

Key Concepts : Health-Promoting lifestyle patterns, Korean immigrant elderly, Self-esteem, Perceived health status

An Analytical Study on Health-Promoting Lifestyle Patterns and Associated Variables of Korean Immigrant Elderly in Seattle

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ABSTRACT

Although healthy lifestyles have been proved as an effective way of improving higher well-beings for individuals, researches on health-promoting behaviors of minority elderly with a specific ethnic heritage have been sparsely tried. This study was designed to explore health-promoting lifestyle patterns of Korean immigrant elderly living in Seattle, USA and its relationships with two associated perceptual variables, self-esteem and perceived health status. One hundred ten Korean immigrant elderly were recruited from two senior centers and interviewed with a structured questionnaire. Data were collected from October 1998 to January 1999, and analyzed using SPSS program through which t-test, ANOVA, and Pearson Correlation Coefficients were tested.

As the results, the mean HPLP score of the Korean immigrant elderly was 2.54 (SD = .36), showing significant differences by education (F = 3.61, P = .016), economic status (F = 3.01, P = .034), and current health status (F = 3.69, P = .008). In self-esteem, two socioeconomic variables showed statistical association with self-esteem: marital status (t = 2.47, P = .015) and living situation (F = 4.03, P = .021). The HPLP subscales that showed higher mean scores were nutrition (M = 3.01, SD = .52) and interpersonal support (M = 2.65, SD = .47) while lower mean scores were detected in the domain of exercise (M = 1.92, SD = .74) and stress management (M = 2.26, SD = .47). Perceived health status revealed significant positive correlation with health-promoting lifestyle patterns (r = .19, P = .043) and self-esteem (r = .32, P = .001) in the present study.

It is concluded that engagement in health-promoting lifestyle patterns should be actively encouraged to enhance personal health of Korean immigrant elderly. Developing health promotion programs focused on exercise and stress management is also imperatively suggested not only for better health practices of Korean immigrant elderly population but also for enhancing their level of well-beings and life satisfaction.

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I. INTRODUCTION

Prolonged life expectancy has drawn increased needs for higher life satisfaction with enhancement of personal health. As a positive action for optimal health, health-promoting lifestyles have received much attention in the health care fields as they have been proved to prevent illnesses and accommodate an individual's higher level of well-being. (Kim & Oh, 1996 ; Lust, Ronis, Kerr, & Atwood, 1994; Pender, 1990; Walker, Kerr, Pender, & Sechrist, 1990). Health-promoting lifestyle pattern is identified as a "multi-dimensional pattern of self-initiated action and perception that serve to maintain or enhance the level of wellness, self-actualization, and fulfillment of individual" (Walker, Sechrist & Pender, 1987). The health promotion movement has been focused mainly on white, middle class Americans (Kerr & Ritchey, 1990), however, and studies for population of a specific heritage with that issue have not been actively addressed.

As for immigrant elderly, they are the segment of the immigrant population whose stress arising from immigration life should be particularly assessed (Shin, 1993). As most of the Korean immigrant elderly have language barriers and cultural differences, they may experience limited access to culturally competent health care services within the community. When compared to their counterpart group of American elderly, their lifestyle patterns have not been clearly known, and identification of their health-promoting lifestyle patterns has been sparsely tried because of the essential need for bilingual approach to this population.

To facilitate nursing interventions for health promotion of Korean immigrant elderly, exploration of their health-promoting lifestyle pattern and its relationships with two perceptual factors, perceived health status and self-esteem, was conducted through this study. Three

specific study questions were to identify:

1. Health-promoting lifestyle patterns, self-esteem, and perceived health status of the Korean immigrant elderly in relation to sociodemographic characteristics;
2. The relationship of health-promoting lifestyle patterns and self-esteem of the Korean immigrant elderly with their perceived health status; and
3. Correlations among the three study variables: health-promoting lifestyle patterns, self-esteem, and perceived health status

II. RELATED LITERATURE

1. Korean immigrant elderly

It is a global trend that the population of the aged has continuously increased. In the USA, the total number of the population is about 273,754,000, and 12.6% of this number are people aged over 65 and 3% are the Asian (National Statistical Office, 1998). Among the Asian Americans, Koreans have been showing a rapid population growth rate since they immigrated to the U.S. (Kim, 1995), and Korean elderly comprise the fourth largest portion of Asian American elderly population (Wallace, Villa, Moon, & Lubben, 1996). Keeping pace with their expanding numbers, their health needs have been anticipated to increase continuously, but qualitative issues on higher level of well-beings for them have not been actively discussed, causing the lack of research data on Korean immigrants in the health care fields.

