

Acculturation, health, stress, and psychological distress among elderly Hispanics

THANH V. TRAN¹, TANYA FITZPATRICK², WILLIAM R. BERG³ & ROOSEVELT WRIGHT, JR⁴

¹Graduate School of Social Work, Boston College, Chestnut Hill, MA 02167, USA; ²Institute in Gerontology, St Joseph College, West Hartford, CT 06117, USA; ³School of Social Welfare, The University of Wisconsin-Milwaukee, WI 53201, USA; ⁴Academic Affairs, University of Missouri at St Louis, St Louis, MO 63121, USA

Abstract. A structural equations model is proposed to identify direct, indirect, and total effects of selected predictors of psychological distress in a national-area probability sample of Mexican American, Puerto Rican and Cuban elderly. Multivariate regression procedures vis-à-vis LISREL-7 techniques are used. The findings indicate that the modified path model explains 29% of the variance in psychological distress. Measures of acculturation have significant indirect effects on psychological distress via other intervening variables in the model. All selected measures of health and stress included in the model have significant direct effect on psychological distress. Implications of the findings for future research and public policy are discussed.

Key words: Acculturation, Health, Psychological distress, Stress, Elderly Hispanics, USA

Introduction

Hispanics currently form the second largest minority group in the USA and, according to the Bureau of the Census, will become the largest single minority group early in the 21st Century (US Bureau of Census 1986). Although research has been conducted on the risk factors associated with the physical and psychological health of different Hispanic populations, relatively little work has been done on how these factors affect the health and well-being of elderly Hispanics (Marks, Garcia & Solis 1990; Narrow, Rae, Moscicki, Locje & Reiger 1990). It is clear, however, that elderly Hispanics are confronted by a variety of social, economic, and psychological problems, some of which are common to all elderly groups (e.g., income, housing, and deteriorating health), while others are unique to this population (e.g., language barriers, and discrimination) (Maldonado 1990; Markides 1989; Torres-Gill 1990).

The current study represents an attempt to examine the relationships among levels of acculturation, physical health, general stress, and psychological dis-

stress among elderly Hispanics. The study utilizes a structural equations model with data drawn from a nationwide sample of the three major Hispanic groups; that is, Mexican American, Cuban, and Puerto Rican elderly. Although the study is exploratory in nature, the methodology provides a useful framework for analyzing physical and emotional adjustment patterns within this population and the findings have implications for future research and for public policy making in this area.

Background of the study variables

The variables included within the proposed analytical path model were selected on the basis of previous research studies. This research suggests that each of the variables has, in varying degrees, an impact upon the health and well-being of Hispanic groups. Thus acculturation has been found to play an important role in determining the health behavior of elderly Hispanics, in levels of depression among both Cuban Americans and Mexican Americans, and in the incidence of such diseases as diabetes (Marks et al. 1990; Narrow et al. 1990; Burnam, Hough, Escobar, Karno, Timbers, Telles & Locke 1987; Moscicki, Locke, Rae & Boyd 1989; Hazuda & Haffner 1984).

These studies have, for the most part, used language proficiency as their measure of acculturation (Burnam et al. 1987). However, to the extent that the acculturation involves a complex learning process through other attributes associate with immigrants' personal background and the host culture, it is clear that it forms a complex variable which includes, in addition to language skills, such things as familiarity with the host culture, education, and generational factors (Cohen 1987). In the present study, therefore, acculturation is operationally defined in terms of those attributes which, in theory at least, play the most important roles in this process; that is, in terms of language skills and education. These variables form two distinct but related dimensions of acculturation. Their functions within the process of acculturation will tend to vary in relationship to the immigrants' personal and cultural background. Thus, while English proficiency and educational attainment may be essential to the acculturation of young, non-English speaking immigrants, they become facilitators of acculturation among the elderly, non-English speaking immigrants.

Stress is also a complex variable that includes elements of financial, social, personal, or family stress. The relationship between stress and psychological well-being has been demonstrated in the literature (Thoits 1983). However, previous research has not examined the possible sequential effects of stress; that is, the extent to which stresses in one area may generate or impact levels of stress in other areas. For example, the fact that many elderly Hispanics

tend to be subject to economic or financial stresses may serve to generate or exacerbate existing stresses in their social, family, or personal relationships (Maldonado 1990). The use of a structural equations model allows for the assessment of both the sequential and the overall impacts of stress upon physical and mental health status.

The variable of subjective or self-rated health status provides a measure of the individual's assessment of his or her current health and physical limitations. Previous research among Hispanic group has suggested that self-rated health status is related to both acculturation and income, and to the age at which the individual migrated to the USA (Markides & Lee 1991; Angel & Angel 1992).

