J Immigrant Minority Health (2009) 11:13–19
DOI 10.1007/s10903-007-9080-8

ORIGINAL PAPER

Acculturation and Depressive Symptoms in Korean Immigrant Women

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Published online: 9 October 2007

Abstract Depression is one of the most prevalent health problems for immigrants in the United States (U.S.) and it has been associated with the process of acculturation. A cross-sectional study was conducted to identify subgroups of Korean immigrant women based on their Korean as well as American acculturation levels using cluster analysis and to determine whether these subgroups differ on depressive symptoms in 200 Korean immigrant women aged 20–64. Cluster analysis identified four as the most appropriate number of subgroups: they were designated as Korean cluster (45%), Marginalized cluster (26%), American cluster (22%), and Bicultural cluster (7%). Korean cluster had high scores on Korean acculturation and low American acculturation, Marginalized had low for both, American had high scores on American acculturation, low for Korean acculturation, and Bicultural had high scores for both. Women in the Marginalized subgroup reported significantly higher depression scores than women in the American and Korean clusters. It is important to identify immigrants who do not relate to either their heritage culture or the new host culture and address their mental health risk issues.

Keywords Acculturation · Cluster analysis · Depression · Korean immigrant women

Introduction

Depression is one of the most prevalent health problems for immigrants in the United States (U.S.) and it has been associated with the process of acculturation [1]. Acculturation is a dynamic cognitive and emotional process of adopting or maintaining attitudes, values, or behaviors that reflect heritage and host culture [2]. The acculturation process is a source of stress with implications for mental health when immigrants experience hardships or conflicts in adapting to new language, customs, and social norms.

Earlier studies have reported a high incidence of depression in recently arrived Korean immigrants. In a study of Asian Americans, for example, Kuo [3] revealed that Korean immigrants had higher depression scores than Chinese, Japanese, and Filipino Americans. Kuo attributed Korean immigrants' relatively high depression scores to several factors including a shorter length of residence in the U.S., higher rates of underemployment, and limited ability in English. The average scores of the Center for Epidemiologic Studies Depression Scale (CES-D) were 9.2, 8.2, and 7.9 in several normative samples of the U.S. general population [4]. In comparison, the average score on the CES-D was 11.10 in a nationwide sample of Korean adult women living in Korea [5], and the average score for Korean immigrant women living in the U.S. is above 16, which is the recommended cut-off for possible clinical depression [6, 7].

This paper is based on the first author's dissertation research at the University of Illinois at Chicago. A part of this paper was presented at the Annual Conference of Western Institute of Nursing, Portland, Oregon, April 2007. We thank Prof. Kathryn Lee for comments on earlier draft of this paper.

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A few studies have been conducted to explain high depressive symptom scores in Korean immigrants with perceived acculturative stress or every day stress, but they did not give much attention to basic questions such as how Korean immigrants live within and between two cultures (patterns of acculturation) or the relationship between patterns of acculturation and depressive symptoms. The purpose of this study was to: (1) identify patterns of acculturation in Korean immigrant women and (2) determine whether these subgroups differ on depressive symptoms.

Background

Although immigrant status is a mental health risk factor due to post-immigration stress or absence of strong social networks, there are individual differences in how people deal with acculturative change and, as a result, people's acculturation experience may vary. Berry [8] viewed acculturation as a multidimensional process by which people change attitudes, beliefs, and behaviors. He suggested four acculturation patterns based on a relative preference for maintaining one's heritage culture and obtaining one's host culture. These four patterns are assimilation, integration, separation, and marginalization. When individuals do not wish to maintain their cultural identity and try to interact with their host culture, they are using an assimilation pattern. In contrast, when individuals maintain their heritage and at the same time wish to interact with the host culture, they are using an integration pattern. When immigrants only have an interest in retaining their cultural identity, and do not wish to interact with their host culture, a separation pattern is being used. Finally, marginalization is a pattern that individuals use when they do not wish to maintain their cultural identity and at the same time do not wish to interact with their host culture. This marginalization strategy is a way of dealing with their acculturative situation, but it can also result from failed attempts at participating in the host culture. Those who are marginalized in both their heritage culture and host culture may experience feelings of alienation, loss of identity, and acculturative stress.

When individuals' psychological adjustment, including depressive symptoms, is examined in relation to acculturation strategies, a consistent pattern emerges. Marginalized individuals tend to report the lowest levels of adjustment while integrated individuals often show fewer psychological problems [9, 10].

