Predictors of Health-Promoting Lifestyles

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ABSTRACT----

Objective: The purpose of this study was to identify the predictors of health-promoting lifestyles among Korean immigrants through comparison with native Koreans.

Design: A comparative correlational design

Setting: Community-based settings in the U.S. and S. Korea

Participants: 105 Korean immigrants and 87 native Koreans

Measures: Self-report questionnaires included the Personal Lifestyle Questionnaire, Brief Self-Control Scale, Family Assessment Device-General Functioning, and the Social Resourcefulness Scale.

Analysis: Chi-square tests, independent t-tests, bivariate Pearson correlations, and hierarchical multiple regression analyses were applied.

Results: Self-control, family functioning, and social resourcefulness between Korean immigrants and native Koreans did not differ. However, the mean score of health-promoting lifestyles for Korean immigrants was higher than that for native Koreans, especially in health promotion, nutrition, and safety subscales. In both participant groups, health-promoting lifestyles were significantly associated with self-control, family functioning, and social resourcefulness.

From the hierarchical multiple regression, family functioning and social resourcefulness were the main predictors of Korean immigrants' health-promoting lifestyles, and self-control and social resourcefulness were the main predictors of native Koreans' health-promoting lifestyles.

Conclusions: Social resourcefulness was the most common significant influencing predictor on health-promoting lifestyles in Koreans. Thus, strategies to provide better and more effective social resourcefulness to Korean immigrants should be a central part in plans of intervention among U.S. Koreans.

Keywords--- Health-promoting lifestyles, Self-control, Family functioning, Social Resourcefulness
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1. INTRODUCTION

The vision of Healthy People 2020 is "a society in which all people live long, healthy lives."[1] Health-promoting lifestyles are important in preventing or controlling morbidity and mortality [2]. Moreover, they may reduce medical costs and increase a person's quality of life. In order to achieve healthy lives, interventions for improving health-promoting lifestyles are needed by multidisciplinary health care providers because improving health-promoting lifestyles is considered an important task of health professionals [3].

Also, one of the overarching goals of Healthy People 2020 is to "achieve health equity, eliminate disparities, and improve the health of all groups." [1] Immigrants are one of the most vulnerable populations in health and they need special interests from healthcare professionals. They easily may encounter many health issues and have experienced stress from unfamiliar medical environments [4]. However, immigrants are ignored often or not easily included in the studies regarding preventing or controlling interventions [5]. To develop intervention strategies, examination regarding factors, impacted on health-promoting lifestyles, should be a priority. This study should try to provide a first step to develop interventions regarding improving health-promoting lifestyles among immigrants.

Among various U.S. immigrant groups, Korean immigrants are one of the fastest growing groups, and this population has relatively poor health practices [6, 7]. Also, a lack of medical insurance and difficulty in accessing health care aggravate the health of Korean immigrants as well as linguistic and cultural barriers, hence this group becomes distant from integrating into mainstream society [8, 9]. Thus, in order to investigate factors that influence the health and lifestyles of Korean immigrants, it is important to examine their health-promoting lifestyles and their relating factors to improve integrating in the U.S.

An immigrant's sense of self is important in adjusting and achieving an optimal fit into a new environment [10]. Immigration is not only simply an individual but also a family issue. Family members communicating, relating, keeping relationships, making decisions, and solving problems impact lifestyles and health choices [11]. Also, in a new situation, maintaining supportive relationships with others and receiving help from others are important for an individual's well-being and coping with immigration stress [12, 13]. Thus, this study examined three factors as predictors of health-promoting lifestyles among Koreans: self-control, family functioning, and social resourcefulness, which may facilitate or inhibit the health and health-promoting behaviors of immigrants.

The purpose of this study was to identify the predictors among self-control, family functioning, and social resourcefulness for health-promoting lifestyles among Korean immigrants through comparison with native Koreans. The findings of this study will provide basic information to understand determinants of health-promoting lifestyles among Korean immigrants and to develop interventions or strategies for Koreans in different situations.

2. METHODS

A comparative correlational design was used for 105 Korean immigrants in the U.S. and 87 native Koreans in S. Korea. From community-based settings in the U.S. and Korea, Korean immigrants 18 years and over were included and native Koreans were included to match age and gender to Korean immigrants with a non-probability convenience sampling strategy. The studies were approved through a university's institutional review board. Signed informed consent was obtained from each participant prior to participation in the study.

