

# Does Access to Care Still Affect Health Care Utilization by Immigrants? Testing of an Empirical Explanatory Model of Health Care Utilization by Korean American Immigrants with High Blood Pressure

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**Abstract** Despite well-known benefits of health care utilization for the effective management of chronic diseases, the underlying mechanism of understanding health care utilization in ethnic minority population has not been systematically explored. The purpose of this paper is to examine the predictive ability of a health care utilization

model by analyzing the interplay between predisposing, enabling, and need factors. The sample consisted of hypertensive Korean American immigrants (KAIs) 40–64 years of age who participated in a self-help intervention for high blood pressure care (SHIP-HBP). Using structured questionnaires, data were collected from 445 KAIs at baseline and analyzed with path analysis. Insurance status and relevant medical history were not just strong direct effects but also carried the most total effect on the health care utilization of these patients. Life priorities, years of residence in the US and perceived income level exerted indirect effects through the participants' insurance status. Our statistical analysis indicated a good fit for the proposed model ( $\chi^2 = 28.4$ ,  $P = 0.29$ ; NFI = 0.91; CFI = 0.99; RMSEA = 0.02). Overall, the model explained 18% of the variance in health care utilization of hypertensive KAIs. These findings strongly support a need to improve access to health care for KAIs by introducing a variety of community resources and building sustainable community infrastructures.

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## Introduction

Reducing health disparity gaps within vulnerable populations has recently been a major focus of both health care service researchers as well as policy makers [6, 11, 12]. In particular, many reports have been published regarding the problems and factors associated with the delivery of health care to traditionally underserved ethnic minority groups and the potential solutions to these problems [15, 16]. However, many researchers have argued that ensuring access to care for all members of a population is

insufficient to guarantee that they will all receive equitable, high-quality care. While there is high face validity to these assertions that more rigorous quality indicators beyond access are required, it is easy to overlook the fact that a significant number of US residents lack adequate access to health care. As is true for many new immigrant groups, Korean American immigrants (KAIs) have disproportionately low levels of health care accessibility due to language and cultural barriers and are more likely to be uninsured [26]; the end result is poorer quality of health care, lower usage of health services, and poorer health outcomes [1, 13, 31]. A further complicating factor is the fact that these individuals also have a notably higher prevalence of a number of chronic illnesses, such as high blood pressure (HBP) and diabetes, when compared to their white counterparts [23, 24]. Although adequate utilization of health care services is one of the major factors affecting early prevention and effective management of chronic diseases such as HBP [7, 18], little empirical research has been conducted to elucidate these problems and promote the implementation of better strategies for ensuring adequate utilization of health care services by underserved ethnic groups such as KAIs.

Because of these critical gaps in our knowledge, there is an urgent need to develop a theoretical framework for better understanding this underserved population. The behavioral model developed by Anderson [2, 3] was used as the initial framework for organizing the variables and theoretical propositions. Despite the wide application of this model to the general population, little work has been done to investigate how well-established theoretical models of this kind can be applied to the health care utilization of recent immigrants, who often experience different sets of systematic barriers to obtaining health care. As a result, certain ethnic groups, such as KAIs, have been underrepresented in health care research literature. The purpose of this paper is to examine the predictive ability of the health care utilization model by analyzing the interplay of predisposing, enabling, and need factors and their effects on health care utilization of Korean American immigrants (KAIs) with HBP.

### Theoretical/Conceptual Framework

Utilizing Andersons' behavioral model approach, we developed our initial model framework on the basis of the assumption that individuals' use of health service is affected by three major factors, i.e., predisposing factors, enabling factors, and their need for care. [2, 3] Another assumption of our model was the belief that health care utilization patterns of immigrants need to be interpreted in the context of migration in an ecological sense, since

immigration itself is a stressful event that affects overall health care-seeking behavior [20, 22, 28]. We also carefully reviewed the literature to identify known factors that influence health care utilization by immigrant populations in general, such as socioeconomic status, health insurance coverage [30], and the physical and mental health status of the individuals [17, 25]. Several important acculturation indicators, such as years of residence in the US, personal resources, and living arrangements (e.g., living with a spouse) [28, 32] have also been identified as barriers to health care utilization that are more pronounced among ethnic minority immigrants because of the cultural and language barriers that exist.

