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Research Article

Health Promotion Behavior of Chinese International Students in Korea Including Acculturation Factors: A Structural Equation Model

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SUMMARY

Purpose: The purpose of this study was to explain the health promotion behavior of Chinese international students in Korea using a structural equation model including acculturation factors.
Method: A survey using self-administered questionnaires was employed. Data were collected from 272 Chinese students who have resided in Korea for longer than 6 months. The data were analyzed using structural equation modeling.
Results: The *p* value of final model is .31. The fitness parameters of the final model such as goodness of fit index, adjusted goodness of fit index, normed fit index, non-normed fit index, and comparative fit index were more than .95. Root mean square of residual and root mean square error of approximation also met the criteria. Self-esteem, perceived health status, acculturative stress and acculturation level had direct effects on health promotion behavior of the participants and the model explained 30.0% of variance.
Conlcusions: The Chinese students in Korea with higher self-esteem, perceived health status, acculturation level, and lower acculturative stress reported higher health promotion behavior. The findings can be applied to develop health promotion strategies for this population.

Introduction

Health is one of the most precious and fundamental factors in human lives. As with the change of society, the concept of health care is changing from medical treatment in the past to a broader sense of positive and proactive health promotion. Long term health behavior can easily become accustomed health practice. Once it becomes a permanent health habit, changing it involves strong resistance. In comparison with the late-middle age, it is relatively easy to develop a good health behavior in early adulthood. Thus, it is important to encourage good health behavior at an early age [1].

Many young people in college sometimes show unpredictable behaviors and health hazardous behaviors such as drinking, smoking and irregular diet [2]. International students departed from their family have a responsibility to manage their own health. However, many do not recognize the importance of health and may try health hazardous behaviors. The majority of international students in Korea are Chinese students. With the establishment of diplomatic relations between Korea and China, huge numbers of Chinese international students have entered Korea for bachelor, master, or doctoral degree as well as research purpose. In 2010, 76.0% of international students in Korea were Chinese [3].

Many international students are facing various problems. The typical problems include health, financial difficulty, language, study, human relationship and access to health services [4]. Some colleges and universities require students to subscribe to health insurance throughout the academic year but most others do not. The lack of payment capability for health service, with not many healthcare professionals who understand their cultural background and health-related issues, and communication barrier all build health risk factors for this population [5].

Migration to a foreign country creates various mental pressure to leave existing social position and to adapt a completely different lifestyle. The pressure may jeopardize the physical and mental health status of the immigrant [6]. However, without recognition of the importance of health, they may try health risk behaviors out of curiosity or by peer group pressure. Moreover, the difference in lifestyle and sociocultural background of the international students may influence prevalence of disease and health promotion behaviors [7].

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Prior research studies have focused on the accommodation status or the relationship between acculturative stress and mental health of international students in Korea but few of them have paid attention to the health promotion behavior of these students [8,9]. However, it is necessary to pay attention to the health promotion behavior and related lifestyle of the international students in order to encourage healthy campus life.

This research attempts to explain the health promotion behavior of Chinese international students in Korea with known influential factors from prior research and new acculturation factors, to prove causality among the factors. This study aims to explain and predict the health promotion behaviors of Chinese international students in Korea.

Conceptual framework

Based on Pender's Health Promotion Model (HPM) [10] and the result of previous studies, a hypothetical model was constructed. Pender [10,11] defined health promotion behavior as activities to improve the well-being of a person or group so as to maintain or enhance self-realization. The third model of Pender's HPM included the expectancy-value factor and the cognitive-perception factor. Three determinants to health promotion behavior were individual characteristics and experiences, behavior-specific learning and affect, and behavioral outcomes. According to Pender [10], there are two types of individual characteristics and experiences that affect behavioral outcomes. The first is prior related behaviors that an individual possesses. The second is personal characteristics composed of biological, psychological, and sociocultural experiences. These individual characteristics and experiences interact with the interpersonal and situational influences to shape the behavioral outcomes.

Pender [10] stated that self-esteem and perceived health status are the psychological factors of the individual characteristics that influence behavior-related learning and affect. In previous studies [12,13], social support was confirmed to be an antecedent to increased self-efficacy and perceived health status. Therefore, self-esteem and social support were included to indicate the individual characteristics and experiences.

