Interviewers rated 98.5% of respondents as "having high/very high level of understanding" and 97.9% as being "cooperative/very cooperative." Within hours of completing an interview, a quality control manager reviewed interviews and corrected possible errors. All data were double entered into electronic files. San Diego State University Institutional Review Board provided ethical approval for the study.

Questionnaire

The questionnaire was first developed in English and translated into Korean by bilingual investigators. The translation process involved back-translation, use of focus groups, and broad consultation with co-investigators in Korea. The English Questionnaire was retranslated iteratively, and pilot tested with focus groups.

Measures

Immigration Stress—The DI scale included 22 items, tapping into different domains of stress related to immigration. Response options for a five-point scale ranged from agree strongly (5) to disagree strongly (1), and "neither" coded as a middle value (3). A greater value represented higher stress levels related to immigration. Two items "my work status was lower than what it used to be" and "the work credentials I had in my original countries are not accepted" were deleted due to a large percentage of missing data (52.5% and 41.0%, respectively), because many did not work outside the home or did not have work credentials.

Acculturation—Adapted from the Suinn-Lew Asian self-identity acculturation to US society (Suinn et al. 1995; Suinn et al. 1987), 11 items measured various aspects of cultural preferences, *e.g.*, language, friends/peers, music, self-identification. Items were modified for use in a telephone interview format. A composite acculturation score was created by computing an average of standardized item scores (z-score, mean=0, SD=1). Hofstetter and colleagues (2008) presented evidence for the validity and reliability of the scale among Korean immigrants in the US. In this study, the scale had a Cronbach's α of 0.756.

Depression—The Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977) has been validated among Korean immigrants (Noh, Kaspar, & Chen, 1998). The current study used the 10-item brief scale developed and validated by Cole and colleagues (Cole et al. 2004). Response values ranged from 0 to 25 (Cronbach's α=.750), with higher scores indicating higher levels of distress. A log transformation was used to constrain a right skew in the measure.

Data analyses

The sample was randomly assigned to two groups using random number generator: one group (n=278) for Exploratory Factor Analysis (EFA), the other group (n=277) for Confirmatory Factor Analysis (CFA). The initial EFA was warranted because this was the first time the measurement structure of the DI scale was tested in a Korean language sample. EFA provided a data-driven test of how well the original structure was replicated by the data without imposing a specific model on the data. In this respect, using EFA to test if the original factor structure emerges also served as a confirmatory test. CFA provided a second test of the measurement structure in an independent sample, tested overall model fit, and allowed for comparing the fit of plausible nested models.

The EFA was conducted using Principle Axis Factoring method followed by Oblimin rotation. Oblimin rotation was used because factors were expected to be correlated. Parallel analysis (PA) and the minimum average partial correlation (MAP) were used to determine the number of factors to be retained (Horn 1965; Velicer 1976; Zwick and Velicer 1986). Both methods were considered as optimal approaches to estimate the number of factors (O'Connor 2000).

CFA was conducted among the second sample with model specification based on the EFA results. Several fit indexes were used to test how well models fit the observed data. The Comparative Fit Index (CFI) (Bentler 1990) is bounded by zero and one, and values greater than 0.90 suggest acceptable model fit. For Root Mean Square Error of Approximation (RMSEA) (Steiger 1990), values less than 0.08 indicate moderate model fit. For the χ^2 / degree of freedom ratio, values less than two indicate good model fit (Marsh et al. 1988).

Based on results from EFA and CFA, scores were computed for each factor by summing items with loading greater than 0.40. Descriptive statistics were calculated, including mean, SD and inter-factor correlation coefficients. Internal consistencies were assessed using Cronbach's α. Construct validity was assessed by correlating each immigration stress subscale with theoretically related variables (*i.e.*, years lived in Korea, years lived in the US, years of education in Korea, years of education in US, acculturation, and depression). All analyses were conducted using SPSS version 15.0 (SPSS Inc. Chicago, IL) except for the CFA models, which were tested using EQS 6.1.