In our model, need factors, such as HBP-relevant medical history and self-reported clinical symptoms, were hypothesized to exert a direct influence on health care utilization [5]. Also, we assumed that enabling factors, such as health insurance and perceived income, play a significant role in predicting health care utilization [3]. Predisposing factors, such as years of residence in the US and competing life priorities, were hypothesized to affect health care utilization both directly and indirectly (through enabling and need factors), since competing life priorities of KAIs can be one of main reasons for delaying health care-seeking [19].

### Methods

#### Participants/Data Collection

The data used in this study came from the Self-Help Intervention Program for HBP Care (SHIP-HBP), a community-based prospective trial involving middle-aged KAIs with HBP in the Baltimore–Washington area. At baseline, a total of 445 KAIs were enrolled in the study. Eligible participants were 40–64 years of age; had a systolic BP  $\geq 140$  mmHg and/or diastolic BP  $\geq 90$  mmHg on two separate occasions or were on antihypertensive medication; and were self-identified as Korean American. A more detailed description and the overall baseline findings of this study have been reported elsewhere [19]. In the present study, all 445 participants who completed baseline assessment were included. All research procedures were approved by the Institutional Review Board of the Johns Hopkins University, and informed consent was obtained from all study participants.

#### Measures

Baseline data were collected by trained bilingual nurses and staff using a structured questionnaire. Demographics, psychosocial factors, and other health care utilization-related factors were assessed through this analysis to test

the health care utilization model for KAIs. The selection of study variables was guided using Anderson's behavioral model and literature review. The following variables were analyzed:

#### (1) Predisposing Factors

Predisposing factors are individual's characteristics that motivate or hinder health care utilization. The predisposing factors in this study were age, marital status, years of residence in the US, and competing life priorities. *Years of residence*, as a proxy of acculturation, was included in the present model because previous studies have shown that years of residence is a strong predictor of health care utilization among immigrants to the US [28, 32]. *Life priorities* measured how much the respondents prioritized health and HBP care over other life issues. Participants were asked to rank life priorities in order of importance. The highest score five was assigned when the respondents gave the highest priority to health or HBP care. As a subscale, the respondents were also asked to assess how much they prioritized HBP control and management using Likert-type scale. The score was calculated by summing the scores and scores ranged from 0 to 25, with a mean of 17.8 (SD = 4.7).

#### (2) Enabling Factors

Enabling factors are defined as personal resources, such as the ability to pay medical care cost and the status of insurance coverage. In the present study, enabling factors included perceived income level and insurance coverage. We used perceived level of comfort ("Can you make a comfortable living with your current household income?") as a proxy measure of income level, given the high rate of missing responses regarding income level that is usually observed because of the cultural taboo regarding speaking about money in their cultural context [29].

#### (3) Need Factors

Anderson et al. [3] defined need factors as an individual's perceived needs and clinical measures of need. In the present paper, the need factors were relevant medical history and self-reported clinical symptoms. *Relevant medical history* was measured using an additive scale. The participants were asked whether they had ever had a heart attack, stroke, or family history of HBP. The score was calculated by summing the scores for each relevant medical condition. Scores ranged from 0 to 8, with a mean of 1.2 (SD = 0.9). *Self-reported clinical symptoms* were the sum of the scores for 33 clinical symptoms related to HBP; participants were asked whether they had experienced any clinical symptoms

during the past week. Scores ranged from 0 to 33, with a mean of 8.3 (SD = 5.4).

#### (4) Health Care Utilization

Health care utilization was the final dependent variable in the hypothesized model. This variable was assessed using ten items that encompassed cost of care, regular visits to a doctor's office, and other indicators from which the level of utilization could be inferred in the context of HBP management. Examples included: "Do you have a regular doctor for your HBP care?" (Regular visits to a doctor's office), "During the last 6 months, have you ever postponed HBP-related care due to medical expenses?" (Unmet health care), or "Are you currently taking HBP medication?" (Medication compliance). The Health care utilization was assessed using both yes as well as no and Likert-type questions. Scores ranged from 10 to 29, with a mean of 23.4 (SD = 3.4, alpha = 0.67).