Study Measures

The Personal Lifestyle Questionnaire was designed to measure health-promoting behaviors, which generate optimal well-being and recognize potential health issues [14]. Higher scores indicate better positive health behaviors. Table 1 shows the results about Cronbach's alpha coefficients of the Personal Lifestyle Questionnaire and its subscales for this data. The overall Personal Lifestyle Questionnaire showed a high reliability in both Korean immigrants and native Koreans; values ranged from .79 to .81. The reliabilities of all of the subscales were ranged from .42 to .79.

The Brief Self-Control Scale was developed to assess a person's self-control based on a general self-control scale [10]. Higher total scores indicate greater self-control. Family functioning, defined as the ability to maintain and improve family function as one family member [15], was measured by the Family Assessment Device-General Functioning (FAD-GF) [11]. The FAD-GF was developed to assess overall family health. Lower scores indicate higher healthy family adjustment. Social resourcefulness is theoretically defined as the individual's behaviors to communicate help-seeking intentions to others [12]. Higher scores indicate a greater level of social resourcefulness.

The demographic questionnaire measures the characteristics of age, gender, employment status, marital status, educational level, family income, and perceived health status.

Data Analysis

Data analysis was performed by the SPSS 21.0 using descriptive and bivariate Pearson correlation statistics. In order to compare the differences in socio-demographic factors and other variables between Koreans in the U.S. and in S. Korea, Chi-square tests and independent t-tests were applied. Hierarchical multiple regression analyses for identifying significant predictors of health-promoting lifestyles were employed. To identify predictors of health-promoting lifestyles among Korean Americans and native Koreans, self-control was placed in the first block, family functioning was placed in the second block, and social resourcefulness was placed in the last block.

3. RESULTS

Among a total of 192 participants, 105 Koreans in the U.S. and 87 Koreans in Korea were included. The mean age of 105 Korean immigrants was 46.8 (*Median* = 47, *SD* = 12.5) and ranged from 19 to 81 years and the mean age of 87 native Koreans was 46.2 (*Median* = 46, *SD* = 12.7) and ranged from 18 to 79 years. Females (64.8% and 66.7%, U.S. and Korea, respectively) participated in this study more than males in both groups.

Table 2 shows the results about comparing demographic characteristics between Korean immigrants and native Koreans. Chi-square tests of this distribution did not indicate significant differences in employment status, marital status, education level, family income, or perceived health status (*ps > .05*).

Table 3 shows the results of independent t-tests for comparing differences in self-control, family functioning, social resourcefulness, and health-promoting lifestyles between Korean immigrants and native Koreans. The mean scores of self-control, family functioning, and social resourcefulness between Korean immigrants and native Koreans were not significantly different ($ps > .05$). However, the mean score of health-promoting lifestyles differed significantly, $t (190) =$ 3.387, $p = .001$. The total mean score of health-promoting lifestyles for Korean immigrants was 68.9 ($SD = 9.05$), which was higher than that for native Koreans ($M = 64.6$, $SD = 8.43$). To confirm the differences among subscales of health-promoting behaviors, additional t-tests were applied on each subscale. However, the assumption of homogeneity was not met in the subscales of health promotion, safety, and substance use. Thus, the results of unassumed equality were used in these three subscales. Based on these additional t-tests, the mean scores of health promotion (t = 2.739, p = .007), nutrition (t = 2.980, p = .003), and safety (5.575, p = .000) were significantly different between Korean immigrants and native Koreans. Korean immigrants showed higher levels in health promotion, nutrition, and safety than native Koreans.

Table 4 shows the results of bivariate Pearson correlations between variables. In both participant groups, health-promoting lifestyles were significantly associated with self-control ($r = .22$, $p < .05$ and $r = .30$, $p < .01$, U.S. and S. Korea, respectively), family functioning ($r = -.33$, $p < .01$ and $r = -.23$, $p < .05$), and social resourcefulness ($r = .41$, $p < .01$ and $r = .31$, $p < .01$). Korean immigrants and native Koreans who had better self-control, better family functioning, and higher social resourcefulness showed better health-promoting lifestyles than their counterparts.