Results

Table 1 compares characteristics of the two samples, and demonstrates similarities in demographic and immigration related variables between EFA and CFA samples.

Exploratory factor analysis

Results from PA and MAP test suggested a six-factor solution. Six factors accounted for 68.4% of the total variance. One item ("I am always facing new situations and circumstances") was removed because its factor loading did not reach 0.40 on any factor. A subsequent EFA was conducted using the 19-item scale, and six factors accounted for 70.1% of the total variance. The descriptive statistics of each item, communalities, and the factor loadings are presented in Table 2. The "language" factor explained 29.1% of the total variance, followed by "loss," "not at home," "discrimination," "novelty," and "occupation," each of which explained from 11.6% to 5.5% of the variance.

Confirmatory factor analysis

Confirmatory factor analysis was conducted for the 19-item scale on the second sample. Five models were specified: 1) The null model assumed all items were independent, and it

served as the baseline model; 2) a one-factor model was selected to test how well a single underlying "immigration stress" factor accounted for correlations among the 19 items, 3) a six-uncorrelated-factors model specified six uncorrelated domains of immigration stress; 4) a six-correlated-factors model specified six correlated domains of immigration stress; and 5) a hierarchical factor model specified the same six factors, but with a second-order global immigration stress factor accounting for the correlations among the six factors. Models 3-5 were selected based on the factor structure found in EFA, with different specifications of inter-factor relationships.

Table 3 presents the fit indexes for the five CFA models. Based on the χ^2/df ratio, CFI and RMSEA, the six-correlated-factor model (Model 4) and the hierarchical model (Model 5) fit the data well. Statistically, these two models should provide similar fit indexes, but Model 5 was more parsimonious because it estimated fewer parameters.

Factor loadings for the CFA model were similar to those for the EFA model (Table 2). Loadings for the "loss" factor ranged from 0.66 to 0.76, for the "novelty" factor ranged from 0.43 to 0.90, for the "occupation" factor from 0.64 to 0.69, for the "language" factor from 0.84 to 0.89, for the "discrimination" factor from 0.66 to 0.78, and for the "not at home" factor from 0.71 to 0.95.

Scale scores and reliability

On average, respondents had the highest levels of immigration stress from "language," and the lowest levels of stress from "not feeling at home" (Table 4). Cronbach's α ranged from 0.640 to 0.921, suggesting that all subscales had acceptable to excellent internal consistency. The occupation subscale had relatively low α (0.640) mainly due to having only two items forming the scale. The correlation coefficient matrix for the subscales ranged from 0.184 to 0.686.

Construct validity

Positive associations were expected between immigration stress and the following variables: the number of years lived in Korea, years of formal education in Korea, and C-ESD score (Aroian et al. 1998). Negative associations were expected between immigration stress and the number of years lived in US, years of formal education in US, and acculturation level. As Table 5 show, six subscales were significantly associated with all variables in expected directions, except for "novelty" and years of education in Korea (r=0.080). The direction and magnitude of the correlations support construct validity of the measure.

Discussion

This study was the first to evaluate the psychometric properties of an immigration stress measure among Korean immigrants in the US. It sets the stage for developing interventions to reduce Korean immigrants' (and other immigrant groups') stress due to demands and difficulties in the immigration process, and to improve the well-being and quality of life of immigrants.

The original factor structure of the DI scale was supported in Korean language, with only minor adjustment. This suggested that the measure seems to be robust to ethnic or language differences. The replication of the general factor structure supported the generalizability of the DI scale in terms of the fidelity of application and interpretation in multi-cultural settings. The exploratory and confirmatory factor analyses, significant inter-factor correlations, and significant associations with validating variables in expected directions all supported the construct validity of the Korean-translated DI scale. High internal consistency suggested good internal consistency reliability of the subscales.