Inclusion of Korean samples in nursing studies has begun only recently, mostly since early 1990s, impacted by the emerging of public health reform movement that emphasized the concept of health promotion and disease prevention for healthier life for Americans. Healthy people 2000 (Public Health Service,

1990), a national policy document, clearly addresses the importance of health promotion with its three broad goals: to increase the healthy life span for Americans, to reduce health disparities among Americans, and to achieve access to preventive services for all Americans. Among the total of 300 specific quantitative goals for older adults in that document, however, there is no goal specifically targeted to Asian and Pacific Island elderly. This was caused by insufficient data on health of the minority elderly (Wallace et al., 1996).

Noting that most of the Korean immigrant elderly are particularly vulnerable from lack of English skills and low educational level, this leads to their limited access to effective community based health programs. Identification of their health-promoting lifestyle patterns is considered to be useful for health care providers in order to plan more culturally competent health care services for their Korean elderly clients.

2. Health-promoting lifestyle patterns and associated perceptual variables

Health promotion has been proved to contribute to expanding life expectancy, fostering self-actualization, and increasing high level of well-being and quality of life (Byun & Jang, 1992). As a standard instrument to measure the health promotion behaviors, Walker and colleagues (1987) developed a questionnaire entitled the Health Promotion Lifestyle Profile (HPLP) that consisted of six subscales: nutrition, exercise, health responsibility, stress management, interpersonal support, and self-actualization.

The exploration of health-promoting lifestyle patterns of elderly with Korean heritage can be found in previous studies, mostly conducted in mainland South Korea. In a sample of 92 Korean elderly living in Korea, Lee (1998) found that the Korean sample showed the strongest practice in interpersonal support and

the weakest practice in exercise. Song, Lee, & Ahn (1997) investigated health-promoting behaviors of 98 Korean elderly and found health promoting behaviors were significantly related to education, income, and religion.

Another community study for elderly conducted by Wallace et al. (1996) revealed differences in health-promoting behaviors between two racial groups: Korean and non-Hispanic White Caucasians. The sample included 213 Korean elderly and 201 White elderly, and the results showed that overall practices of health behaviors were somewhat higher in Korean Americans. Significantly, two major behaviors of Korean elderly were detected as things that required cautious attention from health care providers: smoking cessation in Korean men and exercise increase in Korean women. Kim & Song (1996) investigated health-promoting lifestyle patterns of Korean immigrant adults and reported that better engagement in health-promoting lifestyles was significantly related to age, education, income, length of residence in America, health insurance, and health problems. Also, level of anxiety was found as an important predictor to explain health-promoting lifestyles of Korean immigrant people.

Self-esteem has been identified as one of the important factors affecting performing health promoting behaviors (Park, Park, & Kwon, 1996). According to Coopersmith (1967), self-esteem is defined as "the evaluation which the individual makes and maintains with regard to himself: it expresses an attitude of approval or disapproval and indicates the extent to which the individual believes himself to be capable, significant, successful, and worthy." In fact, adequate self-esteem has been viewed as a crucial strategy for minority to live in the White dominant American society (Thomas, 1988).

There is an evidence of a positive relationship between health-promoting behaviors and self-

esteem in literature. In the survey for 447 community-dwelling American elderly, Duffy (1993) found elderly with high self-esteem were more likely to engage in the practices of proper nutrition, exercise, interpersonal support, health responsibility, and stress management. Muhlenkamp (1986) reported self-esteem was a positive indicator of lifestyles, impacted directly by social support. As a basic component for an individual's successful aging, adequate self-esteem is effective in lowering depression (Nelson, 1989) and particularly important for immigrants in dealing with the environmental stresses and depression (Shin, 1993).

Little information is available about self-esteem of Korean immigrant elderly because of their limited number in population and cultural uniqueness that is distinguished from their non-minority counterparts. In this study, the degree of their self-esteem was identified with suggestions to increase their life satisfaction.