The variables of behavior-specific learning and affect have crucial motivational meanings. These variables can be modified by nursing intervention. Perceived benefits of action, perceived barriers of action, perceived self-efficacy, activity-related affect, interpersonal influences and situational influences are included. Many studies [14–19] identified perceived health status and self-efficacy as the strongest factors influencing behavior-specific learning and affect.

Many Chinese students in Korea live in a different political, physical, social and economic environment from their own country. They have to go through an acculturation process to adapt to Korean culture. Acculturation is a multidimensional process related to change of behaviors, values, and attitude, and it can create chronic stress. It has been reported that if stress is not properly relieved, it may create various health problems [20]. Many previous studies report that acculturation level [17,21] and acculturative stress [8,22] might be related to psychological and social characteristics of individuals.

Figure 1 presents the hypothetical model based on a literature review including Pender's HPM [10]. The model includes two exogenous variables and five endogenous variables. Among the exogenous variables, self-esteem was defined as a determinant of self-efficacy, and social support was connected to perceived health status, self-efficacy, acculturative stress and acculturation level. The suitability of those paths were tested and modified by empirical studies [8,12,15–29,31–34] (see Figure 2).

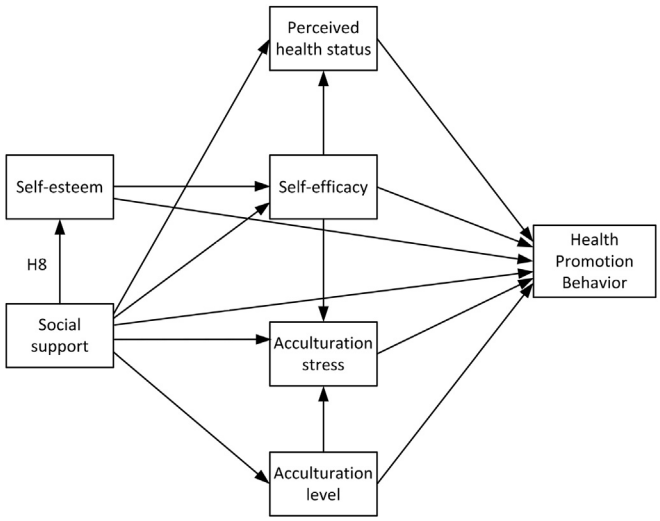

Figure 1. Hypothetical path model.

Purpose

The purpose of this study is to explore the health promotion behavior of Chinese international students in Korea and to identify the causal relation among the significant factors affecting their health behavior by developing a structural equation model.

Method

Study design

This study employs a cross-sectional design and structural equation modeling to analyze and identify the causal relationship among the health promotion behaviors of Chinese international students in Korea.

Settings and sample

The target population of the study are Chinese international students in Korea who are (a) enrolled in an academic degree

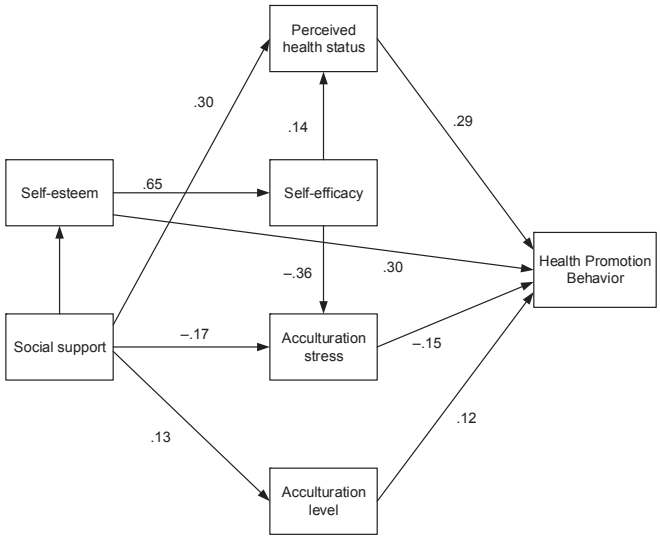

Figure 2. Path coefficients of the model (standardized path estimates).

program at the university at all levels and (b) have stayed in Korea for longer than 6 months. Convenience sampling and snowball sampling were used to recruit participants. The international student offices and the Chinese international students' association at 10 universities and graduate schools were sources of referral.

According to Garver and Mentzer [23], and Hoelter [24], the sample size must be bigger than the covariate (correlation) matrix, and it must be at least a 5:1 ratio for the number of subjects to the number of model parameters, but a 10:1 ratio is recommended. If the observed variables are 12 or less, then a minimum of 200 samples are necessary.