### Analysis

We used descriptive statistics and Pearson's correlation coefficients to describe the sample characteristics and calculate bivariate correlations among the study variables. We then conducted a path analysis to tease out the unique direct and indirect contribution of each study variable to explaining the health care utilization of hypertensive KAIs. The parameters of the model were estimated with covariance path analyses using Amos 16.0. Paths significant at the  $P = 0.05$  level were retained in the final trimmed model. Several goodness-of-fit statistics, such as chi-square, normed-fit-index (NFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA), were used to estimate the goodness of fit of the hypothesized model. NFI and CFI values  $>0.9$ , RMSEA  $<0.05$ , and larger probability of the chi-square (i.e., non-significant chi-square test) indicated an adequate model fit to the data [4].

### Results

#### Sample Characteristics and Descriptive Profile of Key Study Variables

Participants were mostly married (93.0%) and well-educated (89.2% having a high school or greater level of education), with about equal numbers of men and women in the sample (48 vs. 52%, respectively) (Table 1). The mean age was about 52 years ( $51.9 \pm 5.7$ ). More than two-thirds reported coming to the US within the last 20 years, with the average years of residence in the US being about

**Table 1** Descriptive statistics for variables in the model ( $N = 445$ )

Variable	%	Mean (SD)	Range
Age (years)		51.9 (5.7)	40–64
Married (%)	93.0		
Avg. years of residence in the US (yrs)		16.2 (8.9)	4–39
Life priority			
Priority to health/HBP care (%)	59.8		
Perceived income (%)			
Comfortable	35.7		
Fair	39.1		
Uncomfortable	25.2		
Lack of health insurance (%)	59.1		
Relevant medical history		1.2 (0.9)	0–8
Clinical symptom		8.3 (5.4)	0–33
Health care utilization		23.4 (3.4)	14–29
Insured		24.4* (2.6)	
Uninsured		22.7 (3.4)	

\* Statistically significantly different at  $P = 0.05$

16 years ( $16.2 \pm 8.9$ ). In the study, about 35.7% of the study participants perceived their income level as being comfortable to maintain their living expenses. The majority of the sample was employed (81.8%) at the time of the study, but only 40.9% had health insurance (including Medicare and Medicaid); most of those with insurance (97.3%) were covered by a private insurer. Among the 78% who were the uninsured, 64% reported that they had no health insurance because “the premium is too expensive to afford” and 14% responded that “their employer does not provide health insurance for employees.” Other reasons for not having health insurance included “don’t need health insurance because of good health.” Regarding life priorities, 59.8% of the participants rated health and HBP care as one of their top five life-priority issues. Finally, the most

frequent HBP-relevant medical conditions experienced by the participants were kidney problems (13.9%) and diabetes (13.1%); 73.7% reported a family history of HBP.

### Relationships Among Study Variables

The correlation matrix of predisposing, enabling, and need factors showed that several variables were significantly associated with health care utilization at the bivariate level (Table 2). Those who were married, had resided longer in the US, had health insurance, and had HBP-relevant medical conditions were more likely to seek health care. There were also significant associations among the predisposing, enabling, and need factors. For example, years of residence in the US was positively related to perceived income level and health insurance. Also, a strong relationship was observed between competing life priorities and health insurance status; those giving higher priority to health and HBP care were more likely to be insured.

### Testing of the Hypothesized Model of Health Care Utilization

Path analysis was performed to determine the effects of the predisposing, enabling, and need factors on health care utilization (Fig. 1). Six of the hypothesized paths in the original model for this study were statistically significant at  $P = 0.05$ , and the model fits the data ( $\chi^2 = 26.9$ ,  $P = 0.22$ , NFI = 0.92, RMSEA = 0.02). Figure 2 presents a trimmed path model with the non-significant paths removed. The overall goodness-of-fit of the model was assessed using the chi-square test and found to be non-significant. Other goodness-of-fit measures ( $\chi^2 = 28.4$ ,  $P = 0.29$ , NFI = 0.91, RMSEA = 0.02) also supported the adequacy of the model in this population. According to the trimmed model, having HBP-relevant medical history