Another perceptual component selected for this study was perceived health status. Perceived health status refers to individuals' self-evaluation for their general health and well-being (Pender, Walker, Sechrist, & Frank-Stromborg, 1990). Results from previous studies of relationships between health-promoting lifestyle patterns and perceived health status have shown conceptual linkage between the two variables. Bottorff, Johnson, Ratner, & Hayduk (1995) tested perceptual factors on health promoting behavior maintenance, and found perceived health status significantly explained the variables in self-actualization, health responsibility, and exercise. It has been supported by other studies that health behaviors are positively associated with perceived health status (Lee, 1998 ; Speake, Cowart, & Pellet, 1989).

To test a hypothesis expectation that subjective evaluation for one's own health may impact his/her compliance of health-promoting lifestyle patterns, this study examined perceived

health status of the Korean Immigrant elderly and its relationship with their health-promoting lifestyle patterns.

III. METHOD

1. Design and Sample

This was a cross-sectional descriptive correlational study. Convenient sampling method was used for collecting data from 110 independent Korean immigrant elderly since a random sampling was not enabled because of the absence of established census data for Korean immigrant elderly in the Seattle area. They were recruited on a voluntary basis from two senior centers operated by the Korean Congregate Meal Program, a non-profit organization for Korean elderly supported by Asian Counseling and Referral System in Washington State. The eligible sample criteria included individuals who were Korean immigrants living in the USA for three years or more, aged over 60 years, and not cognitively impaired to understand and sign the consent form.

2. Measurements

The study subjects were interviewed using a structured questionnaire that consisted of four sections: sociodemographic characteristics, health-promoting lifestyle patterns, self-esteem, and perceived health status.

1) Sociodemographic characteristics

Sociodemographic data included information such as age, gender, marital status, education, religion, living status, economic status, Body Mass Index (BMI), and years of residence in America. Other health related questions were present health problems, blood pressure, use of prescribed/non-prescribed medications.

2) Health-Promoting Lifestyle Profile (HPLP) HPLP developed by Walker et al. (1987)

was used to measure the health-promoting lifestyle patterns of Korean immigrant elderly. The original English version of HPLP was initially translated into Korean by Korean bilingual investigators. Another Korean bilingual person who had never viewed the English version of HPLP then translated the Korean items back into English, and compared this with the Korean version. In this process, a total of 6 items were eliminated from the original English version as two items had discrepancies in meaning, and 4 items were regarded to be inappropriate for applying to Korean elderly population regarding their cultural characteristics. Finally, Walker's original scale of 48 items was revised by the investigators, and the modified Korean version HPLP was a 42 item, four-point summated rating scale where 'Never' was rated with 1 point and 'Routinely' rated with 4 points. The alpha reliability coefficient was .86 in this study.

3) Self-esteem

The self-esteem scale was revised by the investigator based on the self-esteem questionnaire developed by Rogenberg (1965) and translated by Chun (1974) into Korean. The scale was a 10 item, four-point Likert format that included both positive and negative statements. Prior to analyzing the research question, scoring was reversed on the scale so that higher scores indicate higher self-esteem. Cronbach's alpha for the scale was .73.

4) Perceived Health Status

This scale was based on one developed by Speake et al. (1989), and translated and modified by the investigators through translation and back-translation process. The two question items were designed to rate perceived health status as five degrees: excellent, good, fair, poor, and very poor, and higher scores reflected higher ratings. The tested alpha reliability coefficient of the scale was .80 in this study.

3. Data Analysis

The data were analyzed SPSS, by t-test, ANOVA, and Pearson Correlation Coefficients. Also, Bonferroni test was utilized for post hoc test of ANOVA.

IV. RESULTS

1. Sociodemographic Characteristics

The average age of the subjects was 75.5 years and ranged from 60 to 89. Females comprised 70.9% and 34.5% were primary school graduates. Forty percent of the sample had a spouse and 50% were living alone. In religion, 61.8% were Protestant and the average length of residence in America was 14 years. Dominant number of the Korean immigrant elderly (91.8%) were receiving Social Supplemental Income from State government for financial support, and 44.5% reported their economic status as average. To evaluate the degree of obesity, BMI was calculated using measured height and weight. The mean height of 154cm and the mean weight of 59.7Kg were recorded for the subjects, and about half of the sample (49.1%) showed normal BMI while 40% were overweight.

