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This article examines factors that affect the utilization of health care services and home- and community-based care (HCBC) programs by older Taiwanese, a rapidly growing and newly arrived immigrant group. Currently, knowledge about the health status and utilization of health-related services among newly arrived Asians is limited. This article analyzed data from the 1994 Southern California Taiwanese American Elderly Survey (n = 240) based on a modified Andersen behavioral model that included both cultural and structural variables. Significant variables included health needs, cultural beliefs, and socioeconomic and structural variables; however, variables predicting utilization of health services and HCBC programs were different. Implications for both gerontological research and practice include the following: (1) Future programs addressing service utilizations by older Taiwanese should be culturally sensitive and consider family as a unit of intervention, and (2) more multidisciplinary research should explore how cultural and structural variables contribute to service utilization among newly arrived elderly Asian immigrants.

Improving access to health services and home- and community-based care (HCBC) programs for older Americans has been an important public policy objective. Many policy initiatives such as Healthy People 2000 and Medicare reform called for eliminating disparities in

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health care access to improve health and foster better quality of life for both current and future elderly populations. In recent years, the disparity in health care access has prompted scholars to identify various factors that affect health services, long-term care (LTC), and HCBC program utilization by the elderly population (Mutchler and Burr 1991; Office of Minority Health 1998; Villa et al. 1997; Wallace, Campbell, and Lew-Ting 1994). In general, utilization of health services or HCBC programs was found to be influenced primarily by health needs and secondarily by a myriad of factors including demographic characteristics, socioeconomic status, types of health insurance, proximity of services, and awareness about available services (Krout 1983; Wan 1989; Wolinsky and Johnson 1991). However, when comparing the differences between minority and White elderly persons, researchers found that structural and cultural factors also play an important role in shaping utilization for acute medical services and LTC/HCBC programs (Angel, Angel, and Himes 1992; Damron-Rodriguez, Wallace, and Kington 1994; Wallace 1990). The structural variables are related to the availability, affordability, and accessibility of services, which include the degree of knowledge about services, informal and formal social support networks, and position in society. The cultural variables include health beliefs, values, language barriers, and attitudes toward health services (Friedman 1994; Wallace and Villa 1998; Zane, Takeuchi, and Young 1994).

While identification of factors has been expanded to different ethnic and minority groups, studies that include elderly Asians[1] or older immigrants have been limited due to a lack of Asian data available for quantitative or comparative analyses, both in aggregate or by individual ethnic groups (Liu and Yu 1985; Tanjasiri, Wallace, and Shibata 1995). Studies that use aggregate data produce inaccurate generalizations about Asians; studies that use individual ethnic Asians are limited to more established Asians (i.e., Japanese, Chinese, and Filipinos) and do not include those newly arrived who are not familiar with the U.S. health care system (Gelfand 1994; Guillermo 1993; Markides 1989).

As we enter the twenty-first century, when the number of elderly Asians will grow more rapidly than other ethnic groups and elderly Whites in the first 25 years (U.S. Bureau of the Census 1996), a basic understanding of health care utilization among the newly arrived elderly Asians becomes crucial (Ong 1993).[2] As the health care environ-

ment continues to change and resources become scarce, the public begins to debate methods of providing an adequate level of health services to all Americans while it addresses the various health needs among the increasingly diverse and aging population (Torres-Gil 1992). In this article, we study a newly arrived elderly Asian immigrant group and investigate its service utilization of health care and HCBC programs.

Purpose and Significance

The purpose of this article is to investigate factors that affect how older Taiwanese[3] use health services and HCBC programs. Older Taiwanese are a recently arrived immigrant group in the United States that has not yet been studied in aging research or in Asian American literature. Implications generated from this study can serve as important sources for program interventions for targeting and serving the older Taiwanese. The article hopes to (1) add to the literature on health care among minority elderly, (2) expand the knowledge of health services among newly arrived Asian immigrants, (3) build a database on older Taiwanese, and (4) modify a theoretical model to account for the unique cultural and structural factors affecting the utilization of health services and HCBC programs by older Taiwanese.

Background on the Taiwanese

Immigration to the United States was virtually impossible for people from Taiwan until the 1965 Immigration Act, which opened the door for Asians of different nationalities. But a steady growth of immigrants from Taiwan did not happen until the 1980s with the 1982 Immigration Reform Amendment, which set up a quota allowing 20,000 immigrants per year from Taiwan, separate from those of China (Immigration and Naturalization Services 1994). Approximately 40% of the Taiwanese immigrants currently residing in the United States came after 1982.