In the hypothetical model of this study, the number of observed variables is 7. The number of parameter estimates is 20 including error terms. Conservatively, 200 is the effective sample size. With an estimated dropout rate of 20.0%, the minimum sample size is 240. Based on past research experiences and expected completion rate, a total of 300 survey questionnaires were distributed and 272 were included for analysis.

Ethical consideration

Approval was obtained from the Institutional Review Board of Yonsei University College of Nursing (YUCN 2010-1023). Participants were informed of the purpose of the research and confidentiality was assured. All participants were informed that they had the right to withdraw from the study at any time. The questionnaires were anonymous and no individual answers were discussed in this study.

Measurements

The research instrument was a self-report survey questionnaire. After two pretests and screening, a total of 133 items including 16 items on general demographics, 37 items on health promotion behavior, 3 items on perceived health status, 17 items on self-efficacy, 13 items on acculturation level, 20 items on acculturative stress, 10 items on self-esteem, and 17 items on social support, were used.

The following steps were taken to increase the validity of the translated instruments. Step 1: Based on the literature review, the researcher selected instruments with proven validity and reliability. Three nursing faculty reviewed the content validity of the questionnaire. Step 2: The questionnaire was translated from Korean to Chinese by a professional Chinese translator. Step 3: A Chinese doctorate student who has lived in Korea for more than 7 years and was fluent in Korean back-translated the Chinese questionnaire into Korean. The researcher and two nursing faculty members compared the original Korean questionnaire and the back-translated questionnaire for meaning of the questions. Step 4: To confirm whether the participants would have a clear understanding of the Chinese questionnaire, a pretest was conducted with 5 Chinese graduate students who have lived in Korea for more than 3 years. Based on the pretest results, some of the questions were modified to clarify the meaning. Step 5: Two pilot tests were conducted with two groups of 10 Chinese international students to finalize the questionnaire. Step 6: The final items for the hypothetical model were chosen based on content analysis and reliability test of the instruments.

Health promotion behavior

Health promotion behavior was measured by the modified version of the Health Promotion Lifestyle Profile, originally developed by Walker, Hill-Polerecky and Pender [25]. Seo [26] translated the scale into Korean language.

The 47-item questionnaire measures self-reported daily activities over 6 subcategories; “Spiritual Growth”, “Health Responsibility”, “Physical Activity”, “Nutrition”, “Interpersonal Relationship” and “Stress Management” rated on a 4-point Likert scale, ranging from 1 (*never*) to 4 (*always*). Higher scores indicate better health promotion behavior.

After a series of pretests and pilot tests, 37 items were selected to measure the health promotion behavior of the Chinese international student in Korea, including 11 items in spiritual growth, 8 items in health responsibility, 3 items in physical activity, 6 items in nutrition, 5 items in interpersonal relationship, and 4 items in stress management.

Cronbach α for the total scale was .92 and that of the subcategories ranged from .79 to .87. In the present study, Cronbach α was .85. The scores of the subcategories were .79 for spiritual growth, .74 for health responsibility, .74 for physical activity, .78 for nutrition, .72 for interpersonal relationship, and .70 for stress management.

Perceived health status

Perceived health status was measured by three items originally developed by Speake, Cowart and Pellet in 1989 [27]. The three self-reported items were rated on a 5-point Likert scale, ranging from 1 to 5. Higher scores indicate better perceived health status. Cronbach α of the original instrument was .77. The score of the present study was .82.

Self-efficacy

General Self-Efficacy scale, originally developed by Sherer and Meddux [28] was used to measure self-efficacy. The 17 self-reported items were rated on a 5-point Likert scale; the higher the total score, the more self-efficacious the respondent.

This study used all of the 17 original items of the original scale. Among the items, nine negative items (no. 1, 5, 6, 10, 11, 12, 14, 16, and 17) were reversed for internal consistency. When Sherer and Meddux [28] developed the scale, the Cronbach α was .87 and that of the present study was .85.

Acculturative stress

The degree of perceived stress associated with the experience of acculturation was measured with 20 items selected from the Acculturative Stress Scale [29] for international students. Yang, Kim and Lee [30] translated the Acculturative Stress Scale into the Korean language for foreign workers. The original scale contained 36 items addressing stress-related themes found to be associated with acculturation, such as, “perceived discrimination”, “culture shock”, “guilt”, “perceived hatred” and “homesickness”. The items were rated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores mean higher perceived stress levels from the acculturation.