Majority of the subjects (87.3%) had one or more number of health problems, among which cardiovascular ailments were the most prevalent diseases (56.4%), followed by chronic pain (41.8%) and gastrointestinal problem (16.4%), respectively (Table 1). As the most common cardiovascular problem of the Korean immigrant elderly, hypertension, blood pressure was taken for screening purpose by the investigators during the data collection period, and the subjects' average blood pressure level was 137/75mmHg. For current use of medication, 84.5% reported they were taking certain types of prescribed medications for treating their illnesses, among which anti-hypertensives were the most frequently used regimens (54.5%), followed by analgesics (36.4%) and digestives

<Table 1> Types of health problems of the subjects

(N = 110)

Health problems	Yes (%)	No (%)
Gastrointestinal problem	18(16.4)	92(83.6)
Cardiovascular problem	62(56.4)	48(43.6)
Endocrine problem	11(10.0)	99(90.0)
Genitourinary problem	6(5.5)	104(94.5)
Chronic pain (Headache, Joint pain)	46(41.8)	64(58.2)
Respiratory problem	2(1.8)	108(98.2)
Dermatological problem	2(1.8)	108(98.2)
Visual & Hearing problem	5(4.5)	105(95.5)

(23.6%). More than half (50.9%) were taking Over-the-counter (OTC) medications or health supplements such as Vitamins and Calcium.

2. Relationship of sociodemographic variables to health-promoting lifestyle patterns, self-esteem, and perceived health status.

The average HPLP mean score was 2.54 (SD = .36). Significant differences in total HPLP scores were found for two sociodemographic variables: education and economic status. By education, those who graduated more than high school showed higher scores than those who were non-educated or primary school graduates ($F = 3.61, p = .016$). In terms of economic status, subjects with higher or very poor economic status rated higher HPLP scores than those who reported average or poor economic status ($F = 3.01, p = .034$) (Table 2).

Two variables, marital status and living status, were significantly related to self-esteem. Remarkably, spouse was an important factor associated with self-esteem in that subjects with spouse showed higher self-esteem scores than those without spouse ($t = 2.47, p = .015$), or than even those living with children ($F = 4.03, p = .021$) (Table 2).

When asked to evaluate their current health status, 4.5% of the subjects rated their health status as very good, 26.4% as good, 22.7% as

average, 36.4% as poor, and 10% as very poor. In comparing their health status to others in their own age, 6.4% stated their health to be much better, 40.0% better, 26.4% about the same, 21.8% worse, and 5.4% much worse. There were significant differences in the scores of perceived health status by gender, age, health problems, and economic status. Female ($t = -2.13, p = .035$), those aged from 60 to 69 ($F = 4.32, p = .016$), and those having health problems ($t = 3.10, p = .003$) showed higher perceptions on their health status. In view of economic status, those who reported poor economic status showed better perceptions on health than those who reported average economic status ($F = 3.05, p = .032$) (Table 2).

3. Subscales of the HPLP

The Korean immigrant elderly showed the highest practices in nutrition and the lowest practices in exercise. The mean scores on the HPLP subscales were: 3.01 (SD = .52) in nutrition, 2.73 (SD = .43) in interpersonal support, 2.65 (SD = .47) in self-actualization, 2.36 (SD = .54) in health responsibility, 2.26 (SD = .47) in stress management, and 1.92 (SD = .74) in exercise.