However, current population statistics on Taiwanese immigrants are not complete because of the U.S.-China policy restriction and

Census counting method. The most recent estimate came in 1998 by General Bank,[4] which estimated that the total number of Taiwanese immigrants had reached about 1 million, approximately half residing in California (General Bank 1998). The number of older Taiwanese reached approximately 60,000 in 1997, accounting for about 6% of the total Taiwanese population (Taiwanese American Affiliated Committee on Aging 1998). If based on the steady growing trend, many older Taiwanese will soon reach an age that requires more health services and HCBC programs because of frailty or disabling conditions.

Older Taiwanese tend to relocate to the United States for both sociopolitical and cultural reasons. Current U.S. immigration policy focuses on family reunification, which gives a structural incentive for older relatives of U.S. residents to immigrate because they can be counted under the category of immediate relative, which is not subject to quota or numerical limit. Furthermore, many Taiwanese immigrants are adult children who practice the cultural value of filial responsibility to take care of their parents when they age.

However, when older Taiwanese become frail or ill, they might face both structural and cultural difficulties in trying to use health services or HCBC programs in the United States. This is because the confluence of aging, immigration, and changing health care environment can form a complex situation discouraging newly arrived immigrants like the older Taiwanese from gaining services that are available, accessible, and acceptable to them (Damron-Rodriguez et al. 1994; Hing 1993).

In addition, the public has different views about allocating resources to care for elderly immigrants. For example, recent policy changes, such as the 1996 Personal Responsibility and Work Opportunity Reconciliation Act, demonstrated the conflict and ambivalence that the general public has toward providing benefits to elderly immigrants. Current policy mandates that the adult sponsors (usually the adult children of elderly immigrants) provide all support for at least five years until the elderly immigrants become naturalized. However, opening the immigration door for older relatives of U.S. citizens while limiting their access to health and social services may create more of a burden in the long run to the immigrant families and in communities where immigrants reside in high concentration (Becerra 1999). This is

especially important for states like California, Texas, Florida, and New York where large numbers of elderly immigrants reside.

Theoretical Framework

Over the years, researchers have developed models to identify factors that affect the utilization of health services and HCBC programs (e.g., disease model, health belief model, behavioral model). Although these models vary in scope and assumptions depending on disciplines in which researchers are trained, Andersen's (1968) behavioral model is by far the most widely used to explain health services and HCBC program utilization by various elderly groups (Wolinsky 1982). The model is credited for its eclectic way of studying health services from a multidisciplinary point of view and its practical way of finding variables amenable to new interventions (Burnette and Mui 1995). The model was also checked for its applicability to health studies of Asian and Pacific Islander Americans (Andersen et al. 1995).

Andersen (1968) defined health services utilization as a function of three components: predisposing, enabling, and need. People are predisposed to illness due to different factors such as demographic characteristics, social structure, and health beliefs. However, people rely on enabling factors to provide the means for individuals to use services. Furthermore, people may not seek help until they feel the "need" to address their own health or illnesses. The health-related need variables are the most important factors in predicting the use of health services and community-based programs, followed by predisposing and enabling variables (Andersen 1968, 1995; Penning 1995; Wolinsky 1994). The model is able to explain discretionary (e.g., doctor visits) better than nondiscretionary behavior (e.g., hospital stays) (Andersen 1968, 1995).

However, in applying the Andersen model to explain utilization behavior among minority groups, some researchers argue that the model is not sensitive to the diverse cultural and structural barriers in health care (Moon, Lubben, and Villa 1998; Wallace et al. 1992, 1994; Wolinsky and Johnson 1991). Andersen (1995) himself agreed that only by careful integration of cultural and structural variables could the Andersen model best explain service utilization for ethnic

minorities in their social contexts. For example, Leclere, Jensen, and Biddlecom (1994) found that the duration of immigration and its sociocultural context affect health care utilization among immigrants. Other researchers also postulate the influence of cultural variables including beliefs in alternative medicine, attitudes toward medical professionals, and preference for ethnic-matched professionals when accessing services (Friedman 1994; Krout 1990). Therefore, given the population to be studied in this article, several variables pertaining to the characteristics of Taiwanese immigrants are added. A modified Andersen behavioral model, used as the theoretical framework in this study, is shown in Figure 1. The added variables include years since immigrated, belief in alternative medicine, preference for services provided by persons of the same culture, and linguistic isolation.