Table 5 shows the results of hierarchical regression analysis for prediction of health- promoting lifestyles. For Korean immigrants, in Model 1, self-control accounted for 4.9% of the variation of health-promoting lifestyles. Model 1 was significant for predicting health-promoting lifestyles ($F [1, 103] = 5.305$, $p = .023$). Model 2 was also significant for predicting health-promoting lifestyles ($F [2, 102] = 7.292$, $p = .001$), which provided 12.5% of explanation. Self-control did not have a significant coefficient ($p > .05$), but family functioning ($t = -2.979$, $p = .004$) had a significant coefficient. Lastly, in Model 3, self-control, family functioning, and social resourcefulness showed 24.7% of explanation for health-promoting lifestyles ($F [3, 101] = 11.044$, $p = .000$). Self-control ($t = 1.524$, $p = .131$) did not have a significant coefficient, which was excluded from the regression model. However, family functioning ($t = -2.302$, $p = .023$) and social resourcefulness ($t = 4.044$, $p = .000$) had significant coefficients. Thus, family functioning and social resourcefulness were left from the original model for predicting health-promoting lifestyles of Korean immigrants. An additional regression analysis for the restricted model was performed with family functioning and social resourcefulness, which excluded self-control. In the restricted model, family functioning and social resourcefulness explained 23.0% of the variation in Korean immigrants' health-promoting lifestyles ($F [2, 102] = 15.207$, $p = .000$). The R^2 change from Model 3 ($R^2 = .247$) to the restricted model ($R^2 = .230$) was .017, and the F for testing the significance of this R^2 change was 2.322 ($p = .131$). Thus, the restricted model, which excluded the non-significant variables, did not show a significant change in R^2. As a result, family functioning and social resourcefulness were the main predictors of Korean immigrants' healthy lifestyles.

For native Koreans, in the same manner as Korean immigrants, in Model 1, self-control accounted for 9.0% of the variation of health-promoting lifestyles. Model 1 was significant for predicting health-promoting lifestyles ($F [1, 85] = 8.417$, $p = .005$). Model 2 was also significant for predicting health-promoting lifestyles ($F [2, 84] = 5.999$, $p = .004$), which provided 12.5% of explanation. Self-control had a significant regression coefficient (t = 2.617, $p = .011$), but family functioning did not ($p > .05$). Lastly, in Model 3, self-control, family functioning, and social resourcefulness showed 19.7% of explanation for health-promoting lifestyles ($F [3, 83] = 6.776$, $p = .000$). Family functioning did not have a significant regression coefficient (p >.05), however, self-control ($t = 2.992$, $p = .004$) and social resourcefulness ($t = 4.065$, $p = .003$) had significant regression coefficients. Thus, self-control and social resourcefulness were left from the original model for predicting health-promoting lifestyles of native Koreans. An additional regression analysis for the restricted model was performed with self-control and social resourcefulness. In the restricted model, self-control and social resourcefulness explained 18.2% of the variation in native Koreans' health-promoting lifestyles ($F [2, 84] = 9.320$, $p = .000$). The F for testing the significance of this R^2 change was 1.564 ($p = .215$). Thus, the restricted model did not show a significant change in R^2. As a result, self-control and social resourcefulness were the main predictors of native Koreans' health-promoting lifestyles.

4. CONCLUSIONS

For this study, 105 Korean immigrants and 87 native Koreans participated, in which native Koreans were collected with age and gender controls matched with Korean immigrants. There were no differences in the socio-demographic characteristics, self-control, family functioning, or social resourcefulness between Korean immigrants and native Koreans. However, the mean score of health-promoting lifestyles for Korean immigrants and native Koreans differed significantly ($t [190] = 3.387$, $p = .001$). Korean immigrants showed higher levels in health-promoting lifestyles, specifically, health promotion, nutrition, and safety, than native Koreans. Also, the mean scores of other subscales - relaxation, substance use, and exercise - among U.S. Koreans were higher than or the same as those of S. Koreans although they are not statistically significant. Korean immigrants generally reported better health-promoting lifestyles in the current study. Despite lack of comparison studies between Korean immigrants and native Koreans regarding health-