Education was the variable that showed significant associations with four domains of the HPLP subscales: self-actualization, health responsibility, nutrition, and exercise. In self-

**<Table 2> Health-promoting lifestyle patterns, Self-esteem, and Perceived health status
in relation to Sociodemographic characteristics**

		(N = 110)									
Variables	Categories	N (%)	HPLP		Self-esteem		Perceived Health Status				
			M±SD	t or F	p	M±SD	t or F	p	M±SD	t or F	p
Age(year)	60-69	19(17.3)	2.58±.31	.29	.746	2.73±.44	.41	.663	3.58±.96 ^{ab}	4.32	.016*
	70-79	58(52.7)	2.54±.36			2.75±.36			2.90±.90 ^a		
	80-89	33(30.0)	2.51±.38			2.69±.40			2.86±.97 ^b		
Sex	Male	32(29.1)	2.63±.30	1.90	.061	2.70±.38	-.58	.565	2.70±1.06	2.13	.035*
	Female	78(70.9)	2.49±.37			2.74±.39			3.13±.90		
Marital Status	With spouse	44(40.0)	2.53±.34	-.05	.963	2.84±.33	2.47	.015*	2.88±1.06	-1.25	.213
	Without spouse	66(60.0)	2.54±.37			2.66±.40			3.10±.90		
Health Problem	Yes	96(87.3)	2.54±.34	.69	.495	2.73±.39	.02	.988	3.11±.92	3.10	.003**
	No	14(12.7)	2.47±.45			2.73±.32			2.29±1.01		
Education	None	33(30.0)	2.46±.36 ^a	3.61	.016*	2.68±.37	.72	.544	2.98±.94	.42	.741
	Primary school	38(34.5)	2.47±.33 ^b			2.72±.45			3.08±1.00		
	Middle school	16(14.5)	2.55±.41			2.71±.34			3.13±.76		
	More than high school	23(20.9)	2.74±.30 ^{ab}			2.83±.33			2.83±1.09		
Religion	Protestant	68(61.8)	2.54±.38	.20	.897	2.71±.36	.99	.399	2.90±1.03	2.16	.097
	Buddhism	8(7.3)	2.59±.26			2.93±.40			2.56±.78		
	Catholic	28(25.5)	2.50±.30			2.76±.42			3.30±.77		
	None	6(5.5)	2.50±.44			2.62±.46			3.42±.97		
Living Status	Alone	55(50.0)	2.54±.38	.22	.803	2.66±.39 ^a	4.03	.021*	3.12±.89	1.49	.230
	With spouse	36(32.7)	2.56±.34			2.88±.34 ^{ab}			2.78±1.09		
	With children	19(7.3)	2.49±.32			2.65±.40 ^b			3.11±.91		
Economic Status	Good	7(6.4)	2.79±.30 ^{ab}	3.01	.034*	2.69±.41	2.59	.057	2.57±.93	3.05	.032*
	Average	49(44.5)	2.50±.39 ^{ac}			2.84±.35			2.78±.91 ^a		
	Poor	43(39.1)	2.48±.31 ^{bd}			2.64±.42			3.31±.90 ^a		
	Very poor	11(10.0)	2.74±.29 ^{cd}			2.63±.27			3.09±1.22		
BMI	Below normal	6(5.5)	2.34±.43	1.22	.307	2.48±.47	1.69	.174	3.17±1.25	1.33	.270
	Normal	54(49.1)	2.57±.35			2.80±.35			2.91±.95		
	Over wt	40(36.4)	2.49±.37			2.69±.34			2.98±.93		
	Obesity	10(9.1)	2.63±.25			2.68±.60			3.55±.98		
Length of Residence	< 5 year	9(8.2)	2.45±.31	1.22	.306	2.70±.58	.17	.954	3.72±.71	1.97	.105
	6 -10 year	28(25.4)	2.65±.37			2.73±.38			2.93±1.13		
	11-15 year	34(31.0)	2.50±.34			2.71±.34			2.97±.84		
	16-20 year	27(24.6)	2.54±.37			2.78±.42			3.07±.93		
	over 20 year	12(10.8)	2.54±.36			2.72±.29			2.58±.97		

^{abcd} : Bonferroni test: means with the same letter are significantly different
HPLP : Health-Promoting Lifestyle Patterns, BMI : Body Mass Index
*: p <.05, **: P <.01

actualization, those who graduated from high school showed higher self-actualization than other groups ($F = 3.60, p = .016$). Health responsibility scores were also associated with the level of education ($F = 2.92, p = .038$). In nutrition, the non-educated showed significantly lower scores than other groups ($F = 3.34, p = .022$). Exercise, the domain of the lowest score, was significantly associated with gender, education, and economic status. Exercise was more likely to be engaged in by males than females ($t = 3.11, p = .002$), in high school graduates than the non-educated ($F = 4.19, p = .008$), and in those whose economic status was poor than those whose economic status as good and very poor ($F = 2.74, p = .047$). There was a significant difference in interpersonal support by economic status since those who evaluated their economic status as very poor showed better interpersonal support than those who reported their economic status as average and poor ($F = 3.35, p = .022$). In

stress management, those without a spouse showed higher stress management scores than those with spouse ($t = -2.30, p = .023$).