As a result of the pretest and the pilot test, 20 items from the original acculturative stress scale were selected for the questionnaire. Cronbach α of the original scale by Sandhu and Asrabadi [29] was from .87 to .95. Cronbach α of this study was .84, and those for the subcategories are .78 for homesickness, .77 for culture shock, .70 for perceived hatred, .74 for perceived discrimination, and .55 for guilty.

Acculturation level

Acculturation level was measured by Suinn-Lew Asian self-identity acculturation scale originally developed by Suinn, Khoo,

and Ahuna [31] and translated into the Korean language by Jeong and Lee [17].

The 20 items measure self-reported acculturation level with six subcategories including "language preference", "choice of friend", "food preference", "pride", and "generational identity". The items were rated on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate higher levels of acculturation.

Among 20 items in the original tool, 13 items (4 items in language preference, 3 items in friend choice, 3 items in food preference, 1 item in pride, and 2 items in generational identity) were selected to measure the acculturation level. One negative item was reversely coded to maintain the consistency of the instrument.

Cronbach α of the original scale was .79. With the present sample, Cronbach α was .82. Cronbach α for the subcategories are .72 for language preference, .75 for friendship choice, .76 for food preference, and .66 for generational identity.

Self-esteem

Self-Esteem Scale, developed by Rosenberg [32] and translated by Jeon [33] was used to measure the self-esteem of the Chinese international students. It consists of five positive items and five negative items, rated on a 4-point Likert scale from 1 to 4. Scores were computed by reverse coding of the five negative items (no. 3, 5, 8, 9 and 10) and then averaging the scores with the five positive items. Higher scores indicate higher self-esteem. Cronbach α of the original tool was .90, and that of test-retest in 15 weeks was .82. Cronbach α of the present study was .79.

Social support

Social support was measured using the Interpersonal Support Evaluation List [34]. Seo [35] translated and revised it for Korean studies. The 18-item tool measures self-reported social support over four subcategories including "tangible support", "belongingness", "esteem", and "appraisal". The items were rated on a 4-point Likert scale, ranging from 1 (*definitely false*) to 4 (*definitely true*). Higher scores indicate higher perceived social support.

One item was deleted because it jeopardized the internal reliability. The original Cronbach α of the scale by Cohen and Hoberman [34] was .90. In this study, Cronbach α was .83.

Data collection

The survey was conducted from November 15, 2010 to February 28, 2011. The researcher introduced the purpose of the study and the content of the questionnaires to 10 Chinese international student representatives at the universities and graduate schools in Seoul metropolitan area. After the introduction session, the student representatives arranged for the survey.

The Chinese version of the questionnaires were used for the survey. The Korean version of the questionnaires were also prepared for potential questions and answers to clarify the content of the questionnaire. At the survey meetings, the Chinese international student representatives and the researcher explained the purpose of the study, confidentiality and voluntary participation of the data collection process. All participants submitted a written agreement to participate in the research. Then they filled out self-reported questionnaires.

It took about 60 minutes to complete the questionnaires. When the questionnaires were collected, the research assistants reviewed the questionnaires immediately to check for missing items. The participants were asked to supplement the questionnaires, if necessary. A gift certificate of 10,000 Korean Won was provided to the participant upon completion of the questionnaires.

Data analysis

Three hundred questionnaires were distributed and 289 were collected between November 15, 2010 and February 28, 2011. Of the 289 questionnaires, 17 were excluded as they did not meet inclusion criteria: length of stay less than 6 months ($n = 5$); omitted more than 5 items ($n = 4$); answers in zigzag or straight line ($n = 4$); answers conflicted with each other on more than 3 items where positive and negative items existed in one construct ($n = 4$). Final analysis included 272 questionnaires.

IBM SPSS Statistics 19.0 (IBM Corp; Armonk, NY, USA) was used for analysis of general characteristics of the participants, descriptive analysis of the research variables, internal reliability test, factor analysis and correlation analysis. IBM AMOS 19.0 was used for path analysis including estimating regression coefficients, direct, indirect and total effects among the variables, and evaluating the statistical fits of the structural model.