Methodology

RESEARCH DESIGN AND SAMPLE

This article draws on data from the 1994 Southern California Taiwanese American Elderly Survey, the first survey on older Taiwanese in the United States designed and developed by the first author. The survey, based on a nonprobability sample, was mailed to 800 Taiwanese households (780 were members of the Taiwanese organizations, and 20 were self-referred after hearing/seeing the advertisement about the survey in Chinese newspapers and radio stations). Respondents were given three weeks to mail back their questionnaires. A follow-up mailing, another opportunity to increase the response rate, was not completed due to limited funding. As a result, 240 out of 800 surveys were received in one month, generating approximately a 30% response rate.

The majority of questions used in this survey were drawn from the 1984 Longitudinal Survey on Aging and the 1989 National Health Interview Survey. The difference was that the entire survey was done in Mandarin, with questions carefully translated and back translated by two aging service providers in the Taiwanese community to ensure adequate interpretation. Since this was an exploratory study, a focus group of 10 participants was formed after the survey to refine the questionnaire and to discuss alternative methods of data collection for the future.

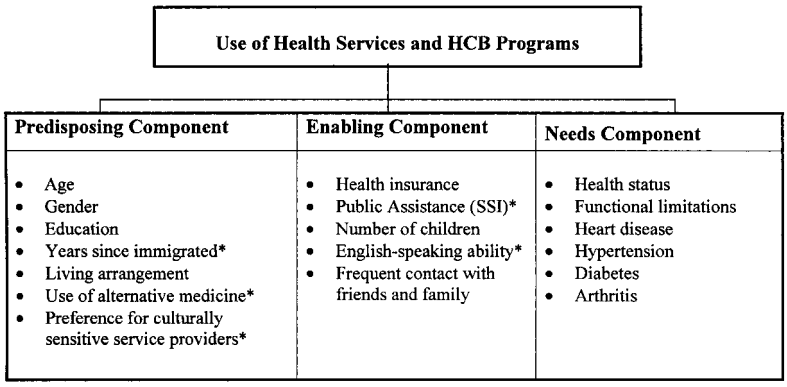

Figure 1: A Modified Andersen Behavioral Model Used for Service Utilization of Health Services and Home- and Community-Based (HCB) Programs by Older Taiwanese

NOTE: This theoretical framework was adapted from Andersen's (1968) behavioral model and modified by the authors.
*Variables that are sociostructurally or culturally related to the elderly immigrants being studied.

Limitations of the Sampling Frame

Since this survey was based on a convenience sample, its results may be biased and can only serve as the best estimate for older Taiwanese in Southern California. The sampling scheme and the fact that it was a mail survey further limited respondents to people who are relatively healthy, literate, and socially involved in the community. Those who did not return the survey might not have done so due to illness, psychological discomfort, or inability to spend the one hour needed to fill out the survey.

Culturally speaking, Taiwanese immigrants are not familiar with mail surveys, or they might be suspicious of the confidentiality of such a survey due to their immigration status. In addition, members of the age cohort for this survey might not feel comfortable expressing their private information via mail. As a result, this study may be limited in its ability to generalize because the results might reflect more on the more socially engaged and able elderly Taiwanese. Despite these limitations, this study provides the beginning of a baseline measure for future studies of Taiwanese elderly. Furthermore, it may serve as an important reference for minority aging research since data from newly arrived elderly immigrants are quite limited.

OPERATIONALIZATION OF VARIABLES

This study examined 19 independent variables and 3 dependent variables (refer to Table 1 for coding scheme). The independent variables were further divided into three components according to Andersen's framework: predisposing, enabling, and need variables. Three dependent variables were studied to measure whether one has had contact with doctors, hospitals, or HCBC programs during the past year.[5]

DATA ANALYSIS

Using SPSS 8.0, the descriptive data and utilization patterns of health services and HCBC programs by older Taiwanese are presented in Tables 2 and 3. The logistic regression analysis identifying the significant factors affecting the utilization of health services and HCBC programs is presented in Table 4. All assumptions pertaining to conducting regression analyses, that is, normality, homogeneity, and colinearity, were examined.