4. Health-promoting lifestyle patterns and self-esteem in relation to perceived health status

Both health-promoting lifestyle patterns and self-esteem were significantly related to perceived health status. Subjects who evaluated their current health status as very good showed higher HPLP scores than other groups ($F = 3.69, p = .008$). As for self-esteem, those whose current health status was very poor showed lower self-esteem than those whose current health status was good, average, and poor ($F = 3.72, p = .007$). There was a tendency that self-esteem was higher as the perception on health status compared to others was better ($F = 3.90, p = .005$) (Table 3).

<Table 3> Health-promoting lifestyle and self-esteem in relation to perceived health status

(N = 110)

Perceived Health Status	Categories	N (%)	HPLP		Self-esteem			
			M(SD)	F	p	M(SD)	F	p
Current health status	Very good	5 (4.5)	2.99(.31 ^{abcd})	3.69	.008**	2.70(.35)	3.72	.007**
	Good	29 (26.4)	2.50(.35 ^a)			2.88(.34 ^a)		
	Average	25 (22.7)	2.61(.30 ^{bc})			2.76(.28 ^b)		
	Poor	40 (36.4)	2.51(.31 ^c)			2.71(.38 ^c)		
	Very poor	11 (10.0)	2.32(.48 ^{de})			2.38(.53 ^{abc})		
Health status compared to others	Much better	7 (6.4)	2.62(.54)	.70	.597	2.86(.36 ^a)	3.90	.005**
	Better	44 (40.0)	2.56(.33)			2.80(.33 ^{bc})		
	Same	29 (26.4)	2.54(.31)			2.80(.36 ^{de})		
	Worse	24 (21.8)	2.51(.39)			2.60(.39 ^{bd})		
	Much worse	6 (5.4)	2.33(.43)			2.28(.55 ^{de})		

abcde : Bonferroni test : means with the same letter are significantly different

** : $p < .01$

5. Correlations among health-promoting lifestyle patterns, self-esteem, and perceived health status

In this study, health-promoting lifestyle patterns showed a positive correlation with perceived health status ($r = .19, p = .043$)

but had no significant correlation with self-esteem. Self-esteem had significant correlations with perceived health status ($r = .32, p = .001$), presenting that higher ratings on self-esteem were positively related to increase of perceived health status (Table 4).

<Table 4> Correlations among health-promoting lifestyle patterns, self-esteem, and perceived health status

(N = 110)		
	Self-esteem	HPLP
	r (P)	r (P)
Self-esteem		.11(.248)
Perceived health status	.32 (.001)	.19(.043)

V. Discussion

This study revealed several facts on health-promoting behaviors of Korean immigrant elderly. In general, Korean immigrant elderly in the present study tended to practice less health-promoting lifestyle patterns than other racial and geographical groups. The mean HPLP score of this study, 2.54, is lower than that of previous studies for a Korean elderly sample (Kim, 1996 : Kim, Bae, Lee, Oh, & Yoon, 1991). In Kim & Song's study (1996) where 425 Korean immigrant adults were investigated, the mean HPLP score was also 2.54.

This study also showed a lower mean HPLP score than that of mid-western American older adults ($M = 2.85$) (Walker, Volkan, Sechrist, & Pender, 1988) and that of Mexican-Americans ($M = 2.65$) (Duffy, 1997), but a higher score than that of Hispanic adults ($M = 2.46$) (Walker et al., 1990). Weitzel, Hudak, Becker, Waller, & Stuijbergen (1994) measured HPLP with three ethnic groups: White, Hispanic, and Black, and the White sample showed stronger health-promoting lifestyle practices than other ethnic groups. As the

Korean immigrant elderly in this study were regarded as showing lower health practices than the White and higher practices than the Hispanics, further concrete comparative studies between Korean immigrant elderly and other racial senior groups are recommended.