Similar to the original Russian-language version, the EFA identified six domains of immigration stress among first-generation Korean women living in California: Language barriers, sense of loss, not at home, discrimination, novelty, and occupation. In CFA, the correlated six-factor CFA model indicated that these stressors are intercorrelated, which is consistent with the findings from previous studies of the Russian and Arabic versions of the DI scale (Aroian et al. 2007; Aroian et al. 1998).

In this sample of Korean immigrants, the language factor explained about 30% of the total variance. The language subscale also had the highest mean score, which suggests that language was the most salient stressor for Korean immigrants. This finding is consistent with the literature that identified difficulties Korean immigrants experienced in acquiring English. Several explanations were provided. First, since the Korean language is the only official language in Korea, most Korean immigrants have fewer opportunities to speak English prior to immigration, compared to counterparts from countries where English is spoken as an official language (*e.g.* Philippines, India) (Min 2004). Second, the linguistic structure of the Korean language differs significantly from that of English, making it difficult for Korean speakers to learn English (Nah 1993). Third, Korean and some other traditional Asian cultures discourage speaking about feelings, ideas, and questions, which can lead to more reliance on nonverbal instead of verbal communication (Furuto et al. 1992;Nah 1993). For most immigrant populations, language barriers not only are a challenge in and of itself, they are also associated with other demands and difficulties in life (Dalla et al. 2008). In the current study, the “language” factor was significantly associated with all other factors, and especially with occupation and novelty. This implied that Korean immigrants who had language barriers were more disadvantaged in the US job market, and had more difficulties handling new situations after immigrating to the US.

Being adapted for female Korean immigrants, the “occupation” subscale required the most changes. The original subscale included five items. One item “I have fewer career opportunities than Americans” was deleted during the questionnaire development phase because Korean investigators and focus groups considered this item as being redundant with another item “I am disadvantaged in getting a good job.” Two items regarding current job and work credentials were not applicable to a large percentage of participants (those who were not employed outside the home, or did not have job credentials), and were therefore deleted. With only two items, the occupation factor explained less than 6% of the total variance. However, the two-item scale still demonstrated strong validity and moderate-to-high correlations with other factors.

To examine how deleting the two occupation-related items affected the overall findings, we conducted an additional CFA with 21 items in the subsample of employed women (n=207). We did not find discernable differences in overall factor structure, subscale mean, SD, or inter-factor correlation coefficients. Cronbach’s α was improved as expected, as a result of having additional items in the subscale. This suggested that the original four-item employment subscale could be used among Korean immigrants if a high proportion of the sample was employed outside the home.

Similar patterns of missing data on occupation-related items were documented by a study of Taiwanese-Chinese immigrants in the US (Tsai 2002). Aroian et al. (2008) also found that questions regarding job adjustment were not relevant to populations that were usually not employed outside the home, such as Arab Muslim women. Several questions regarding job status and career opportunities were also not relevant to immigrants who were self-employed (e.g. small business owners) (Aroian et al., 2008). Many Korean immigrants experience a “white-collar job to self-employment” career shift during immigration (Min 1984, 2004). One study found that in the United States, self-employed Korean immigrants

usually had better income than those who worked for an employer (Min 2004). Since the DI scale was originally developed among European immigrants, and most of them were employed in professional occupations (Aroian et al., 1998), the occupation subscale needs to be revised for other immigrant populations. Employment issues could be addressed more broadly (e.g. comparative job satisfaction) (Aroian et al., 2008), so that items are relevant to most employed individuals. For populations with a small pencentage employed outside the home, perceived employability should be assessed, instead of comparing previous and current job status.