Empirical research generally supports the utility of Berry's model or other orthogonal two-dimensional models, in which an individual's heritage cultural orientation is independent of one's orientation towards the host culture. In addition, research has found that multiple domains (e.g., attitudes, ethnic identity, language usage, values) of an individual's cultural orientation exist and external domains (e.g., behavioral aspects such as language usage) may change more rapidly following immigration than internal domains (e.g., psychological aspects such as values) [11, 12]. In addition, Miller et al. [13] found that multiple components of acculturation (e.g., behavior, language proficiency) changed over time at varying rates and recommended that they should be measured separately. Thus, it is important to find meaningful subgroups according to their acculturation patterns based on their responses on multiple domains of heritage cultural orientation as well as host cultural orientation.

Berry's acculturation patterns questionnaire [14] and other investigators' acculturation instruments that use a cut-off score such as the mid-point or the mean [15] are the most commonly used methods to identify acculturation patterns. Cluster analysis, however, has recently been suggested as an optimal option [9]. Briefly, Berry's instrument includes four subscales representing each of the four strategies of integration, assimilation, separation, and marginalization. It has been critiqued on conceptual and methodological grounds. For example, some of items used affect-laden or negative mood words, such as "worry", or "bothered by", which tend to tap into neuroticism or distress [16]. The cut-off score approach has also been critiqued because it ignores the fact that ethnic minorities may show varying degrees of cultural orientation toward heritage and host culture, and it may fail to demonstrate the complexity of individual's cultural orientations with an all-or-nothing method of categorization [9, 17]. In contrast, cluster analysis facilitates the identification of acculturation groups by considering multiple domains of acculturation (e.g., use of language, behavioral practices, and value) simultaneously and "these domains are treated as continuous rather than categorical in order to explore the degree to which individuals in each cluster identify with the heritage and host cultures" [9]. Therefore, cluster analysis allows us to examine patterns of cultural orientations by grouping individuals who have responded to items in similar ways across a variety of variables that include multiple dimensions of acculturation.

Methods

Design

A cross-sectional descriptive survey design was used in this study. This study was approved by the Institutional Review Board of a major Midwestern university. This study is part of a larger study of correlates of physical activity in Korean immigrant women.

Sample and Setting

The sample included 200 Korean immigrant women residing in two metropolitan areas in a Midwestern state. Inclusion criteria were Korean women who (1) were aged 18–64; (2) were born in Korea; (3) immigrated to the U.S. from Korea; and (4) were able to speak, read, and write Korean. Korean church-based recruitment utilized key informants, including religious leaders and lay church leaders, to access this population. Personal announcements were made at Sunday services by the pastors or small group gatherings in six churches. Pastors introduced the study briefly and then the researcher was available after church service or during small group gatherings to provide additional details, such as the purpose of the study, characteristics of the survey questions, and compensation. Most of the time, lay church leaders bridged between pastors and the researcher to make the announcements possible. Fliers including the topic of the research and the researcher's name and phone number were also placed in local Korean commercial establishments, and distributed at a meeting for Korean community workers and a Korean community gathering. Two hundred twenty-one women responded to the recruitment strategies. Ten women refused to participate primarily due to lack of time and 11 women were designated ineligible due to not fitting into the immigrant status criterion or age criterion.

Procedures

At first contact, a brief explanation of the study was given to Korean immigrant women in person, either in groups or individually, or over the telephone. The researcher screened all interested women for age and immigrant status criteria. For those women meeting the inclusion criteria, an appointment was made for them to meet with the researcher at a time and location that was mutually convenient.

The data collection was conducted from November, 2003 until April, 2004. After an informed consent form was obtained, the 30-min survey questionnaire was administered. After completing the survey questionnaire, respondents received $5 cash and a free copy of a calendar book titled, "The 2004 Women's Health Daybook: Women's Steps to a healthier US: Wellness Starts with You!" published by U.S. Department of Health and Human Services.

Measures

The survey questionnaire was translated using a modified committee method [18]. After the individual translations were made by two bilingual translators, a committee including these translators and the researcher, who are also bilingual, discussed discrepancies and agreed upon an integrated version of the translation. In addition, a group of three participants who met the study criteria reviewed the questionnaire to check the appropriateness of the translations and resolved remaining discrepancies in translations.