Results

Demographic characteristics

The characteristics of the 272 participants in the study are presented in Table 1. In total, 92 participants (33.8%) were men and 180 (66.2%) were women. The average age was 25.7 years and 39 participants (14.3%) were in undergraduate programs, 174 (64.0%) in master degree programs, and 59 (21.7%) in doctoral programs. The average length of stay was 40 months with a majority (31.2%) staying from 1 to 3 years. For health insurance, almost half of the students (47.4%) were covered by the Korean national health insurance plan. The majority of the students (76.8%) reported no religion.

Correlation among research variables

The correlation matrix among the research variables is presented in Table 2. Health promotion behavior strongly correlated with self-esteem ($r = .43$), perceived health status ($r = .34$), and self-efficacy ($r = .32$), but negatively correlated with acculturative stress ($r = -.29$). Perceived health status showed positive correlation with social support ($r = .33$). Self-efficacy showed strong

Table 1 *Characteristics of Participants (N = 272).*

Variables	Variable Categories	*n*	(%)	*M* ± *SD*
Gender	Male	92	(33.8)	
	Female	180	(66.2)	
Age (yr)	≤ 21	8	(2.9)	25.74 ± 2.68
	22–24	88	(32.4)	
	25–27	112	(41.2)	
	28–30	50	(18.4)	
	≥ 31	14	(5.1)	
Academic degree	Undergraduate	39	(14.4)	
	Masters student	174	(64.0)	
	Doctorate student	59	(21.7)	
Length of Stay in Korea (months)	6–12	26	(9.6)	39.88 ± 23.89[a]
	13–36	108	(39.7)	
	37–60	85	(31.3)	
	> 61	53	(19.5)	
Residence	Dormitory	98	(36.0)	
	Home stay	132	(48.5)	
	Lease	9	(3.3)	
	Others	33	(12.1)	

Note. [a]Mean and *SD* of length of stay in Korea expressed in months.

Table 2 *Correlation Matrix of Research Variables (N = 272).*

Variables	Z_1	Y_1	Y_2	Y_3	Y_4	X_1
Y_1	.39**					
Y_2	.32**	.19**				
Y_3	−.29**	−.11	−.40**			
Y_4	.20**	.13*	.03	−.13*		
X_1	.43**	.23**	.65**	−.33**	.08*	
X_2	.34**	.33**	.19**	−.24**	.15*	.36**

Note. X_1 = self-esteem; X_2 = social support; Z_1 = health promotion behavior; Y_1 = health perception; Y_2: = self-efficacy; Y_3 = acculturation stress; Y_4 = acculturation level.
*$p < .05$. **$p < .01$.

positive correlation with self-esteem ($r = .65$), but showed negative correlation with acculturative stress ($r = -.40$). Acculturation level showed positive correlation with social support ($r = .15$), but showed negative correlation with the acculturative stress ($r = -.13$). Acculturative stress showed negative correlation with self-esteem ($r = -.33$) and social support ($r = -.13$). Self-esteem showed positive correlation with social support ($r = .36$).

Hypothesis testing

The result of confirmatory factor analysis showed that the research variables were appropriate. The fit indices of the hypothesis model satisfied all fit criteria except parsimonious normed fit index (PNFI) which has no absolute cutoff (Table 3). While all fit indices were qualified with the recommended cutoffs, normed χ^2 (χ^2 to *df* ratio) was 0.56 which means the hypothetical model might be overqualified with unnecessary paths among the variables.

Among the 15 hypotheses in the hypothetical model, 11 (H_1, H_2, H_4, H_6–H_9, and H_{11}–H_{14}) were confirmed to have statistically significant direct effects. Three hypotheses, H_3 (from social support to health promotion behavior), H_5 (from social support to self-efficacy) and H_{10} (from self-efficacy to health promotion behavior) failed to show significant direct effects, but had statistically meaningful indirect effects. H_{15}, the relationship between acculturation stress and acculturation level was not statistically significant and was rejected. The direct, indirect and total effects (standardized estimates) among the variables in the model are presented in Table 4.

Based on the fit indices of the hypothetical model and test of the hypotheses, it was necessary to revise the model to make it more parsimonious (Table 5). The four paths with no significant statistical effect were eliminated from the hypothetical model. Model fit indices of the revised model satisfied all fit indices with a better PNFI. The χ^2 of 11.637 with 10 degrees of freedom revealed a χ^2 to degree of freedom ratio of 1.16 which satisfied the recommended cutoff (< 3.00). For incremental fit indices, adjusted goodness of fit index of .97, comparative fit index of 1.00, normed fit index of .97 and non-normed fit index of .99 were enough to satisfy the recommended cutoff (> .95). Goodness of fit index of .99 was over the .95 cutoff and root mean square error of approximation of .03 and root mean square of residual of .01 were over their benchmarks (cutoff < .05). The final PNFI was .46 (Table 3).