Results

DESCRIPTIVE ANALYSIS

The predisposing variables revealed that respondents were on average 74.5 years of age with 13 years of U.S. residence, indicating that the majority were immigrants close to retirement age when they came to the United States (Table 2). The majority of respondents indicated that they visited or spoke to family once a week (65% and 78%, respectively); however, only about 5% of respondents spoke English fluently. In addition, close to three-quarters of the respondents (72%) preferred service providers from the same culture, and about one-quarter of the respondents (24%) indicated that they used some form of traditional or herbal medicine to treat their illnesses.

In terms of enabling variables, close to two-thirds of the respondents (64%) relied on public assistance such as the Supplemental Security Income. Although a majority had some form(s) of health insurance for health care (Medicare, Medicaid, and/or private insurance), 23% of respondents did not have any health insurance.

TABLE 1
Coding Scheme of the Independent and Dependent Variables

Variable	*Coding*
Predisposing	
Age	Actual chronological age based on the Western calendar
Gender	1 = male, 0 = female
Education	Number of years in school
Years since immigrated	Number of years since immigrating to the United States
Marital status	1 = married, 0 = not married
Living arrangement	1 = living alone, 0 = living with others
Medical belief: use of alternative medicine	Beliefs in herbal remedies or acupuncture: 1 = yes, have used an alternative healing method in additional to Western medicine; 0 = no, have used Western medicine only
Services provided by same-culture professionals	Preference for services provided by professionals with same-culture background: 1=yes, 0 = no
Enabling	
Health insurance	1 = have health insurance, 0 = no health insurance
Public assistance	1 = currently receive SSI, 0 = do not receive SSI
Contacts with friends/family	Whether one has seen or talked to friends or family during the past two weeks: 1 = yes, 0 = no
Children in Southern California	Number of children living in Southern California
English-speaking ability	1 = *not at all*, 2 = *little*, 3 = *fluent*
Need	
Health status (self-assessed)	1 = *excellent/very good*, 2 = *good*, 3 = *fair*, 4 = *poor*
Functional limitation	Total number of difficulties in doing activities of daily living and instrumental activities of daily living
Heart problem	1 = yes, 0 = no
Hypertension	1 = yes, 0 = no
Diabetes	1 = yes, 0 = no
Arthritis	1 = yes, 0 = no
Service utilization	(Contact)
Doctoral visits	Whether one has visited a doctor during the past 12 months: 1 = yes, 0 = no
Hospital stays	Whether one has been hospitalized during the past 12 months: 1 = yes, 0 = no
Home- and community-based (HCB) programs[a]	Whether one has used any of the HBC programs: 1 = yes, 0 = no

NOTE: SSI = Supplemental Security Income.
a. The home- and community-based (HCB) programs in this study included senior centers, home health services, visiting nurse services, senior transportation services, and nutrition programs such as Meals-on-Wheels and congregate meals.

The health variables revealed that three-quarters of respondents (74%) had at least one of the four common chronic conditions (heart-related problem, diabetes, arthritis, and hypertension). The

TABLE 2
Sample Characteristics of Older Taiwanese in Southern California: Predisposing Variables (n = 240)

Variable	*Frequency (%)*	*Mean Standard Deviation*
Predisposing Variable		
Age		74.5 ± 6.98
65-74	44	
75-84	49	
85+	7	
Gender		
Men	42	
Marital status		
Married	56	
Widowed	42	
Education		10.9 ± 4.09
Less than 6 years	5	
6-9	32	
10-12	33	
12-16	25	
16+	5	
Years since immigrated		13.3 ± 6.06
0-1	34	
11-20	54	
More than 20	12	
Living arrangement		
Living alone	32	
With spouse only	36	
With children only	16	
With children and spouse	15	
Type of medicine used		
Western medicine only	76	
Western and alternative medicine	24	
Preferred services provided by same-culture professionals	72	
Enabling dimension		
Health insurance		
Medicare/Medicaid	75	
Other private health insurance	7	
None	18	
Receiving public assistance (SSI)		
Yes	64	
Children living in Southern California		2.2 ± 1.57
0	12	
1	26	
2	37	
3 and more	35	

(continued)