Acculturation

Heritage culture orientation and host culture orientation were measured independently with the Vancouver Index of Acculturation (VIA), a 20-item, self-report acculturation measure. The responses are from 1 (strongly disagree) to 9 (strongly agree). The VIA consists of two subscales that separately assess the degree to which an individual acculturates to the heritage culture and the host culture. Examples of items are "I often participate in my heritage cultural traditions," and "I often participate in mainstream North American cultural traditions." As recommended by the instrument developers, wordings were changed to fit to the Korean immigrant women population: heritage culture to Korean, and North American to American. Validity was supported by significant correlations of both the Heritage and Mainstream subscales with several concurrent validity indicators, such as percentage of time lived in a Western, English-speaking country; percentage of time educated in a Western, English-speaking country; generational status; and mean score of other acculturation measures [2]. Internal consistency coefficients were 0.91 and 0.92 for the 10-item Heritage subscale and 0.89 and 0.85 for the 10-item Mainstream subscale in the Chinese and the East Asian samples, respectively [2]. In the present study, internal consistency coefficients (Cronbach alphas) were 0.79 for the 10-item Korean culture subscale and 0.83 for the American culture subscale, respectively.

In order to explore the language domain of acculturation in depth, language-related items from the Acculturation Rating Scale for Mexican Americans-II (ARSMA-II) were asked [19]. The 30-item ARSMA-II originally measured three domains of acculturation: language, ethnic identity, and ethnic interaction, and has been widely used as a model for research on Hispanics as well as other ethnic groups, including Asians. The responses are from 1 (not at all) to 5 (almost always). Among 15 items related to language domain, only seven items that are not redundant with the language-related items of the other acculturation measure (the VIA) were added. Wording of these items was changed from "Spanish" to "Korean." In the present study, the internal consistency coefficient was 0.77 for the Korean language subscale and 0.84 for the English language subscale. In addition, age at immigration was asked and years

of residence in the U.S. were calculated by subtracting age at the time of immigration from current age.

Depressive Symptoms

Depressive symptoms of Korean immigrant women were assessed with the Korean version of the Center for Epidemiologic Studies-Depression Scale (CES-D). This 20-item instrument assesses current levels of depressive symptomatology in Korean immigrant women. The CES-D consists of 20 symptoms representing four symptom clusters: depressed affect, positive affect, interpersonal problems, and somatic and retarded activity [4]. The internal consistency coefficients of the Korean version of the CES-D were 0.89 for the earlier study [20] and 0.87 in the present study.

Data Analysis

Data were analyzed using Stata® Version 9.2 and SPSS® Version 13.0. One hundred seventy-eight women who provided complete data on 20 items of the VIA and seven items of the ARSMA-II were entered into the cluster analysis. To determine the number of acculturation subgroups, an agglomerative, hierarchical cluster analysis was performed with squared Euclidean distances used in the proximities matrix and weighted average linkage used as the clustering method [21]. The Calinski and Harabasz pseudo-F stopping rule index and the Duda and Hart Je(2)/Je(1) index were used jointly to select the number of clusters for the analysis [22]. A large Calinski and Harabaz pseudo-F statistic, combined with two measures from Duda and Hart (i.e., a large Je(2)/Je(1) index and its associated small pseudo-T^2 value), identified four as the most appropriate number of clusters for the data [21, 22].

Due to a relatively small number of participants for one cluster, non-parametric statistics such as Kruskal–Wallis tests and χ^2-tests were used to determine whether significant differences existed among the four clusters by demographic characteristics and depressive symptoms. Differences among the four clusters were considered statistically significant at the $P < 0.05$ level. Post hoc contrasts were done using the Mann–Whitney U-tests.

Results

The mean age of the sample was 41 years old (SD = 11.22), and the majority were college educated (85.5%), and were married (82.6%). The score for Korean acculturation (M = 6.29, SD = 1.17) was higher than for American acculturation (M = 4.80, SD = 1.31). The score for Korean language usage (M = 4.42, SD = 0.66) was slightly higher than for English language usage (M = 3.14, SD = 1.07). The mean number of years since immigration to the U.S. was 16 years, with 69.5% living in the U.S. more than 10 years.