promoting behaviors, Korean Americans reported to undergo the lowest cancer screening rates among Asian subgroups [16, 17]. Although it was difficult to make conclusions due to inconsistent findings and lack of repeated studies, Korean Americans were more likely to eat out, and eat fewer green vegetables, fruits, and eggs, and less pork, noodles, and milks than native Koreans, however, they had more concern about consumption of a healthy diet than native Koreans [18]. Exercise and substance use, including smoking and drinking, had inconsistent findings in several previous studies based on age, gender, and level of acculturation [18, 19]. A comparison study between Korean immigrants and native Koreans regarding mental health reported Korean immigrants had better mental health than native Koreans [19]. They elucidated that the United States had a better social welfare system and it may lead to better mental health [19]. Although Sin et al. illustrated the reason about Korean immigrants' better health compared to native Koreans [19], further and repeated studies with diverse variables are needed to achieve generalizable findings regarding Korean immigrants' health-promoting lifestyles and their health.

According to the findings of bivariate correlations among both Korean immigrants and native Koreas, health-promoting lifestyles were significantly correlated with self-control, family functioning, and social resourcefulness. Koreans who had better self-control had better health-promoting lifestyles in the current study. There is a lack of study about the relationship between self-control and health-promoting behaviors. One study with 1040 Hispanic adolescents showed that social self-control was related to smoking and drinking [20]. Koreans who had better family functioning had better health-promoting lifestyles in the current study. Family functioning was associated with physical activity, sedentary behaviors, body mass index, and eating behavior [21, 22]. Additionally, family functioning was related to television viewing hours and it contributed to taking part in physical activity [23]. Koreans who had more social resourcefulness had better health-related lifestyles in the current study, which was consistent with previous studies [24, 25]. Immigrants' health-promoting lifestyles were associated with multiple components due to immigration transition not being unidirectional but multidirectional and a complicated change [26]. Thus, effort to improve immigrants' health-promoting lifestyles needs to include multidirectional approaches.

Based on the findings of multivariate regression, social resourcefulness was the most common significant influencing predictor on health-promoting lifestyles both in Korean immigrants and native Koreans, which was consistent with several previous studies reporting that social support is an important determinant for Koreans' lifestyle choices as well as health [25, 27]. Thus, to increase social resourcefulness for Koreans, culturally effective methods are needed. Korean immigrants, who already struggle with conflicts due to language and cultural differences, need more effective strategies to provide them social resources regarding health and medical related information. Language-friendly approaches should be a priority because most Korean immigrants have limited English proficiency, for example, Korean health booklets or Korean bilingual interpreter staffs or volunteers. Also, Korean immigrants showed low acculturation levels and they are more likely to build and live inside Korean communities [28, 29]. Korean communities and churches are good settings for approaching Korean immigrants. Also, for Korean immigrants, family centered approaches may be more effective than individual approaches because based on this finding, family functioning is a predictor of health lifestyles but not self-control. On the other hand, for native Koreans, individual approaches may be better for improving self-development.

Health care providers should be aware of the demand regarding social help among Korean immigrants as well as native Koreans, seek to improve their areas of weakness, and try to provide new health information and social resources. Moreover, they should try to develop culturally specific interventions for Koreans to improve healthy lives. Strategies to encourage better and more effective social resourcefulness for Koreans may be an essential part in intervention planning. Although this study has generalizability issues due to non-probability sampling strategy, it will provide important information to develop health care plans for Koreans.

5. REFERENCES

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Table 1. Reliabilities for PLQ

	Item #	Cronbach alpha
Overall Personal Lifestyles	24	.80
U.S.		.81
Korea		.79
Health Promotion	4	.59
Relaxation	5	.63
Nutrition	4	.42
Safety	4	.50
Substance Use	4	.46
Exercise	3	.79

Table 2. Comparing Demographic Characteristics Between Koreans in the U.S. and Korea