TABLE 2 Continued

Variable	*Frequency (%)*	*Mean Standard Deviation*
Enabling dimension		
At least once a week		
Visited children	65	
Talked to children on the phone	78	
English-speaking ability		
Not at all	75	
A little	20	
Fluent	5	
Need variable		
Health status (self-rated)		
Poor	12	
Fair	62	
Good	18	
Very good to excellent	8	
Functional limitations		N/A
0	68	
1	11	
2	6	
3	6	
4	4	
5 or more	6	
Health conditions (overall/those without health insurance)		
Having none of the four conditions	26	
Arthritis	45	
Diabetes	10	
Heart problem	26	
Hypertension	37	

NOTE: SSI = Supplemental Security Income.

majority of the respondents rated their health as fair (62%) and did not have functional limitations (67%). However, about 16% of the respondents had more than three activities of daily living (ADL)/instrumental activities of daily living (IADL) difficulties, a level of measurement often used by health care professionals to indicate potential LTC service needs.

SERVICE UTILIZATION PATTERNS

The utilization patterns of doctor visits, hospitalization, and HCBC programs are displayed in Table 3. About 16% of the respondents did

TABLE 3
Utilization of Health Services and Home- and Community-Based Programs (HCB): Contact With Doctors, Hospitals, and HCB Programs (n = 240)

Variable	*Frequency (%)*	*Mean Standard Deviation*
Doctoral visits		N/A
0	16	
1-2	20	
3	10	
>3	54	
Hospital stays (number of days)		1.11 ± 4.42
0	83	
3 or less	9	
4-7	5	
More than 7	3	
HCB programs		N/A
Never used any HCB programs	35	
Senior center	46	
Congregate meals	39	
Transportation service	14	
Home health service	5	
Meals-on-Wheels	4	
Visiting nurse service	3	

not visit a doctor in the past year. About 17% were hospitalized with an average stay of one day. As for HCBC programs, close to half of the respondents (46%) had attended a senior center, more than one-third (39%) ate in a congregate meal site, and about 14% of the participants used transportation services. On the other hand, more than one-third of the participants (35%) never used any HCBC programs. Fewer than 5% of the participants used Meals-on-Wheels as a nutritional service and services that help daily living such as home health services and visiting nurses.

LOGISTIC REGRESSION: FACTORS AFFECTING SERVICE UTILIZATION

The results of logistic regression models for predicting health services and HCBC program utilization are shown in Table 4. These results were discussed in accordance with the variables predicting

TABLE 4
Logistic Regression on Variables Predicting Utilization of Doctoral Visits, Hospital Stays, and Home- and Community-Based (HCB) Programs by Older Taiwanese in Southern California (odds ratio)

Variable	*Doctoral Visits (Model 1)*	*Hospital Stays (Model 2)*	*HCB Programs*[a] *(Model 3)*
Predisposing			
Age	1.0691	0.9464[b]	1.0937**
Female	1.7698	0.9964[b]	0.4337*[b]
Years of education	0.5915[b]	0.2527***[b]	2.1599
Years since immigrated	3.5079	3.4007*	2.8512*
Living alone	2.1417	2.9129*	4.9566****
Used both Western and alternative medicine	3.4677*	2.8876	0.9220[b]
Enabling			
Having health insurance	0.1134***[b]	0.4135[b]	1.6629
Receiving SSI	1.5991	0.9638[b]	1.9106
Having frequent contacts with family/friends	1.8923**	0.9214[b]	0.9272[b]
Number of children in Southern California	7.9123*	0.6728[b]	0.7786[b]
Able to speak English	0.2488	0.2618**	0.7402
Preferred same-culture professionals	2.1405*	1.9920	3.8612**
Need			
Health status (from poor to excellent)	3.0939**	1.8219	1.1252
Functional limitations	2.1515	1.0631	0.6862**[b]
Heart problem	3.5906	2.8096*	0.6125[b]
Hypertension	2.7589	1.1933	1.5292
Diabetes	0.0572**[b]	0.5610[b]	0.9657[b]
Arthritis	7.6281**	0.4523[b]	2.0883*
–2 log (likelihood ratio)	166.276	110.947	139.311
Chi-square	47.621****	27.811**	31.913**

NOTE: SSI = Supplemental Security Income.
a. The HCB programs in this study included senior centers, home health services, visiting nurse services, senior transportation services, and nutrition programs such as Meals-on-Wheels and congregate meals.
b. These values represent odds ratios in an inverse relationship to service utilization.
*$p < .1$. **$p < .05$. ***$p < .01$. ****$p < .001$.

older Taiwanese respondents' visits to (1) a doctor, (2) a hospital, and (3) HCBC program services (models 1, 2, and 3, respectively). After proper tests, marital status was dropped because it was highly correlated with living arrangement (correlation coefficient = .65, $p < .001$).