Cluster analysis was used to identify patterns of acculturation with 20 items from the VIA and seven items from the ARSMA-II. A four-cluster solution was obtained: a Korean cluster (including 45% of the sample), a Marginalized cluster (26%), an American cluster (22%), and a Bicultural cluster (7%). Table 1 provides the means and standard deviations of Korean acculturation, American acculturation, Korean language usage, and English language usage for the subgroups. All Korean immigrant women for whom we had complete data (N = 178) fit into one of the four clusters. The Korean cluster had the largest number of women. It consisted of 80 women who showed a clear orientation toward Korean culture with high Korean language usage. Overall their responses on the VIA-Korean were the second highest following women in the Bicultural cluster while their responses on the VIA-American were comparable to those in the marginalized cluster. Their responses on the use of Korean language were comparable to those in the Bicultural cluster while their responses on the use of English language were comparable to those in the Marginalized cluster. These women represent people who are largely embedded within Korean culture and show little involvement with the American culture.

The Marginalized cluster included 46 women who showed a lack of retention of Korean culture as well as a weak orientation toward the American society in which they were living. Their scores were among the lowest across all clusters except Korean language usage. The American cluster consisted of 40 women who indicated relatively higher involvement in American than Korean cultures. Their responses on the VIA-Korean were comparable to those in the Marginalized cluster. They reported the second highest mean of English language usage after that of the Bicultural cluster and the lowest mean of Korean language usage. The Bicultural cluster included 12 women who indicated relatively high involvement in both Korean and American cultures. These women also reported high usage of Korean as well as English languages.

Subgroup Differences in Demographic Characteristics

The clusters were analyzed for differences in relation to demographic characteristics (Table 2). No differences were found among the subgroups in any of the

Table 1 Means and standard deviations for cluster differences on the four cultural orientation factors

	Cluster 1 Korean (n = 80)		Cluster 2 Marginalized (n = 46)		Cluster 3 American (n = 40)		Cluster 4 Bicultural (n = 12)		Cluster differences
	M	SD	M	SD	M	SD	M	SD	
Korean acculturation	7.10	0.61	5.27	0.79	5.41	0.76	7.67	0.80	2, 3 < 1 < 4 (1 > 2, 1 > 3, 1 < 4, 2 < 4, 3 < 4)
American acculturation	4.26	1.13	4.21	0.85	5.99	0.78	6.75	0.77	1, 2 < 3 < 4 (1 < 3, 1 < 4, 2 < 3, 2 < 4, 3 < 4)
Korean language usage	4.66	0.50	4.34	0.65	3.96	0.71	4.60	0.67	3 < 4, and 3 < 2 < 1 (1 > 2, 1 > 3, 2 > 3, 3 < 4)
English language usage	2.83	0.97	2.70	0.87	3.88	0.89	4.44	0.59	1, 2 < 3 < 4 (1 < 3, 1 < 4, 2 < 3, 2 < 4, 3 < 4)

Table 2 Differences in acculturation patterns by demographic characteristics and proxy measures of acculturation

Characteristics	Korean (n = 80)		Marginalized (n = 46)		American (n = 40)		Bicultural (n = 12)		Statistical significance and post hoc contrasts
	M	SD	M	SD	M	SD	M	SD	
Age (years)	39.5	11.5	43.3	10.2	40.2	10.0	39.5	16.1	χ^2 = 3.6; P = 0.308
Education	4.8	.91	4.5	1.0	5.1	1.0	4.8	1.1	χ^2 = 6.9; P = 0.075
Annual household income	6.2	1.9	6.3	1.8	6.5	1.8	6.8	1.3	χ^2 = 1.1; P = 0.787
Age at the time of immigration	25	8.9	27.9	9.0	22.2	8.0	20.5	7.6	χ^2 = 11.1; P = 0.011; M > A, P = 0.006 and M > B, P = 0.009
Years of stay in the U.S.	14.4	8.5	15.4	9.3	18.0	9.3	19.0	9.2	χ^2 = 5.7; P = 0.129
	n	%	n	%	n	%	n	%	
Married	65	81.3	42	91.3	34	85	6	50	χ^2 = 11.55; P = 0.009; M > B, P = 0.003 and A > B, P = 0.02
Employed[a]	48	60	29	63	25	62.5	10	83.3	χ^2 = 2.44; P = 0.486

[a] Full-time, part-time or self-employed

K: Korean, M: Marginalized, A: American, B: Bicultural

Table 3 Differences in acculturation patterns by depressive symptoms

Variable	Korean[a] (n = 75)		Marginalized[b] (n = 43)		American (n = 40)		Bicultural (n = 12)		Statistical significance and post hoc contrasts
	M	SD	M	SD	M	SD	M	SD	
CES-D	10.7	7.5	14.2	8.6	8.7	7.6	11.6	7.9	χ^2 (3, N = 178) = 12.248; P = 0.007; M > A, P = 0.001; M > K, P = 0.019