Based on a series of statistical analyses, the DI scale demonstrated strong validity and reliability among female Korean immigrants. However, the measure can still be improved. The original DI scale was developed from qualitative studies of immigrants from Poland, Ireland, and the former Soviet Union. Although most immigration stress items apply to all immigrant groups, some specific contents may be different for Korean immigrants. For example, the “not at home” factor scored noticeably low in the current study sample, which implied that not feeling at home may not be a major contributor to immigration stress among the Korean immigrants. More importantly, some domains of immigration stress addressed in literature were not included in the DI scale, such as responses to changes in values, beliefs, and culture (i.e. “culture shock”) (Berry 1997; Kiefer et al. 1985), and family dynamics and conflicts (Hofstetter et al. 2008; Min 2001). Culture-specific items could be added to the existing measure to capture stressors that are believed to be unique to a particular group of immigrants.

To conclude, immigration stress is an important and pervasive risk factor that likely impacts the health and well-being of immigrants. The DI scale is a useful tool to identify domains of immigration demands and stressors to inform interventions. Based on a representative sample of first-generation female Korean immigrants in California, Korean translated DI scale has construct validity and internal consistency reliability. Language barriers stand as the most important domain of immigration stress, which emphasizes that language programs should be the core component of social and policy interventions for immigrants. Although the findings extend generalizability of the application of the DI scale, population-specific additions may further enhance its utility, such as occupation-related items. More research and interventions are warranted to understand and mitigate immigration stress among Korean immigrants, one of the largest, fast growing, yet understudied immigrant populations in the US.

Key Message

1. The study is the first to evaluate psychometric properties of immigration stress measure among female Korean immigrants. It sets the stage for future research and interventions among Korean Immigrants.
2. The Korean-translated Demand of Immigration scale demonstrated good reliability, validity, and similar factor structure as it was used for other migrant groups.
3. Immigration stress involves six correlated domains: language barriers, loss, not at home, discrimination, novelty, and occupation. Language is the most important domain and it is closely related to other domains of immigration stress.

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Table 1

Comparison of demographic characteristics between two samples

	Exploratory Factor Analysis sample (n=278)		Confirmatory Factor Analysis Sample (n=277)	
	Mean	SD	Mean	SD
Age (years)	48.05	14.70	46.43	13.20
Years lived in US	17.22	10.06	16.83	9.82
Years lived in Korea	30.37	12.15	29.45	12.05
Years of formal education in US	1.55	3.24	1.79	3.28
Years of formal education in Korea	13.41	3.91	13.34	3.89
	n	%	n	%
Married	219	78.8	229	82.7
US citizen	159	57.2	160	57.8
Currently Employed outside the home	97	34.9	110	39.7

Table 2

Item descriptive statistics and Oblimin rotated pattern factor loadings from Exploratory Factor Analysis (n=278)

			Factors						
Items	**Mean**	**SD**	**Lang-uage**	**Loss**	**Not at home**	**Discrim-ination**	**Novelty**	**Occup-ation**	**h^2**
I miss the people I left behind in my original country.	3.37	1.51	−0.13	**0.66**	0.00	−0.05	0.12	0.05	0.43
When I think of my past life, I feel emotional and sentimental.	2.88	1.49	−0.08	**0.73**	0.00	0.02	0.04	0.00	0.44
When I think of my original country, I get teary.	1.99	1.26	0.14	**0.67**	0.03	−0.03	−0.02	−0.03	0.47
I feel sad when I think of special places back home.	2.12	1.34	0.16	**0.67**	0.01	0.10	−0.15	0.00	0.49
I need advice from people who are more experienced than I to know how to live here.	2.53	1.50	0.02	0.08	0.14	0.03	**0.55**	0.01	0.36
I must learn how certain tasks are handled, such as renting an apartment.	2.06	1.35	0.05	−0.03	−0.08	0.07	**0.81**	−0.02	0.44
I have to depend on other people to show or teach me how things are done.	2.17	1.38	0.21	0.02	0.06	0.01	**0.47**	0.14	0.42
I am disadvantaged in getting a good job.	2.83	1.59	0.02	0.04	−0.02	0.01	−0.02	**0.74**	0.32
I cannot compete with Americans for work in my fields.	2.63	1.56	0.04	−0.05	0.02	0.03	0.04	**0.60**	0.31
Americans have a hard time understanding my accent.	3.12	1.55	**0.75**	0.04	0.05	0.05	0.08	0.06	0.72
I have difficulty doing ordinary things because of a language barrier.	2.79	1.55	**0.81**	0.02	−0.02	−0.01	0.11	0.12	0.73
Talking in English takes a lot of effort.	2.81	1.55	**0.87**	0.01	0.03	0.01	0.03	0.02	0.73
As an immigrant, I am treated as a second-class citizen.	2.61	1.39	0.16	0.00	0.02	**0.61**	−0.08	0.00	0.39
Americans don't think I really belong in their country.	2.24	1.29	−0.01	−0.01	−0.02	**0.74**	0.13	−0.03	0.49
Americans treat me as an outsider.	2.30	1.30	−0.10	0.02	−0.02	**0.85**	0.05	−0.01	0.53
People with foreign accents are	2.81	1.42	−0.03	0.00	0.10	**0.52**	−0.03	0.12	0.32