Final model

The final structural equation model of this study showed that self-esteem, perceived health status, acculturative stress and acculturation level had direct effects on the health promotion behavior of the participants and the model explained 30.0% of the variance of health promotion behavior. Also, all of the model fit indices of the final model were satisfied with conservative criterion. Consistent with previous findings, perceived health status and self-esteem were two dominant variables influencing the health promotion behavior of the participants.

Table 3 *Fit Indices of Model (N = 272).*

Fit indices	Absolute fit indices				Incremental fit indices				Parsimony fit indices	
	χ^2 (*df*)	GFI	RMR	RMSEA	AGFI	NFI	NNFI	CFI	PNFI	χ^2/df
Criterion	≥ .05	≥ .95	≤ .05		≥ .95				Higher is better	≤ 2.00
Hypothesis model	3.91 (7) $p = .790$	1.00	.01	.00	.98	.99	1.00	1.00	.33	0.56
Final model	11.64 (10) $p = .310$	.99	.01	.03	.97	.97	.99	1.00	.46	1.16

Note. AGFI = adjusted GFI; CFI = comparative fit index; GFI = goodness of fit index; NFI = normed fit index; NNFI = non-normed fit index; PNFI = parsimonious NFI; RMR = root mean square of residual; RMSEA = root mean square error of approximation.

Table 4 *Effect Coefficients of Model—Standardized Estimates (N = 272).*

Dependent variables	Independent variables	Direct effect	Indirect effect	Total effect	Hypothesis test result
Health promotion behavior	Self-esteem	.30***	.06***	.37***	H_1: Confirmed
	Acculturation level	.12**		.12**	H_{14}: Confirmed
	Perceived health status	.29***		.29***	H_9: Confirmed
	Acculturative stress	−.15***		−.15***	H_{13}: Confirmed
	Self-efficacy		.10***	.10***	H_{10}: Rejected, but valid indirect effect
	Social support		.26***	.26***	H_3: Rejected, but valid indirect effect
Perceived health status	Social support	−.30***	.03*	.33***	H_4: Confirmed
	Self-efficacy	−.14*		.14*	H_{11}: Confirmed
Self-efficacy	Self-esteem	−.65***		.65***	H_2: Confirmed
	Social support		.23***	.23***	H_5: Rejected, but valid indirect effect
Acculturative stress	Social support	−.17***	−.08***	−.26***	H_6: Confirmed
	Self-efficacy	−.36***		−.36***	H_{12}: Rejected, but valid indirect effect
	Acculturation level				H_{15}: Rejected
Acculturation level	Social support	−.15*		.15*	H_7: Confirmed
Self-esteem	Social support	−.36***		.36***	H_8: Confirmed

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 5 *Fit Indices of Health Promotion Behavior from Confirmatory Factor Analysis (N = 272).*

Fit indices	Absolute fit indices				Incremental fit indices				Parsimony fit indices	
	χ^2 (*df*)	GFI	RMR	RMSEA	AGFI	NFI	NNFI	CFI	PNFI	χ^2/df
HPB	625.1 (428) $p < .001$	.88	.03	.04	.85	.78	.90	.92	.67	1.46

Note. AGFI = adjusted GFI; CFI = comparative fit index; GFI = goodness of fit index; HPB = health promotion behavior; NFI = normed fit index; NNFI = non-normed fit index; PNFI = parsimonious NFI; RMR = root mean square of residual; RMSEA = root mean square error of approximation.

Discussion

For the Chinese international students in this study, acculturative stress and acculturation level showed statistically significant direct effects on health promotion behavior. This result is similar to that of previous studies which stated acculturative stress affects physical or emotional disorder [4,10,36,37]. It is also consistent with studies reporting acculturation level affecting health promotion behavior and lowering the prevalence rate of diseases, such as coronary heart disease, depression, pantalgia, musculoskeletal disorders, and chronic diseases [17]. There are studies reporting significant relationships between acculturation level and acculturative stress [38,39]. However in this study, the relationship between these two variables was not statistically significant even though both variables showed weak but significant direct effects on health promotion behavior. This may be due to the homogeneity of participants who were all students enrolled in universities, and adjustment to Korean culture depended heavily on school life. Also, they had to pass a Korean language proficiency test before enrollment. Thus, some of the acculturation process and stress may be different if compared with Chinese who come for employment. Although there was no statistically significant direct effect from self-efficacy or social support to health promotion behavior, the path analysis confirms significant indirect effects of these two variables on health promotion behavior.