Psychological distress among elderly Hispanics has received relatively little attention in the existing research. This reflects, in part, the problems associated with obtaining standardized measures of acculturation and of psychological distress, problems that have made it difficult to establish meaningful bases for comparisons (Moscicki et al. 1989). Previous research among the general population of the elderly has found, however, that a poorer level of self-reported health status is related to a poorer psychological well-being (Hayes & Ross 1986). Other studies also suggest that high stress levels have a negative impact on psychological distress, and that financial stress tends to be associated with problems in personal control and with psychological distress in general (Thoits 1983; Krause & Baker 1992).

In addition to these variables, the path model specified in the study includes those demographic variables associated with age, gender, marital status, and ethnicity (i.e., Cuban American, Puerto Rican American, and Mexican American). While these variables are incorporated within the model as control variables, their relationships with acculturation, stress, health status, and psychological distress provide an important basis for understanding the general quality of life among elderly Hispanics.

Model specification

The proposed path model (see Figure 1) reflects the complexity of the relationships among acculturation, stress, health status and psychological distress. The model requires eight structural equations, each of which consists of a dependent variable and a set of independent variables. These equations provide a basis for simultaneously estimating the direct, indirect, and total effects of an independent variable on those dependent variables incorporated within the model.

The general hypothesis tested in this study is that (a) the socio-demographic backgrounds of elderly Hispanics influences their level of acculturation (i.e.,

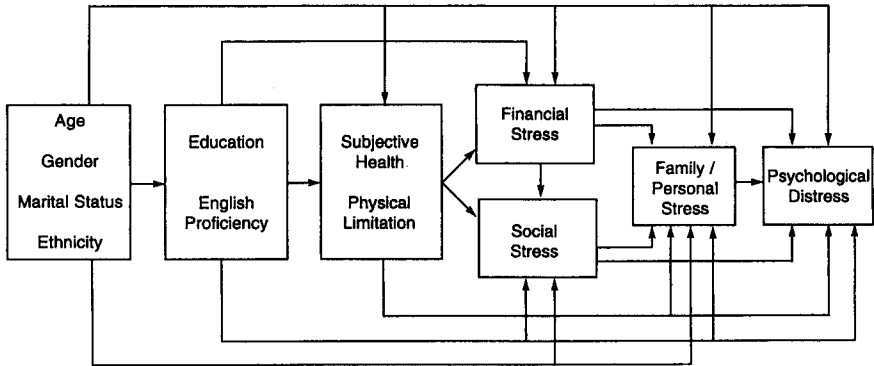


Figure 1. The proposed model of acculturation, health, stress and psychological distress.

education and English proficiency), (b) that English proficiency and education impacts health status, stress and psychological distress, (c) that health status impacts stress and psychological distress, and (d) that the different dimensions of stress affect each other and levels of psychological distress. The first equation specifies the effects of age, gender and marital status on education, while the second analyzes the effects of these variables on English proficiency. The third and fourth equations specify the effects of education, English proficiency and the control variables on subjective health and physical limitations. The fifth, sixth and seventh equations sequentially examine the various forms of stress outlined above. Thus the fifth specifies the effects of health status, acculturation and the control variables on financial stress; the sixth deals with the effects of health status, acculturation, physical limitations, financial stress and the control variables on social stress; and the seventh examines the effects of health status, acculturation, financial stress, social stress and the control variables on family and/or personal stress. Finally, the eighth equation specifies the effects of overall stress, health status, acculturation and the control variables on psychological distress.

Methods

Sample. The study is based upon data drawn from the 1988 National Survey of Hispanic Elderly People. The survey includes a total of 2299 respondents age 65 and older. The present study utilizes that subset of this larger sample that includes those respondents who identified themselves as members of one of the three primary Hispanic groups. Thus the current study includes a total of 2019 respondents, 937 of whom are Mexican Americans, 368 are Puerto Rican Americans, and 714 are Cuban Americans. Within this subsample, the

ages range from 65 to 100 (mean = 73), and approximately two-thirds are female (64.2%). A detailed description of the total sample can be found in Andrews' (1989) report.

Measures. Table 1 describes the variables used in the analysis. The dependent variable psychological distress is derived from Bradburn's (1969) affect balance scale. The four items on this scale which measure negative feelings are utilized as the measure of psychological distress in the current study. These items were selected on the basis of their similarities with other commonly used measures of psychological distress (Radloff 1977; Derogatis & Melisaratos 1983). The analysis includes measures of social and family/personal stress, self-reported health status, and physical limitations, with the latter measured through seven self-reported daily activity limitations. It should be noted that most of the scales used in the analysis have relatively low internal consistency reliability due to the low average correlations among the items and to the small numbers of items in the scales. This is important in that it impacts the strength of the relationships found in the analysis and suggests, accordingly, that future research in this area should increase the numbers of scale items (e.g., given an average interim correlation of 0.20, a two-item scale will have an average internal consistency coefficient of 0.333, while a ten-item scale with the same average interim correlation would have an internal consistency coefficient of 0.714) (cf., Carmines & Zeller 1979).