**Table 2** Bivariate correlations of major variables in the hypothesized model

	Age	Marriage	Years of residence in the US	Life priority	Perceived income	Health insurance	Medical history	Symptom
Age	1.0							
Marriage	NS	1.0						
Years of residence in the US	0.37	−0.13	1.0					
Life priority	NS	NS	NS	1.0				
Perceived income	NS	NS	0.27	NS	1.0			
Health insurance	NS	NS	0.27	0.14	0.22	1.0		
Relevant medical history	NS	NS	NS	NS	NS	NS	1.0	
Symptom	NS	−0.11	NS	0.1	NS	NS	0.29	1.0
Health care utilization	NS	0.12	0.13	NS	NS	0.27	0.29	NS

\* NS not significant at  $P < 0.05$

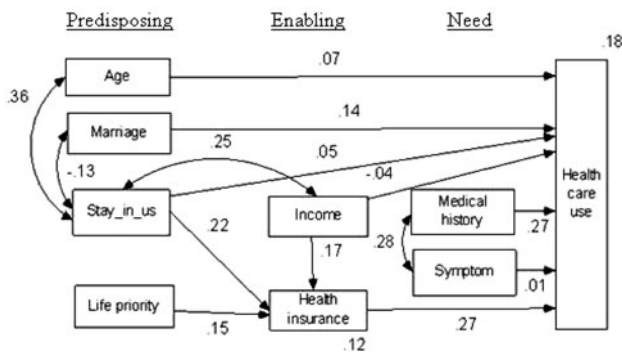


Fig. 1 Hypothesized path model

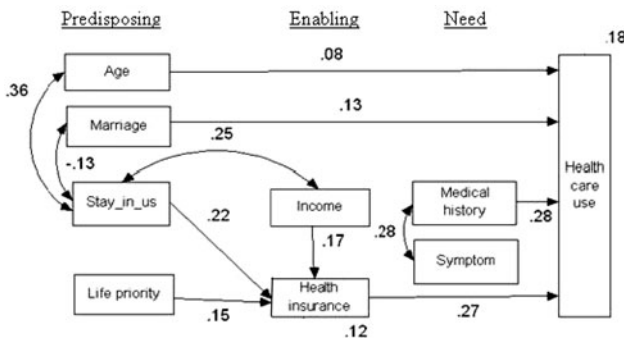


Fig. 2 Trimmed path model

(path coefficient = 0.28) and health insurance (path coefficient = 0.27) had the strongest direct and total effects. Although predicted, HBP-relevant medical symptom had not shown a direct effect on the health care utilization. Also, marital status showed a moderate direct effect on health care utilization in this sample (path coefficient = 0.13). In the hypothesized model, years of residence in the US and perceived income level were predicted to directly affect health care utilization. The perceived income level (path coefficient of the total effect = 0.15), life priority (path coefficient of the total effect = 0.04), and years of residence in the US (path coefficient of the total effect = 0.06), however, had moderate indirect effects through health insurance and total effects on the health care utilization of KAIs. As a result, the subjects who had higher perceived income level, prioritized HBP care over other life issues and stayed longer in the US were more likely to have health insurance resulting in more frequent health care utilization. Together, the explanatory variables in the trimmed model accounted for 18% of the variance in the outcome variable of health care utilization.

**Discussion/New Contribution to the Literature**

To the best of our knowledge, this is one of the first studies to test a theoretically driven, comprehensive model for

understanding the health care utilization of KAIs in the context of chronic illness management. The result of our path analysis demonstrated that both enabling and need factors contributed significantly to health care utilization by KAIs. Specifically, insurance status and HBP-relevant medical history emerged as key constructs for explaining the level of health care utilization by hypertensive KAIs. Previous research has documented a lack of health insurance and poor health status as major barriers to adequate health care utilization with regard to chronic disease management, particularly among recent immigrants who have insufficient English language proficiency and are experiencing cultural differences [14, 21, 25].