Items	Mean	SD	Factors						h^2
			Lang-uage	Loss	Not at home	Discrim-ination	Novelty	Occup-ation	
treated with less respect.									
I do not feel at home.	1.76	1.21	0.04	0.00	**0.64**	0.07	−0.01	0.03	0.44
Even though I live here, it does not feel like my country.	2.16	1.53	−0.10	0.07	**0.80**	−0.05	−0.01	0.11	0.58
I do not feel that this is my true home.	1.78	1.30	0.07	−0.05	**0.87**	0.03	0.05	−0.12	0.60
Percentage total variance explained (%)			29.1	11.6	10.2	7.1	6.8	5.5	70.1

Note: h^2Communality: percent of variance in each given variable explained by the six factors.

Table 3

Fit statistics for comparing nested confirmatory factor analysis models (n=277)

Model	χ^2	df	χ^2/df	CFI	RMSEA
1) Null	2615.50	171	15.30	----	0.228
2) One factor	1392.14	152	9.16	0.493	0.172
3) Six factors, uncorrelated	545.81	152	3.59	0.839	0.097
4) Six factors, correlated	243.06	137	1.77	0.957	0.053
5) Hierarchical factor	243.04	131	1.86	0.954	0.056

Table 4

Subscale descriptive statistics, internal consistency, and correlations among the six subscales (n=555)

	# of items	Mean	SD	α	Correlations				
					2	3	4	5	6
1.Language	3	2.99	1.42	0.921	0.265	0.305	0.414	0.348	0.686
2.Loss	4	2.70	1.11	0.789	------	0.314	0.229	0.184	0.213
3.Not at home	3	1.89	1.15	0.829		------	0.324	0.363	0.322
4.Novelty	3	2.28	0.99	0.744			------	0.295	0.376
5.Discrimination	4	2.56	1.10	0.817				------	0.314
6.Occupation	2	2.93	0.97	0.640					------

Note: α =Cronbach's alpha; all correlations were significant at the level of p<0.001.

Table 5

Correlation between six immigration stress subscales with other related variables (n=555)

	Years lived in Korea	Years lived in US	Years of education in Korea	Years of education in US	Acculturation	CES-D
Language	0.545***	−0.265***	0.245***	−0.518***	−0.534***	0.154**
Loss	0.240***	−0.144**	0.172***	−0.276***	−0.255***	0.169***
Not at home	0.203***	−0.296***	0.131**	−0.194***	−0.214***	0.141**
Novelty	0.291***	−0.315**	0.080	−0.254***	−0.261***	0.117*
Discrimination	0.184***	−0.093*	0.136**	−0.204***	−0.218***	0.125**
Occupation	0.390**	−0.191***	0.144**	−0.441***	−0.405***	0.192***

* Note: p<0.05

** p<0.01

*** p<0.001