Data analysis. Study data were analyzed utilizing the multivariate regression techniques of LISREL-7 (Joreskog & Sorbom 1988). Unlike other regression analysis, LISREL-7 allows for the simultaneous examination of a system of structural equations incorporated within an analytic path model. This allows, in turn, for estimates of statistical significance for both direct and indirect effects. Since LISREL-7 calculates the standard errors for both direct and indirect effects, and allows for an estimate of statistical significance based on the ratio of indirect – (or total) effect – and its standard error.

Results

The results of the analysis are contained in Figure 2 and Table 2. The path coefficients presented in Figure 2 are all significant at the 0.05 level. The path coefficients of the background variables presented in Table 2 are the products of a trimming process in which non-significant paths were deleted from the model sequentially. The results indicate that the trimmed path model has a relatively good fit with the data. The overall model explains 29% of the total variance in psychological distress. The fitness of the trimmed

Table 1. Descriptions of variables used in the analysis

Variables	Code	Internal consistency Reliability
<i>Psychological distress</i>		
In the last few weeks have you felt:		
Restless	0. No; 1. Yes	
Bored	0. No; 1. Yes	
Depressed or very unhappy	0. No; 1. Yes	
Upset because someone criticized you	0. No; 1. Yes	0.65
<i>Family/personal stress</i>		
Is having to take care of a sick spouse or relative a problem for you these days, or not?		
Is having too many problems or conflicts in the family a problem for you these days, or not?		
Is being nervous or worried a problem for you these days, or not?		
	0. No; 1. Yes	0.57
<i>Social stress</i>		
Is loneliness or not having enough friends a problem for you these days, or not?		
Is having to depend too much on other people a problem for you or not?		
	0. No; 1. Yes	0.56
<i>Financial stress</i>		
Is not having enough money to live on a problem for you these days, or not?		
Is having too many medical bills a problem for you or not?		
	0. No; 1. Yes	0.53
<i>Subjective health</i>		
Self-rated: (1) Excellent; (2) good; (3) fair; (4) poor		
<i>Physical limitations</i>		
Sum of seven limitations of daily activities including having difficulty of (1) bathing or showering; (2) dressing; (3) eating; (4) getting out of bed; (5) walking; (6) getting outside; (7) using toilet		
<i>Education</i>		
This variable was coded 1 for no formal education to 18 for four year college and college graduate		
<i>English proficiency</i>		
Speak English	0. No; 1. Yes	
Write English	0. No; 1. Yes	
Read English	0. No; 1. Yes	0.80
<i>Age</i>		
Age ranged from 65 to 100 with an average of 73 years		
<i>Gender</i>		
0. Female; 1. Male		
<i>Marital status</i>		
0. Otherwise; 1. Married		
<i>Ethnicity</i>		
Cuban	0. Puerto Rican; 1. Cuban	
Mexican	0. Puerto Rican; 1. Mexican	

Table 2. Decomposition of effects of independent variables on dependent variables depicted in the proposed model

Variables	ML (S.E.) ^a	DE (S.E.) ^a	IE (S.E.) ^a	TE (S.E.) ^a
Equation 1 = Education^b				
Age	0.000	0.000	0.000	0.000
Gender (Men)	0.053 (0.023)	0.053 (0.023)	0.000	0.053 (0.023)
Married status	0.070 (0.023)	0.070 (0.023)	0.000	0.070 (0.023)
Cuban	0.166 (0.024)	0.166 (0.024)	0.000	0.166 (0.024)
Mexican	-0.134 (0.024)	-0.134 (0.024)	0.000	-0.134 (0.024)
R ² = 0.079				
Equation 2: English^b				
Age	-0.092 (0.020)	-0.092 (0.020)	0.000	-0.092 (0.020)
Gender	0.071 (0.023)	0.071 (0.023)	0.000	0.071 (0.023)
Married status	0.084 (0.024)	0.084 (0.024)	0.000	0.084 (0.024)
Cuban	-0.106 (0.025)	-0.106 (0.025)	0.000	-0.106 (0.025)
Mexican	0.079 (0.024)	0.079 (0.024)	0.000	0.079 (0.024)
R ² = 0.056				
Equation 3 = Subjective health^b				
Education	-0.091 (0.022)	-0.091 (0.022)	0.000	-0.091 (0.022)
English	-0.100 (0.023)	-0.100 (0.023)	0.000	-0.100 (0.023)
Age	0.000	0.000	0.009 (0.003)	0.009 (0.003)
Gender	-0.071 (0.021)	-0.071 (0.021)	-0.012 (0.004)	-0.083 (0.022)
Married status	0.000	0.000	-0.015 (0.004)	-0.106 (0.022)
Cuban	-0.101 (0.022)	-0.102 (0.022)	-0.005 (0.006)	-0.106 (0.022)
Mexican	0.000	0.000	-0.004 (0.006)	0.004 (0.006)
R ² = 0.045				
Equation 4 = Physical limitation^b				
Education	0.000	0.000	0.000	0.000
English	-0.082 (0.021)	-0.082 (0.021)	0.000	-0.082 (0.021)
Age	0.212 (0.019)	0.213 (0.019)	0.007 (0.003)	0.220 (0.019)
Gender	-0.070 (0.021)	-0.071 (0.021)	-0.006 (0.002)	-0.076 (0.021)
Married status	0.000	0.000	-0.007 (0.003)	-0.007 (0.003)
Cuban	-0.113 (0.021)	-0.114	0.009 (0.003)	-0.105 (0.021)
Mexican	0.000	0.000	-0.006 (0.003)	-0.006 (0.003)
R ² = 0.074				