Previous studies, including HPM [10] suggest social support has an effect on health promotion behavior, and it was assumed that it was a direct effect. However, the final model of this study shows that social support has an indirect effect on health promotion behavior via perceived health status, acculturation stress and acculturation level. One explanation for this difference may be due to the different characteristics of the participants. Samples from previous studies were recruited from one institution or a limited setting [1,17,40]. However, in this study participants were recruited from 10 universities and graduate schools, and thus are a better representation of the Chinese international students in Korea.

The significant determinants of health promotion behavior of the Chinese international students are perceived health status, self-efficacy, acculturative stress and acculturation level. Perceived health status and self-esteem are consistently reported as major determinants of health promotion behavior. In this study, it is meaningful to confirm the relative importance of the constructs. Acculturation level was confirmed to be a determinant of health promotion behavior in a previous study with women immigrants in Korea [17]. However, that study on health promotion behavior did not focus on acculturative stress. It is significant that the present study included acculturation level and acculturative stress, and identified them as significant determinants of health promotion behavior of Chinese international students in Korea. Interventions to increase perceived health status, self-esteem and acculturation level and to ease acculturative stress should be considered so as to maintain and enhance health promotion behavior of these students. Moreover, by identifying the significance and strength of the paths and understanding what the strongest core determinant is for boosting health promotion behavior, nurses can consider more cost effective ways for intervention.

Limitation

The sampling method of the present study is convenience sampling and snowball sampling. One needs to be cautious to generalize the results to all Chinese international students in Korea.

Previous studies indicated that the acculturative stress and the acculturation level of nondegree exchange students and language school students are different from those of degree students. Other prior studies demonstrated that a less than 6 month-stay in a foreign country for international students is a honeymoon period for acculturative stress. Based on these results, the nondegree students and degree students staying for less than 6 months were intentionally excluded for the present study. Therefore, our results are distinct from explaining the health promotion behavior of early stage (< 6 months) Chinese international students in Korea.

The multivariate path analysis was used to derive the structural model to explain the health promotion behavior. The path analysis for the structural modeling assumed linear relationship among the constructs. If the relationships were not a linear function, the result of the analysis might be distorted.

Conclusion

This study was carried out to explain the health promotion behavior of Chinese international students in Korea and to identify causal relationships among the factors related to health promotion behavior by developing a structural equation model.

In conclusion, the health promotion behavior of Chinese international students in Korea was influenced by perceived health status, self-esteem, acculturative stress and acculturation level. These variables explained 30.0% of health promotion behavior in the model. Perceived health status was the strongest determinant. Other variables indirectly affecting health promotion behavior were social support and self-efficacy, which affect perceived health status. Also, self-efficacy was affected by self-esteem. Acculturative stress was influenced by self-efficacy and social support, and acculturation level was affected by social support.

In summary, Chinese international students in Korea with higher levels of perceived health self-esteem, and acculturation, and lower levels of acculturative stress reported better health promotion behavior.

Implications

Perceived health status was found to be the most significant determinant of health promotion behavior. It is necessary to have assessment guidelines to identify health perception of Chinese international students to increase their health promotion behavior.

Although social support did not show a direct effect on health promotion behavior, it has indirect effects on all four factors. Among many aspects of social support, it is urgent for healthcare professionals to develop a program that provides informational support and instrumental support to mandate an affordable health insurance plan for the international students.

The health service system must be improved and expanded so that the international students can get necessary health care service. In health promoting programs for Chinese international students, it is necessary to provide information for health promotion behaviors such as stress management, nutrition, physical activities, interpersonal relationship, generational identify, and spiritual growth.

The international student lives in a cross-cultural environment. Systematic effort and intervention are needed to enhance their acculturation level and to decrease their acculturative stress.

Recommendation

Based on the present study, comparative research on health promotion behavior with international students from other ethnic background is recommended. Also, replication of this study with larger samples is recommended to better understand acculturative stress and acculturation level.

Conflicts of Interest

The authors declare no conflict of interest.

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