The decision to include living arrangement and exclude marital status was twofold. First, a bivariate analysis between living arrangement and marital status revealed a certain pattern: People who were married tended to live with at least one more person, including a spouse or children. However, those who were widowed tended to live alone. Second, living arrangement was included because of a practical factor: Interventions amendable to changing service utilization due to living arrangement differences were more likely to be developed than to affect people's marital status. As a result, all variables but marital status were included in the final regression equation.

In addition, although a p value (significance level) of .05 was usually treated as the standard for evaluating significant variables, variables at the .1 significance level were also included because of the exploratory nature of the study as well as some high odds ratios that bear practical importance. For example, having more children living in Southern California increased the likelihood of making contact with a doctor eightfold. As a result, these variables could become possible targets for social work interventions and further investigation.

For the first model, which examined respondents' contact with doctors, variables from both enabling and need domains were found to be significant factors ($p < .05$). In particular, having arthritis ($p < .05$) and having children living in Southern California ($p < .1$) increased the likelihood of doctor visits eightfold. Having poor health status ($p < .05$) also increased the likelihood of doctor visits threefold. In addition, although only significant at the .1 level, using alternative medicine and preferring services provided by professionals of the same cultural background increased the likelihood of doctor visits about threefold and twofold, respectively.

The second model examined factors influencing hospital stays among the respondents. While English-speaking ability and years of education from predisposing and enabling domains were found significant at the .05 level, four other variables with high odds ratios were also significant at the .1 level. First, the likelihood of having hospital stays was affected by individuals with a lower education ($p < .01$) and better English-speaking ability ($p < .05$). Second, having a heart problem was found to increase the likelihood of hospital stays almost threefold. Finally, living alone and having longer years of immigration in the United States were significant at the .1 level but were found to increase the likelihood of hospitalization about threefold.

The last model examined factors affecting utilization of HCBC programs by the respondents (model 3). First, living alone and preferring services provided by professionals of the same cultural background increased the likelihood of using HCBC programs fivefold and fourfold, respectively. Second, having functional limitations also influenced respondents in using these services. Finally, having resided longer in the United States and having arthritis also increased the likelihood of utilization about threefold and twofold, respectively ($p < .1$).

Discussion

When specific variables were identified that affect the utilization of health services and HCBC programs, older Taiwanese in this study displayed both similarities and differences predicted by the Andersen model (Table 5). For example, different variables were found to be significant in predicting the utilization of doctor visits, hospital stays, and HCBC programs. As the models moved from more discretionary services (doctor visits) to nondiscretionary services (hospital stays), we see that the predictors changed from a more enabling component, general health and chronic conditions (e.g., health status, arthritis and diabetes, respectively), to more acute and sociostructural bases (e.g., having heart problems, having resided longer in the United States, and having the ability to communicate in English).

Despite similarities, results also showed different predictors compared with what Andersen and others found (Andersen 1995; Wolinsky 1991). First, social support variables played an important role in making contact with doctors but not with hospital stays and HCBC services. Second, neither health status nor having health insurance predicted hospital stays and using HCBC services. Perhaps the older Taiwanese and their families in this study were quite limited when it comes to coordinating aging services and reacting to emergency situations like hospitalization. Given a high proportion of respondents without health insurance, a hospital stay might be a luxury for those who can afford it or a necessity for those who face life-threatening conditions. If one had a heart attack, for example, one would probably rush to the hospital and perhaps undergo surgery with or without an opportunity for family discussion or means testing. In

TABLE 5
Significant Variables (sociostructural, cultural, and health variables) That Affect Utilization of Health Services and Home- and Community-Based (HCB) Programs[a] by Older Taiwanese Respondents in Southern California