Table 2. (continued)

Variables	ML (S.E.) ^a	DE (S.E.) ^a	IE (S.E.) ^a	TE (S.E.) ^a
Equation 5 = Financial stress^b				
Subjective health	0.180 (0.023)	0.179 (0.023)	0.000	0.180 (0.023)
Physical limitation	0.112 (0.024)	0.111 (0.024)	0.000	0.112 (0.024)
Education	0.000	0.000	-0.016 (0.004)	-0.016 (0.004)
English	-0.117 (0.021)	-0.116 (0.021)	-0.027 (0.006)	-0.144 (0.022)
Age	-0.148 (0.021)	-0.148 (0.021)	0.037 (0.007)	-0.111 (0.021)
Gender	0.000	0.000	-0.032 (0.007)	-0.032 (0.007)
Married status	0.000	0.000	-0.013 (0.004)	-0.013 (0.004)
Cuban	-0.128 (0.021)	-0.128 (0.021)	-0.018 (0.007)	-0.147 (0.022)
Mexican	0.000	0.000	-0.009 (0.004)	-0.009 (0.004)
R ² = 0.115				
Equation 6 = Social stress^b				
Financial stress	0.404 (0.019)	0.404 (0.019)	0.000	0.404 (0.019)
Subjective health	0.142 (0.021)	0.141 (0.021)	0.073 (0.010)	0.214 (0.023)
Physical limitation	0.129 (0.021)	0.128 (0.021)	0.045 (0.010)	0.174 (0.023)
Education	0.000	0.000	-0.019 (0.005)	-0.019 (0.005)
English	-0.089 (0.019)	-0.089 (0.019)	-0.083 (0.012)	-0.172 (0.022)
Age	0.047 (0.019)	0.047 (0.019)	-0.007 (0.011)	0.040 (0.021)
Gender	-0.060 (0.019)	-0.060 (0.019)	-0.041 (0.008)	-0.100 (0.020)
Married status	0.000	0.000	-0.078 (0.012)	-0.078 (0.012)
Cuban	0.000	0.000	-0.078 (0.012)	-0.078 (0.012)
Mexican	0.000	0.000	-0.011 (0.005)	-0.011 (0.005)
R ² = 0.297				
Equation 7 = Family/personal stress^b				
Financial stress	0.292 (0.020)	0.292 (0.020)	0.123 (0.010)	0.415 (0.019)
Social stress	0.305 (0.021)	0.305 (0.021)	0.000	0.305 (0.021)
Subjective health	0.098 (0.020)	0.098 (0.020)	0.118 (0.012)	0.216 (0.023)
Physical limitation	0.093 (0.021)	0.092 (0.021)	0.086 (0.012)	0.179 (0.023)
Education	0.000	0.000	-0.020 (0.005)	-0.020 (0.005)
English	0.000	0.000	-0.112 (0.013)	-0.112 (0.013)
Age	-0.077 (0.019)	-0.044 (0.019)	-0.055 (0.010)	-0.099 (0.022)
Gender	-0.044 (0.019)	-0.044 (0.019)	-0.055 (0.010)	-0.099 (0.022)
Married status	0.052 (0.020)	-0.052 (0.020)	-0.011 (0.003)	0.041 (0.020)
Cuban	0.000	0.000	-0.087 (0.010)	-0.087 (0.012)
Mexican	0.000	0.000	-0.006 (0.003)	-0.006 (0.003)
R ² = 0.358				

Table 2. (continued)

Variables	ML (S.E.) ^a	DE (S.E.) ^a	IE (S.E.) ^a	TE (S.E.) ^a
Equation 8 = Psychological distress^b				
Family/personal stress	0.174 (0.023)	0.175 (0.023)	0.000	0.174 (0.023)
Social stress	0.219 (0.023)	0.219 (0.023)	0.053 (0.008)	0.273 (0.022)
Financial stress	0.047 (0.022)	0.047 (0.022)	0.161 (0.013)	0.028 (0.020)
Subjective health	0.151 (0.022)	0.151 (0.022)	0.093 (0.010)	0.244 (0.022)
Physical limitation	0.130 (0.022)	0.129 (0.022)	0.075 (0.009)	0.204 (0.023)
Education	0.000	0.000	-0.022 (0.006)	-0.022 (0.006)
English	0.000	0.000	-0.090 (0.011)	-0.090 (0.011)
Age	-0.052 (0.020)	-0.052 (0.020)	0.020 (0.010)	-0.032 (0.020)
Gender	-0.080 (0.019)	-0.080 (0.019)	-0.063 (0.011)	-0.143 (0.021)
Married status	0.000	0.000	0.000	0.000
Cuban	0.000	0.000	-0.069 (0.010)	-0.069 (0.010)
Mexican	0.000	0.000	-0.004 (0.003)	-0.004 (0.003)
R ² = 0.281				

^aML = Maximum Likelihood Estimates; DE = Direct Effect (Standardized Solution); IE = Indirect Effect; TE = Total Effect; S.E. = Standard Error.