Variables		N (%)		χ^2	p
		U.S.	Korea		
Employment Status	Employed	65 (61.9%)	52 (59.8%)	.091	.763
	Unemployed	40 (38.1%)	35 (40.2%)		
Marital Status	Married	89 (84.8%)	62 (71.3%)	5.682	.128
	Divorced	3 (2.9%)	5 (5.7%)		
	Widowed	3 (2.9%)	7 (8.0%)		
	Single	10 (9.5%)	13(14.9%)		
Education Level	Less than High School Graduate	9(8.6%)	12 (13.8%)	1.490	.475
	High School Graduate	28 (26.7%)	24 (27.6%)		
	More than High School Grad.	68 (64.8%)	51 (58.6%)		
Family Income	Insufficient	7 (6.7%)	11 (12.6%)	3.935	.269
	Somewhat Insufficient	21 (20.0%)	23(26.4%)		
	Sufficient	56 (53.3%)	41 (47.1%)		
	More than Sufficient	19 (18.1%)	11 (12.6%)		
Health Status	Very Unhealthy	2 (1.9%)	3 (3.4%)	4.399	.221
	Unhealthy	14 (13.3%)	21 (24.1%)		
	Healthy	79 (75.2%)	56 (64.4%)		
	Very Healthy	10 (9.5%)	7 (8.0%)		

Table 3. T-tests for Differences Between Koreans in the U.S. and Korea

Variables	U.S.		Korea		t	df	p
	M	*SD*	*M*	*SD*			
Self-control	42.9	5.83	41.4	6.18	1.710	190	.089
Family Functioning	23.0	4.78	23.6	4.68	-.819	190	.414
Social Resourcefulness	42.3	9.32	42.8	8.46	-.470	190	.639
Health-Promoting Lifestyles	68.9	9.05	64.6	8.43	3.387	190	.001
Health Promotion	8.87	3.14	7.44	2.31	2.739	187.5	.007
Relaxation	13.95	2.50	13.95	2.73	-.004	190	.997
Nutrition	11.80	2.13	10.84	2.22	2.980	190	.003
Safety	13.20	1.67	11.60	2.19	5.575	158.5	.000
Substance Use	14.88	1.62	14.36	2.12	1.827	158.8	.070
Exercise	6.57	2.80	6.39	2.52	.495	190	.621

Table 4. Bivariate Correlations

	Lifestyles	Self-control	Family F.	Social R.
U.S.				
Health-Promoting Lifestyles	1			
Self-control	.22*	1		
Family Functioning	-.33**	-.33**	1	
Social Resourcefulness	.41**	.03	-.20*	1
Korea				
Health-Promoting Lifestyles	1			
Self-control	.30**	1		
Family Functioning	-.23*	-.16	1	
Social Resourcefulness	.31**	.04	-.22**	1
* *p* <.05; ** *p* <.01				

Table 5. Hierarchical Regression Analyses on Health-Promoting Lifestyles

	Model 1				Model 2				Model 3				Restricted Model			
	B	*β*	*t*	*p*	*B*	*β*	*t*	*p*	*B*	*β*	*t*	*p*	*B*	*β*	*t*	*p*
<U.S.>																
Self-control	.186	.221	2.303	.023	.106	.126	1.288	.201	.117	.139	1.524	.131				
	$R^2 = .049$															
Family Function.	$F = 5.305, p = .023$				-.276	-.292	-2.979	.004	-.203	-.215	-2.302	.023	-.247	-.261	-2.942	.004
					$R^2 = .125$											
Social Resource.					$F = 7.292, p = .001$				.289	.357	4.044	.000	.285	.352	3.967	.000
					R^2 change = .076				$R^2 = .247$				$R^2 = .230$			
					F change = 8.874, $p = .004$				$F = 11.044, p = .000$				$F = 15.207, p = .000$			
									R^2 change = .122				R^2 change = .017			
									F change = 16.351, $p = .000$				F change = 2.322, $p = .131$			
<Korea>																
Self-control	.222	.300	2.901	.005	.200	.270	2.617	.011	.199	.270	2.706	.008	.213	.289	2.922	.004
	$R^2 = .090$															
Family Function.	$F = 8.417, p = .005$				-.170	-.189	-1.830	.071	-.115	-.128	-1.251	.215				
					$R^2 = .125$											
Social Resource.					$F = 5.999, p = .004$				.228	.275	2.723	.008	.251	.303	3.065	.003
					R^2 change = .035				$R^2 = .197$				$R^2 = .182$			
					F change = 3.348, $p = .071$				$F = 6.776, p = .000$				$F = 9.320, p = .000$			
									R^2 change = .072				R^2 change = .015			
									F change = 7.416, $p = .008$				F change = 1.564, $p = .215$			