Types of Variable	*Doctoral Visits (Model 1)*	*Hospital Stays (Model 2)*	*HCB Programs (Model 3)*
Sociostructural	Health insurance***	Living alone* Years since immigrated*	Living alone**** Years since immigrated*
Cultural	Using alternative medicine* Preferred same-culture professionals*	English-speaking ability**	Preferred same-culture professionals**
Health	Health status** Diabetes** Arthritis**	Heart problem*	Functional limitations** Arthritis*
Other	Having frequent contact with family** Having children in Southern California*	Education***	Age** Female*

a. The home- and community-based services in this study included senior center, home health services, visiting nurse services, senior transportation services, and nutrition programs such as Meals-on-Wheels and congregate meals.
*$p < .1$. **$p < .05$. ***$p < .01$. ****$p < .001$.

the Taiwanese community, there are emergency funds set up by organizations such as Tzu-Chi or the Taiwanese American Affiliated Committee on Aging to pay for those who need urgent hospitalization but do not have the insurance or immediate financial means to guarantee payment. These emergency plans, however, can work for only a limited number of older Taiwanese for a very short period of time. A long-term solution is needed to care for those who need hospitalization but do not have the means to pay.

The predictors for HCBC program use were based more on structural needs and functional limitations than on general health and the means to obtain care. Moreover, the use percentages suggested that the participants used HCBC programs more for social purposes than for health needs. For example, many people visited the Taiwanese senior center, but few used home health services despite 16% of the

participants indicating having three or more ADL/IADL difficulties. The regression revealed that use of HCBC programs was influenced by years of immigration, living alone, and preferring services by professionals of the same cultural background. In the Taiwanese community in East Los Angeles, the Taiwanese American Affiliated on Aging sponsors monthly senior club events that target the large number of older Taiwanese in the neighborhoods and those who live in the Flamingo Garden, the only senior apartment complex built exclusively by and for Taiwanese immigrants in El Monte, California. The goal is to provide minimum social support for older immigrants who live alone or in isolation as well as for older Taiwanese immigrants to meet their peers and engage in social activities that are culturally and linguistically appropriate. Perhaps these Taiwanese organizations can educate/distribute aging information to the older Taiwanese and their families in the future.

Conclusion

Different types of structural and cultural variables were found to affect the utilization of health services and HCBC programs among older Taiwanese in this study. For example, variables predicting doctor visits were more culturally based and related to general health status and chronic, nonacute conditions such as diabetes and arthritis. Having a hospital stay was more related to structural bases (e.g., living alone, long years since immigration) and acute conditions than cultural bases. And using HCBC program was related to structural (living alone), cultural (preference for same-culture professionals), and functional factors (functional limitations and arthritis). Together, the variables create an interesting interplay between structural and cultural factors, which begin to shed some light on understanding health, health services, and their relationships to the lives of older immigrants in this study. As a result, implications for gerontological research and practice are generated. Although the practicality of these implications and subsequent recommendations may be constrained by the limitations of the survey, they are still useful for understanding the directions future research on Taiwanese elderly immigrants and other Asian elders might take.

Implications for Gerontological Research

The Andersen model was applicable in explaining factors that predict health services utilization and HCBC service use. The integration of cultural and structural variables strengthened the model because it increased the ability to explain predictions by about 10% (analysis not shown). However, the model and its structural and cultural variables are limited in exactly what they can help explain. For example, "the number of years since an individual immigrated" may be a valid structural variable because that time period offers a degree of acculturation. However, this variable does not provide an indication as to how immigration influences the later lives of older immigrants in the host country. In other words, reasons for, expectation of, satisfaction with, and commitment to immigration could play some roles in determining one's later interaction with the new host country, such as accessing services, applying for benefits, or exchanging within the informal social support system. All of these factors should be explored and refined so they can play a better explanatory role when we apply the Andersen model to a minority group or an immigrant population.

In addition, in treating older immigrants, service providers should be aware of the interrelationship between "Western medicine" and what is considered "alternative medicine." In this study, the use of alternative medicine as a healing method not only existed but also increased the odds of contact with physicians among older Taiwanese sampled. Health care professionals might have to start treating these two types of healing methods as complementary services, not as replacements for one another. More important, as more health insurance companies reimburse clients for alternative health services, exactly what alternative health care can do for individuals (e.g., providing psychological comfort, reducing pain and stress, and/or believing in a holistic health treatment by combining alternative and Western medicine) should be explored for its cost-effectiveness.