^bDependent variable in a structural equation.

path model was assessed through the Maximum Likelihood Chi-Square test [$\chi^2(24 \text{ d.f.}) = 35.24; p = 0.065$], the Goodness of Fit Index (GFI = 0.0997) and the Root Mean Residual (RMSR = 0.012).

The relationships stated in the general hypothesis and depicted in Figure 1 are, for the most part, supported by the data. While English proficiency and education are both related to subjective health status, only education has a significant relationship with physical limitations. Education however, has no direct relationships, with any of the dimensions of stress and psychological distress. English proficiency has significant direct relationships with both financial and social stress, but not with psychological distress. Financial stress has significant direct relationships with both social and family/personal stress. Finally, all three dimensions of stress have significant direct relationships with psychological distress.

The decomposition of the effects of the independent variables contained in the models is presented in Table 2. In the following, DE refers to direct effects, IE refers to indirect effects, and TE refers to total effects.

Education. The first structural equation specifies that education is dependent upon age, gender, marital status and ethnicity. The results of the analysis indicated that each of these variables, except for age, have significant direct effects on education. Elderly men tend to have higher levels of education than

women ($DE = 0.053$), married respondents generally have higher levels of education than other groups ($DE = 0.070$), Cuban Americans score higher on education than Puerto Ricans ($DE = 0.166$), while Mexican Americans tend to score lower than Puerto Ricans ($DE = -0.131$). These findings suggest that elderly Hispanic males and married respondents tend, for the most part, to have more education, and that elderly Cuban Americans and Puerto Rican Americans are more educated than Mexican Americans. Since education and English proficiency serve here as indicators of acculturation, these findings suggest that those elderly Hispanics with higher levels of education will, all other things being equal, be more likely to acculturate than their less educated counterparts.

English proficiency. The results presented in Table 2 indicate that all of the independent variables have significant direct effects on English proficiency. Age tends to have a negative relationship with English proficiency ($DE = -0.092$), males tend to score higher on language skills than females ($DE = 0.071$), married respondents have better English skills than unmarried ($DE = 0.084$), elderly Cuban Americans tend to have poorer English skills than Puerto Ricans ($DE = -0.106$), while Mexican Americans score higher than their Puerto Rican counterparts ($DE = 0.079$).

Subjective health. The results in this equation specify the direct effects of education, English proficiency, age, gender, marital status and ethnicity on subjective health, as well as the indirect effects of age, gender, marital status and ethnicity through the intervening effects of education and English proficiency. The findings indicate that elderly, more educated Hispanics ($DE = 0.091$) with higher levels of English proficiency ($DE = -0.100$) generally tend to rate their health as better (the codes for subjective health ranged from 1 for excellent to 4 for poor). Those respondents with higher levels of acculturation – that is, with higher levels of education and English proficiency – tend, for the most part, to rate their health as better. While age does not have significant direct effects on subjective health, it does have significant indirect effects ($IE = 0.009$), although these effects are relatively weak. In general, elderly Cubans rate their health as better than comparable Puerto Ricans ($DE = -0.101$), and marital status has significant indirect effects ($IE = -0.015$).

Physical limitations. While education does not have a significant direct effect on physical limitations, respondents with higher levels of English proficiency tend to report fewer physical limitations ($DE = -0.082$). Age tends to play a role in the level of physical limitations, both in terms of its direct effects

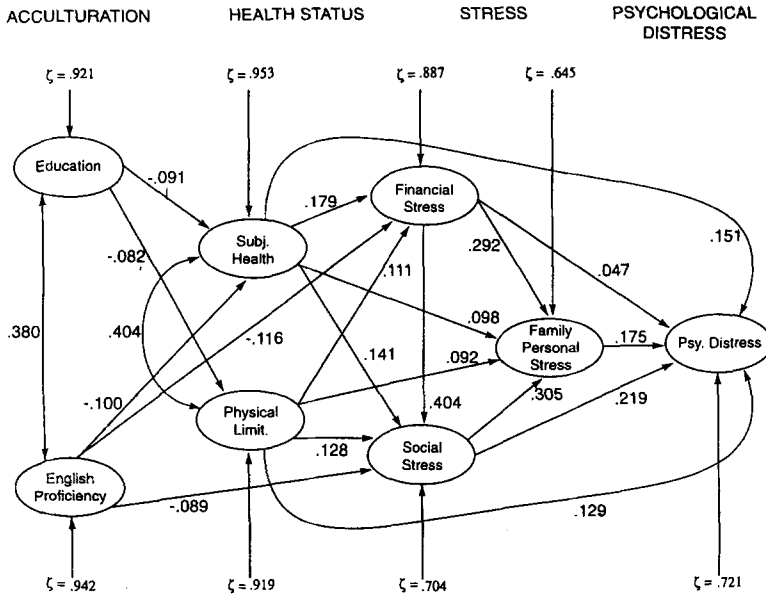


Figure 2. The modified path model.