The results also revealed the socioeconomic fact of Korean immigrant elderly. Their annual household income was \$7778, which was apparently lower than that of Americans, which is from \$25,000 to \$30,000 (Laffrey, 1990). It is quite logical to expect that Korean immigrant elderly would have a lower income than American older adults because they are likely to have no retirement incomes and most of them sorely depend on SSI in meeting their financial needs. As income is the leading reason of improper coping for health problems for elderly (Ko, 1990), the poor financial condition of Korean immigrant elderly would force them to be more vulnerable to increase health risks.

There were significant differences in health-promoting lifestyle patterns by education and economic status. The HPLP score was the highest in those who graduated from high school and who reported good economic status. This supports the result of previous studies

where education and income both contributed to the overall health-promoting lifestyles (Frauman & Nettles-Carlson, 1991 ; Song et al., 1997 ; Walker et al., 1988). A positive explanation for the significant contribution of education and economic status is that accumulated knowledge and better financial conditions could be supportive factors for performing health-promoting lifestyle patterns.

Education was also a significant variable related to four of the six HPLP subscales: self-actualization, health responsibility, nutrition, and exercise. In self-actualization and health responsibility, scores were the highest in those who graduated from high school. This was not unexpected as education is generally considered to be an important factor in achieving those two variables. Also the non-educated showed the lowest scores in nutrition, presenting a need to educate the importance of nutrition to this group. As health education contributes to increasing the degree of health promoting behaviors (Park et al, 1996), it is supposed to be very useful to provide feasible health education for Korean immigrant elderly to improve their health promoting lifestyle patterns.

In exercise that showed statistical associations with gender, education, and economic status, males were more engaged in physical activity than females, and those who graduated from more than high school showed stronger exercise practices than other groups. By economic status, however, any generalization cannot be concluded as those with poor economic showed stronger exercise practices than those whose economic status was either good or very poor, requiring further clarification on the inter-group differences.

In the view of interpersonal support, those whose economic status was very poor showed the strongest interpersonal support, which would be because poor economic situations call for more help and support from others living as immigrants. Remarkably, those without a spouse

showed stronger stress management ability than those with spouse, and this is possibly explained by the fact that those without a spouse could be exposed to major life stresses alone. They may have lost a spouse, earlier and thereby better able to handle stress events.

Though gender is known as a significant factor in explaining variables in health-promoting behaviors (Frauman & Nettles-Carlson, 1991 ; Ratner, Bottorff, Johnson, & Hayduk, 1994 ; Speake et al., 1989), it did not show any difference in practice of health-promoting lifestyle patterns in this study.

Considering the possible impact of westernized diet patterns, BMI was used to evaluate obesity, but found to be not significantly related to health-promoting lifestyle patterns. 40% of the subjects were categorized as overweight, however, which presents that development of a proper exercise program for Korean immigrant elderly is considered to be useful not only for facilitating their engagement in health-promoting lifestyle patterns but also for achieving stable body weight for the population.

Cardiovascular problems, mostly hypertension, were the most common illnesses for the Korean immigrant elderly. Considering that cardiovascular problems have also been reported as the top ranked prevalent diseases among Korean elderly (An, 1998), this finding indicates the imperative intervention need for elderly in Korean heritage for effective management of cardiovascular ailments. During the assessment of blood pressure by the investigators, in fact, three subjects were detected as having hypertension and thus referred to a primary health care provider for further evaluation. This presents a need for particular attention by nurses on disease screening for Korean immigrant elderly.

Differently from the results of Kim & Song's study where length of residence significantly impacted on health-promoting lifestyle patterns of Korean immigrants, it did not show any relationship with health-promoting lifestyle

patterns in this study. This could be because Korean immigrant elderly were living in a homogeneous living environment and maintaining similar lifestyles. They were living under Korean culture within their community regardless of their number of years of staying in the USA.

Current health status was found to associate positively both with health-promoting lifestyle patterns and self-esteem as those who made better evaluation on their current health status showed higher HPLP and self-esteem scores. Therefore, interventions to enhance perception on their own health status will contribute to improving health-promoting lifestyle patterns and self-esteem of Korean immigrant elderly.