Implications for Gerontological Practice

People who live alone might be at high risk for not learning about the service systems available for seniors, such as HCBC programs. An outreach effort can be launched to educate older Taiwanese and teach

them how to take care of themselves by accessing existing health services and HCBC programs. These efforts can be most effective if done in communities with families of all generations because the adult children or even grandchildren, who might be responsible for taking care of their aging relatives, can use this opportunity to learn about available sources. Thus, it is important to start involving adult children and younger families early on to help their older relatives make health care decisions that are culturally acceptable and mutually beneficial.

On the policy side, the high enrollment rate in the public assistance programs among older Taiwanese in this study warrants further analysis. Newly arrived immigrants such as the Taiwanese cannot assume that public benefits are as readily available or accessible as they were for their previously arrived counterparts. The issue is shifted to how responsible the families of older Taiwanese should be when they reunite with their aging relatives. Should immigrants like the older Taiwanese who are close to retirement age be informed about their responsibilities to take care of themselves, as individuals or within the family unit, when they immigrate to the United States? What are the measurements for compliance or alternative solutions in the event elders are incapable of self-care? Based on the analysis, family members of older Taiwanese in this study provide a rich informal support system. Yet, they may not be able to afford or help their elderly parents use the health services because of financial limitations. Or the family members are immigrants also who may not be familiar with the aging service structure. When older Taiwanese or other newly arrived elderly immigrants become frail and/or incompetent, what are the solutions for taking care of them? Although the answers might not be easy and quick due to legality and human rights concerns, both social welfare advocates and community leaders of immigrant groups need to examine these questions/issues for solutions. Otherwise, situations like the welfare reform legislation, which limited the welfare benefits of elderly immigrants, may reoccur when domestic public issues become more divisive.

On the program side, small steps can be taken to help the families of newly arrived immigrants such as the Taiwanese understand how to maneuver in a complex and fragmented health system. One way is to make existing aging programs, especially HCBC services, more flexible and adaptable to the various ethnic cultures and environments for elderly immigrants. For instance, based on this study, older Taiwanese

prefer to approach their own organizations or service providers to explore information and get help. A nutrition service such as Meals-on-Wheels can serve ethnic food or food that is similar to an ethnic person's taste. A small step like this may help the older Taiwanese or other newly arrived immigrants maintain a proper nutrition level, avoid the possible costs of hiring a home health aide to cook meals, and ultimately increase life satisfaction. In addition, either the public or private sector can allocate funding to encourage immigrant services. Funding for such a purpose is cost-effective because it can reach immigrants in high concentrations and ultimately target a population that is difficult to reach by public agencies.

In sum, this study was based on a nonprobability sample in Southern California as well as a mail survey mechanism that produced results that might not be fully applicable to all older Taiwanese since they may be biased toward those who are relatively healthy, literate, and socially active in Taiwanese communities. However, the exploratory nature of this study and the fact that it presents the first large-scale understanding of the experiences of older Taiwanese provide an initial understanding of older Taiwanese as members of a newly arrived Asian group and their interaction with the health care system. As Taiwanese become more diverse, it is also important to examine in the future the differences among Taiwanese living in different cities in the United States and between those who immigrated late in life and those who immigrated early in life, worked in the United States, and aged here. In addition, future research should consider comparing how cultures, structural barriers, health belief, and immigration status affect the utilization of health services and HCBC programs among elderly Asians or newly arrived immigrants. It may require a collaborative effort among different ethnic groups and a multidisciplinary setting; however, solutions based on common characteristics found can be developed to serve the diverse aging population more cost-effectively and with mutual benefit.

NOTES

1. Unless otherwise noted, the term *Asian* or *Asians* refers to people whose ethnic origins are from countries in Asia or the Pacific Islands.

2. The Asian population is expected to grow more rapidly than any other ethnic group, at 693% in the next 25 years, compared with 93% for non-Hispanic Whites.

3. The term *Taiwanese* refers to people who immigrate to the United States from Taiwan. This includes people whose ethnic origins are Holo/Fukienese, Hakka, Chinese Mainlanders, and the Aborigines.

4. General Bank, established by Taiwanese entrepreneurs and other Asian businessmen in the early 1980s, is based in Los Angeles.

5. The home- and community-based care (HCBC) programs in this study included senior center, home health, visiting nurse, and senior transportation services and nutrition programs such as Meals-on-Wheels and congregate meals. It should be noted that the HCBC programs were more for the purpose of health promotion and socialization than for long-term maintenance of debilitating conditions in institutionalized facilities as traditionally defined.

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