(DE = 0.212) and, because of its relationship with lower levels of English proficiency in its total effects (TE = 0.220). Similarly, males report fewer physical limitations (DE = -0.070) and, because males tend to score higher on measures of acculturation, the total effect (TE = -0.076) is slightly higher than the direct effect. While Cuban elderly report fewer limitations than Puerto Ricans (DE = -0.113), the fact that they have poorer English proficiency skills leads to a total effect that is slightly smaller than the direct (TE = -0.105). Married respondents have fewer physical limitations, in part because of the fact that they score higher on indicators of acculturation (IE = -0.007). English proficiency skills also contribute to fact that Mexican Americans experience fewer limitations than their Puerto Rican counterparts (IE = -0.006).

The results presented thus far suggest that acculturation has a positive and significant relationship with health status among this sample of elderly Hispanics. Those respondents with higher levels of acculturation will tend to have, for the most part, better health status than those with lower levels of acculturation. Acculturation serves, in this sense, as an important mediating variable between age, gender, marital status, ethnicity and health status.

Financial stress. The results contained in Figure 2 and in Table 2 indicate that English proficiency, age and being a Cuban American have significant

direct effects on financial stress. Significant indirect effects were obtained for the variables education, gender, marital status and being a Mexican American. The direct effects for subjective health (DE = 0.180) and for physical limitations (DE = 0.112) suggest that elderly Hispanics who experience health related problems are likely to suffer financial stress. While English proficiency has a direct effect upon financial stress (DE = 0.117), its total effect (TE = -0.144) is somewhat higher. Similarly, although age has a negative relationship with financial stress (DE = -0.148), its total effect is reduced due to the intervening variables English proficiency and health status (TE = -0.111). The indirect effects of education suggest that respondents with higher educational levels report fewer health related problems and are presumably, thereby, less susceptible to financial stress (IE = -0.13). The indirect effects of education and English proficiency are also evident in the results for marital status (IE = -0.013), and in the fact that Mexican Americans tend to experience less financial stress than Puerto Ricans (IE = -0.009). These results suggest that subjective health and physical limitations tend to produce higher levels of financial stress among elderly Hispanics. They also suggest, however, that both increased age and English proficiency serve to decrease the levels of financial stress.

Social stress. As might be expected, financial stress has the strongest direct effects on social stress among all of the variables included in the structural equation (DE = 0.404). Social stress is also influenced by physical limitations (DE = 0.129) and by health status (DE = 0.142). In both cases, moreover, the total effects of subjective health (TE = 0.214) and of physical limitations (TE = 0.174) are greater than their direct effects due to the intervening effects of financial stress. Those respondents who score high on English proficiency experience lower levels of social stress (DE = -0.089), and older respondents tend to suffer from higher rates of social stress (DE = 0.047). Finally, those respondents who have more education, are married, and who are either Cuban or Mexican Americans tend to experience less social stress.

Family/personal stress. The findings on family/personal stress, when viewed in conjunction with those obtained for financial and social stress, suggest a pattern or sequence in which one type of stress produces or leads to another. Thus financial stress increases social stress and both, in turn, tend to produce increased levels of family/personal stress. The data tends to confirm this pattern; that is, respondents who experienced higher levels of financial stress (DE = 0.292) and of social stress (DE = 0.305) tend to exhibit higher levels of family/personal stress. The fact that health status and physical limitations have direct effects on both financial and social stress suggests, moreover, that

they should impact family/personal stress. The results (Figure 2) also indicate that lower levels of subjective health ($DE = 0.098$) and higher physical limitations ($DE = 0.093$) are, in fact, associated with family/personal stress. However, due to the fact that these health variables have significant effects upon financial and social stress, their total effects on family/personal stress are higher than their direct effects ($TE = 0.216$; $TE = 0.179$).

These health variables also have an impact on the fact that education ($IE = -0.020$) and English proficiency ($IE = -0.112$) tend to be associated with lower levels of family/personal stress. Finally, acculturation and health status also play a role in the findings on ethnicity which indicates that Cubans ($IE = -0.087$) and Mexican Americans ($IE = 0.006$) experience less family/personal stress than do Puerto Ricans.