Through this study, the high concern and efforts for better health were observed from Korean immigrant elderly since over half of them (50.9%) were taking non-prescribed OTC medications or health supplemental goods such as Vitamin and Calcium. To prevent too much dependency on medication interventions, effective strategies toward optimal health through lifestyle changes should be emphasized for Korean immigrant elderly.

In this study, self-esteem was significantly higher in those having spouse than those without spouse, showing the importance of spouse in having appropriate self-esteem for Korean immigrant elderly. Also, those living with spouse showed higher self-esteem than those living with children, and this is possibly due to that Korean immigrant elderly who are living as a couple may receive more support from each other, maintaining appropriate self-esteem.

Health-promoting lifestyle patterns showed a weak positive correlation with perceived health status ($r = .19$, $p = .043$) while they had no significant correlation with self-esteem in the present study. It was found that there was a significant correlation between perceived health status and self-esteem ($r = .32$, $p = .001$). This findings support results of the previous

studies that identified positive correlations of health-promoting lifestyle patterns with perceived health status (Duffy, Rossow, & Hernandez, 1996 ; Oh, 1995). Since studies have shown positive correlations between health-promoting lifestyle patterns and self-esteem (Megel, Hawkins, Sandstrom, Hoefler, & Willrett, 1994), further replication researches to explore relationships between these two variables are suggested.

Korean immigrant elderly showed strong practices in nutrition and interpersonal support and lower practices in stress management and exercise. In Kim's study (1996), nutrition was also the domain that showed the highest scores in Korean immigrant adults, reflecting a cultural value of Koreans that nutrition is a vital and basic component in maintaining individuals' optimal health. In Huck & Armer's study (1996) for American elderly Catholic nuns, nutrition was also the subscale with the highest score and exercise was the one with the lowest score.

Both stress management skills and regular physical activity are thought to be contributing factors to higher quality of life for Korean immigrant elderly. Actually, the lack of exercise in other minority population was also detected in other studies (Duffy, 1997 ; Stuijbergen, & Becker, 1994). In the study done by Wallace et al. (1996), smoking cessation for older Korean men and exercise for Korean elderly women were discussed as factors to be particularly encouraged. Age was reported to be an important variable in exercise for old adults (Conn, 1998), but there was no significant contribution of age to health-promoting lifestyle patterns in this study.

In conclusion, nursing strategies to improve the overall health-promoting lifestyle patterns of Korean immigrant elderly should be facilitated with acknowledgement of their need for proper education about stress management skills and regular exercise.

VI. CONCLUSION

The purpose of this study was to explore health-promoting lifestyle patterns of Korean immigrant elderly and its relationship with associated perceptual variables, perceived health status and self-esteem. The data were collected from October 1998 to January 1999 for 110 Korean immigrant elderly recruited from two senior centers. Study instruments were questionnaires that consisted of socioeconomic characteristics, perceived health status, self-esteem, and health-promoting lifestyle patterns. Collected data were analyzed by t-test, ANOVA, and Pearson Correlation Coefficients.

The key results were followings:

1. The mean HPLP score of Korean immigrant elderly was 2.54, showing significant relationships with economic status ($F = 3.01, p = .034$), education ($F = 3.61, p = .016$), and current health status ($F = 3.69, p = .008$).
2. The Korean immigrant elderly showed the highest practices in nutrition ($M = 3.01, SD = .52$) and the lowest practices in exercise ($M = 1.92, SD = .74$).
3. Health-promoting lifestyle patterns showed a weak positive correlations with perceived health status ($r = .19, p = .043$) while it had no significant correlation with self-esteem. Self-esteem had positive correlation with perceived health status ($r = .32, p = .001$) in this study.

To draw concrete resolution for health promotion of Korean immigrant elderly, this study suggests the following for further research: developing feasible exercise programs for Korean immigrant elderly population, identifying the influences of culture on their practices of health-promoting lifestyle patterns, and conducting consistent cross-cultural studies on health-promoting behaviors between Korean immigrant elderly and other racial groups.

VII. LIMITATIONS

It should be recognized that the study findings cannot be generalized to the whole Korean immigrant elderly population in the USA as the study sample was limited to 110 independent elderly residing in a specific community. In addition, policies related to the welfare and health care of the elderly may differ from state to state in the USA.

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