For certain ethnic groups, health insurance status seems to serve as a proxy for several system- and personal-level factors. First-generation KAIs experience substantial language barriers that limit their ability to obtain secure jobs in mainstream society, and as a result, they often choose businesses that do not require substantial English skills (e.g., small family-owned businesses such as liquor stores and dry cleaners). Indeed, KAIs have been identified as the ethnic group with the highest proportion of self-owned businesses [10, 27]. Self-employed immigrants in the US are much more likely to be uninsured than are those with other types of employment [32]. Available statistics indicate that immigrants from some Asian countries, including Korea, are the least likely to be insured. For example, Korean workers are often employed in small Korean-owned businesses that may not be able to provide health insurance support [9].

While financial ability is a main determinant of health insurance coverage, additional factors can play a role in the individual’s decision to purchase health insurance. For example, longer years of residence in the US was significantly associated with having health insurance in this population. Likewise, KAIs who prioritized health and HBP care over other competing life-priority issues were more likely to have health insurance than those who gave priority to other life issues over health. Together, these findings suggest that in order to achieve adequate health care utilization by hypertensive KAIs, a concerted effort needs to be directed toward improving community awareness of chronic disease management and community resource availability (e.g., low-income health clinics, directories of Korean-speaking health care providers, and translation services), while building community infrastructures to support sustainable health promotion programs for HBP control.

In an early study, Leclere et al. [28] found that years of residence in the US had a strong direct effect on health care utilization among ethnic minority immigrants, resulting in less frequent health care utilization by recent immigrants (i.e., those who had arrived in the US less than 5 years

earlier). In the present study, years of residence in the US did not have any significant direct effect on health care utilization: rather, it had an indirect effect through health insurance. This result might have been due, in part, to a small variance observed in the residence variable: Most participants had been in the US for 15–20 years. Also, recent immigrants may have more likely faced difficulties in getting health insurance in the US due to their low income level (related to limited employment opportunities) or their unfamiliarity with the US health care system [26].

Life priorities were another variable that had a significant indirect impact on health care utilization by affecting health insurance status among hypertensive KAIs. Ku and Matani [25] reported that poor health care utilization is a characteristic of immigrants, regardless of their insurance status. It is possible that immigrant families are more likely to confront challenges for survival in their new country and, in turn, they often sacrifice their own health care in order to give priority to more urgent life issues. Competing life priorities may create additional cognitive barriers to obtaining health insurance. Indeed, in the present study, those who prioritized health and HBP care tended to have greater HBP knowledge and HBP-related health beliefs. Future research is warranted to determine whether reframing life priorities can improve adequate health care utilization among recent immigrants with chronic disease.

Anderson's behavioral model has provided a foundation for explaining health care utilization by identifying predisposing, enabling and need factors. This model, however, has not yet shown how these factors interrelate. Furthermore, as pointed by Bradley et al. [8], including race/ethnicity as a predisposing factor may be problematic in terms of explaining health care utilization by ethnic minority populations because it oversimplifies the effect of ethnicity. While relying on the framework provided by the Anderson model, we also integrated other immigrant-specific factors (such as years of stay in the US and competing life priorities) into our model to allow us to identify immigrant-specific factors related to health care utilization and assess their interplay in a sample of KAIs.

Our study results should be interpreted with some degree of caution, given that our study sample was recruited from a single ethnic group, thus limiting the extent to which inferences can be drawn regarding other ethnic groups. Also, additional variables that may affect health care utilization by immigrant populations, such as acculturation stress and the level of the language barrier, should be incorporated into future models of health care access in order to allow us to better interpret health care utilization status in the context of immigration. In future studies, separate consideration of the level of accessibility to and availability of health care providers of the same cultural and linguistic background would provide a more

comprehensive picture of health care utilization by an ethnic population.

Despite these potential limitations, the findings presented here offer important insights into the underlying mechanism of health care utilization in this predominantly new immigrant population. Specifically, this study suggests possible links between shorter years of residence in the US, a low priority on health, and lack of health insurance as contributors to less frequent health care utilization for HBP management. The results clearly support the need for a more systematic approach to addressing possible unmet health care needs of recent immigrants who are unfamiliar with the US health care system. Development of culturally sensitive intervention programs will help to minimize the language barriers related to the dissemination of health information and also help recent immigrants to better assimilate and adapt to the US health care system.

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