Psychological stress. The general hypotheses of this study is that those elderly Hispanics who are less acculturated, have more health related problems, and who are subject to greater stress will suffer from higher levels of psychological distress. The overall measures of the goodness-of-fit of the structural equations model contained in Figure 2 and the statistically significant relationships among selected independent variables provide support for this hypothesis. Perhaps the most revealing findings in the study involve the differential effects of the various forms of stress on psychological distress. While each of the different types of stress incorporated in the model have significant direct effects on psychological distress, social stress ($DE = 0.218$) and family/personal stress ($DE = 0.177$) clearly exert stronger effects than financial stress ($DE = 0.047$). The impact of stress can also be observed in the differences between the direct and the total effects of subjective health ($DE = 0.151$ vs $TE = 0.244$) and physical limitations ($DE = 0.130$ vs $TE = 0.204$). These differences reflect, in large part, the role that health related variables play in relationship to the stress variables. While acculturation has no direct effects upon psychological distress, both education ($IE = -0.022$) and English proficiency ($IE = -0.090$) have indirect effects through their relationships to health status and stress. The role that acculturation, health status, and stress play in this process is reflected in the fact that Cubans ($IE = -0.069$) tend to experience less psychological distress than Puerto Ricans. Finally, although the levels of psychological distress tend to diminish with age, males in general are less subject to these feelings than females.

Discussion

The present study provides some interesting insights into the physical and mental well-being of elderly Hispanics. It accomplishes this, in part, because

of its use of a structural equations model which allows for the analysis of the direct, indirect, and total effects of those variables incorporated with the model. Analyses based upon LISREL techniques provide a convenient method for decomposing the relationships among the variables included within a structural equations model, and for examining, thereby, their direct and, more importantly perhaps, their indirect effects.

The model developed for the present study includes certain distinctive features which serve to differentiate it from previous research in this area. The most notable of these involves the relationship between stress and psychological distress. By differentiating between financial, social and family/personal stress, the model provides a framework for examining their sequential impact upon one another and upon psychological distress. While the data utilized in the analysis are cross-sectional, the findings suggest that stresses do not necessarily occur simultaneously, but rather that stresses felt in one area may produce or result in stresses in other areas during some later point in time. Future research in this area using alternative models and longitudinal data would contribute to a clearer understanding of these relationships. Given this caveat, and given the limitations of the data, the findings of the present study indicate that financial stresses tends to produce social stresses and that these stresses, independently and collectively, lead to stresses in the individual's family and personal life. In addition, each of these stresses tend to differentially impact the individual's psychological well-being; that is, financial stress apparently has less impact on psychological distress than do social, family or personal stress.

The model used in the present study provides a framework for analyzing the differential sources of these stresses. For example, the findings indicate that age, gender, language skills, and ethnicity have different impacts on the stress variables. While older respondents were found to be less susceptible to financial, family or personal stresses, they were more likely to experience social stresses. On the other hand, gender differences tend to have a significant impact upon both social and family/personal stresses. Finally, although English proficiency and ethnicity have no direct effects upon stress, each has significant indirect effects. These effects have not been observed in the research literature due, in part, to the fact that other methods of analysis (e.g., OLS regression) are not able to detect these indirect effects.

The study has attempted to examine the relationships between acculturation, health, stress and psychological distress within a nationwide sample of elderly Hispanics. While the study is clearly subject to certain limitations – including the rather low internal consistency reliability of selected variables – it nevertheless provides, through its methodology and its findings, some inter-

esting insights into those factors which contribute to psychological distress within this population.

The findings indicate, for example, that the level of acculturation has a significant effect upon health status. Less acculturated respondents were found, in other words, to experience higher rates of self-reported health problems than were those with higher levels of acculturation. The findings also suggest that the existence of health problems contributes, both directly and indirectly, to higher levels of stress and psychological distress.

One possible interpretation of these findings is that those elderly Hispanics who are less acculturated tend to experience difficulties in accessing health care because they have fewer language skills and lower levels of education. The lack of access to medical care may lead, in turn, to their tendency to perceive of themselves as subject to certain health-related problems. This interpretation is supported by previous studies of other immigrant groups which found that problems with English and lack of education were associated with difficulties in accessing medical care (Siddharthan & Sowers-Hoag 1989). These difficulties may be realistic or perceptual in nature but, in either case, they may be attributed to a variety of factors including overt or covert discrimination on the part of health care providers, a lack of information concerning how to access health care, and so forth. It is clear, however, that the existence of these health problems plays a significant role in determining adjustment patterns among elderly Hispanics, a role which suggests the need for further research in this area.

The use of a structural equations model provides a potentially useful basis for further studies of health and well-being among the elderly. Although some of the path coefficients found in the model were relatively small, they have useful theoretical implications in this area. For example, in spite of the fact that previous research has found a strong relationship between financial stress and psychological distress (Thoits 1983; Krause & Baker 1992), the path coefficient between these variables in the present study ($DE = 0.047$) is twice as large as the standard error (0.022). To the extent that this can be attributed to measurement and sampling errors, it suggests the need for more sophisticated measurement and sampling techniques.