[a] Five missing data

[b] Three missing data

K: Korean, M: Marginalized, A: American, B: Bicultural

demographic characteristics except marital status (P = 0.009) and age at the time of immigration (P = 0.011). A significantly smaller percentage of women in the Bicultural subgroup were married compared to women in the Marginalized and American subgroups. Women in the Marginalized subgroup were older than those who were in the American and in the Bicultural clusters when they immigrated to the U.S.

Subgroup Differences in Depressive Symptoms

Table 3 presents the mean CES-D scores for the subgroups. There were significant differences among four subgroups in means of CES-D scores (P = 0.007). Women in the Marginalized subgroup reported higher depression scores than women in the American subgroup and the Korean subgroup.

Discussion

The primary purpose of this study was to identify patterns of acculturation that Korean immigrant women may have. The cluster analyses findings indicate that four distinctive subgroups exist in this sample as hypothesized in Berry's model [8]. The Korean subgroup is similar to Berry's "separation" strategy that is characterized by a strong heritage cultural orientation and a weak host cultural orientation. The Marginalized subgroup is similar to Berry's "marginalization" strategy that is characterized by low levels of both heritage and host cultural orientation. Individuals in the American subgroup were characterized by a weak heritage cultural orientation and a strong host cultural orientation and this cluster is similar to Berry's "assimilation" strategy. Finally, the individuals in the Bicultural subgroup were predominantly characterized by high levels of both heritage and host cultural orientation and this cluster is similar to Berry's "integration" strategy. Expected differences among the four acculturation subgroups in terms of participants' demographic backgrounds (e.g., length of residence in the U.S., age at immigration) supported the validity of the cluster solution.

The study findings indicate that Korean immigrant women who were less acculturated to Korean culture as well as American culture report many symptoms of depressed mood. This corroborates similar high levels of depressive symptomatology reported in marginalized adolescents from other ethnic groups [23]. Miller et al. [1] investigated the relationships among acculturation, social alienation, and depressed mood in 226 midlife women from the Former Soviet Union and found that those who were highly acculturated to the American culture had lower scores for social alienation and lower personal and family stress, both of which had direct associations to symptoms of depression. Korean immigrant women who were in the Marginalized subgroup may have experienced higher social alienation and higher personal and family stress, which manifested in higher levels of depressive symptoms. It is important to identify those who do not belong to both their heritage culture and new host culture and address their mental health risk issues.

Age at the time of immigration was significantly different across the four acculturation patterns. In particular, those who were marginalized were older when they immigrated to the U.S. Older immigrants have been found to have more difficulty adjusting to their new host culture and report higher depressive symptoms [1]. Older immigrants may have great difficulty learning a new language and finding jobs equivalent to those they held before immigration. However, unique migration contexts such as personal coping resources or personal stress or family relationship should be assessed in future study to understand how some people become marginalized while others become acculturated to the host culture or retain their heritage culture.

Cluster analysis is an exploratory statistical procedure and the formation of subgroups is dependent on the sample. Therefore, the names of the subgroups and their characteristics may not be generalizable to other Korean immigrant women populations. Inclusion of Korean Americans born and raised in the U.S. is warranted to examine the influence of acculturation, especially biculturalism, on mental health status. Because our sample consists of exclusively Korean immigrants who were born in Korea, the number of women in the Bicultural cluster was relatively small.

In conclusion, the findings of this study highlight the various types of acculturation pattern that exist and their associations with depressive symptoms in Korean immigrant women. Especially, being marginalized from one's host culture as well as one's heritage culture was associated with risk for depressive symptoms. Any efforts, either retaining the heritage culture or obtaining the host culture seems to be imperative for mental health of Korean immigrant women. These findings may also help health care providers detect those who are at risk of depression and develop interventions for Korean immigrant women's mental health.

Acknowledgements

Sigma Theta Tau Research Award (Alpha Lambda Chapter). The authors thank Dr. Bruce Cooper for statistical consultation. Manuscript preparation supported by Nursing Research Training Program in Symptom Management, Grant #T32 NR07088, National Institute of Nursing Research/National Institutes of Health.

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