To the extent that acculturation plays a role in these processes, the study raises policy issues which go beyond the variables included in this study itself. Further research needs to be done, for example, on the long-range implications of multilingual education, on the impacts of the movement towards English as the Official Language, and so forth.

It is apparent, finally, that health care practitioners and other helping professionals need to pay more attention to those factors which influence acculturation patterns, and to be more sensitive to those ethnic differences that exist

among Hispanics and other minority groups. The changing demographics and the stresses associate with acculturation make it imperative that helping professionals focus on the need for community-based health and human services. Participation in community based services can in part, overcome the psychological distress experienced by many elderly Hispanics.

References

- Andrews J. (1989). *Poverty and poor health among elderly Hispanic Americans*. Baltimore, MD: The Commonwealth Fund Commission on Elderly People Living Alone.
- Angel J.L. & Angel R.J. (1992). Age at migration social connections, and well-being among elderly Hispanics, *Journal of Aging and Health* 4: 480–495.
- Bradburn M.N. (1969). *The structure of psychological well-being*. Chicago: Aldine.
- Burnam M.A., Hough R.L., Escobar J.I., Karno M., Timbers D.M., Telles C.A. & Locke B.Z. (1987). Acculturation and life time prevalence of psychiatric disorders among Mexican Americans in Los Angeles, *Journal of Health and Social Behavior* 28: 89–102.
- Carmines E.G. & Zeller R.A. (1979). *Reliability and validity assessment*. Beverly Hills, CA: Sage Publications.
- Cohen R.E. (1987). Stressors: Migrations and acculturation to American society. In S. Bolvar (ed.), *Health and behavior research agenda for Hispanics* (pp. 59–71). Chicago: The University of Illinois at Chicago.
- Derogatis L.R. & Melisaratos N. (1983). The brief symptom inventory: An introductory report, *Psychological Medicine* 13: 595–605.
- Hayes D. & Ross C.E. (1986). Body and mind: The effect of exercise, overweight, and physical health on psychological well-being, *Journal of Health and Social Behavior* 27: 387–400.
- Hazuda H.P. & Haffner S.M. (1984). Acculturation as a protective factor against diabetes in Mexican Americans: The San Antonia Heart Study, *Diabetes* 33: 30A.
- Joreskog K.G. & Sorbom D. (1988). *Liseral 7: A guide to the program and applications*. Chicago: SPSS, Inc.
- Krause N. & Baker E. (1992). Financial strain, economic values, and somatic symptoms in later life, *Psychology and Aging* 7: 4–14.
- Maldonado D. (1990). The Hispanic elderly: Vulnerability in old age. In American Association of Retired Persons: Minority Affairs Institute, pp. 165–176.
- Markides K.S. (1989). *Aging and health*. Newbury Park: Sage Publications.
- Markides K.S. & Lee D.J. (1991). Predictors of health status in middle-aged and older Mexican Americans, *Journal of Gerontology* 46: S243–S249.
- Marks G., Garcia M. & Solis J.M. (1990). Health risk behaviors of Hispanics in the United States: Findings from HANES, 1982–84, *American Journal of Public Health* 80: 20–26.
- Moscicki E.J., Locke B.S., Rae D.S. & Boyd J.H. (1989). Depressive symptoms among Mexican Americans: The Hispanic health and nutrition examination survey, *American Journal of Epidemiology* 130: 348–360.
- Narrow W.E., Rae D.S., Moscicki E.K., Locje B.Z. & Reiger D.A. (1990). Depression among Cuban Americans: The Hispanic health and nutrition examination survey, *Social Psychiatry and Psychiatric Epidemiology* 25: 260–268.
- Radloff L.S. (1977). The CES-D scale: A self report depression scale for research in the general population, *Applied Psychological Measurement* 1: 385–401.
- Siddharthan K. & Sowers-Hoag K. (1989). Elders' attitudes and access to health care: A comparison of Cuban immigrants and native-born Americans, *The Journal of Applied Gerontology* 8: 86–96.
- Torres-Gill F. (1990). Aging in Hispanic America. In American Association of Retired Persons: Minority Affairs Institute, pp. 147–163.

Toits, P. (1983). Dimensions of life events that influence psychological distress: An evaluation and synthesis of the literature. In H. Kaplan (ed.), *Psychosocial stress: Trends in theory and research* (pp. 33–103). San Diego, CA: Academic Press.

US Bureau of the Census (1986). Current Population Series, No. 15 (p. 60). Washington, DC: US Government Printing Office.

Address for correspondence: Thanh V. Tran, PhD, Associate Professor, Graduate School of Social Work, Boston College, Chestnut Hill, MA 02167, USA

Phone: (617) 552 4028; Fax: (617) 552 3199; E-mail: vantran@bcvms.bc.edu