

Can Culture Help Explain the Physical Health Effects of Caregiving Over Time Among African American Caregivers?

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Objectives. The purposes of this study were to longitudinally examine the health outcomes of 107 African American caregivers who provided care to their elderly dependent family members and to determine the role of culture in predicting health outcomes.

Methods. With use of the stress and coping model of Pearlin and colleagues (1990) as a guide, the direct effects of background characteristics and stressors and the direct and mediating effects of resources (including culture) on two caregiver health outcomes (i.e., psychosocial health and physical functioning) were analyzed with hierarchical multiple regression analyses.

Results. Similar to other studies, we found that combinations of caregiver background characteristics, stressors, and resources at wave 1 had direct effects on African American caregivers' health outcomes at wave 3. Unlike previous studies, where culture was not measured, we found that cultural beliefs and values did help to explain health outcomes for African American caregivers. Specifically, culture justifications for caregiving, baseline psychosocial health, and caregiving mastery predicted wave 3 psychosocial health. Caregiver education, number of morbidities, and physical functioning at wave 1 were associated with physical functioning at wave 3.

Discussion. The findings from this study have implications for future studies, particularly in regard to cultural beliefs and values among African American caregivers.

EVIDENCE shows that the stressful demands of caregiving to older family members can have negative effects on the physical health of caregivers (Schulz, O'Brien, Bookwala, & Fleissner, 1995). More specifically, some researchers have found that the stress of caregiving can negatively affect immune functioning (Pariante et al., 1997) and heart rate reactivity (Knight & McCallum, 1998), raise blood pressure levels (King, Oka, & Young, 1994), and even increase the risk of mortality among some older spousal caregivers (Schulz & Beach, 1999). What is often lacking in the findings reported in the literature, however, is information to better understand the physical health effects of caregiving among diverse populations, especially in relation to the cultural factors that help define diverse groups (Dilworth-Anderson, Williams, & Gibson, 2002). In seeking this information, findings reported on race, culture, and emotional health effects can provide guidance. Many of these findings document lower levels of emotional distress for African American caregivers (Cox & Monk, 1996; Janevic & Connell, 2001; Roth, Haley, Owen, Clay, & Goode, 2001).

We propose that understanding the health effects of caregiving is a major concern for ethnic minority caregivers because of the long-term health risks they often bring to the caregiving situation (Ferraro, Farmer, & Wybraniec, 1997). African American women and men who are middle aged, the typical age of caregivers, have more health problems than their White counterparts (Smedley, Stith, & Nelson, 2003). Even when education and income are controlled, African Americans have significantly higher mortality rates than Whites (Schoen-

baum & Waidman, 1997). Furthermore, African American families caring for dependent family members often underutilize formal support services (Dilworth-Anderson et al., 2002), which may make them more vulnerable to the stress of caregiving as compared with other groups that use formal support. Caregiving studies using cross-sectional data, with few minority groups included, limit the understanding of the effects of time and culture on health outcomes of caregivers. With use of a longitudinal design, this study will address the physical health outcomes of caregiving among African American caregivers. Because physical health is a multidimensional construct, two measures of health are used in this study: psychosocial (self-evaluation of general health) and physical functioning. Additionally, unlike most caregiving research, this study includes information on the role of culture in understanding health outcomes for caregivers. Therefore, the major research questions addressed in this study are as follows: (a) what combinations of background characteristics, caregiving stressors, and resources can explain different health outcomes of African American caregivers over time, and (b) what role, if any, do cultural values and beliefs play in predicting these health outcomes?

CONCEPTUAL MODEL

The stress model proposed by Pearlin, Mullan, Semple, & Skaff (1990) was used to guide the research in this study. This model posits that combinations of background factors, stressors, and resources influence an individual's reaction to

stress. As is typical of most research using the stress and coping model, background factors in our model include age, gender, and education. Intuitively, as caregivers age, their health status begins to decline as chronic illnesses become manifest. Gender and education effects on health show that female caregivers experience more stress and have poorer health than male caregivers (Bookwala & Schulz, 2000) and that higher levels of educational attainment are positively related to health status (e.g., Ross & Wu, 1996).

Stressors, a second domain in the model, are directly related to the needs, demands, and levels of dependency of the care recipients as well as the indirect experiences of providing care. Similar to other models, our model includes care recipients' level and type of impairment because they are considered direct stressors and are cited as contributing to the physical health decline of the caregiver (Hooker, Monahan, Bowman, Frazier, & Shifren, 1998). In addition to stressors associated with the level and type of impairment of the older care recipient, other more indirect caregiving experiences such as role strain are important to this research. Caregiver role strain addresses the stress experienced as a result of attempting to juggle multiple roles including that of caregiver (Williams, Dilworth-Anderson, & Goodwin, 2003). In fact, Mui (1995) found that the role strains between caregiving and other roles have significant effects on the physical well-being of caregivers.

In the face of stressors, Pearlin and colleagues' (1990) stress model proposes that resources mediate the negative effects of caregiving on caregivers. Similar to other caregiving studies using the stress and coping model, we include caregiving mastery as a resource that would mediate the effects of stress on caregivers' health. Findings have shown that among both Black and White caregivers, the level of mastery in the caregiving role is an important resource that can serve to mediate the negative effect of the role (Dilworth-Anderson, Williams, & Cooper, 1999). Unlike other studies on the health effects of caregiving on caregivers, we include a measure on cultural values and beliefs as a caregiving resource in the face of stressors. Increasing evidence shows the importance of including cultural information in our research with the hopes of moving us beyond using race as a proxy for understanding cultural influences in caregiving research (Gallagher-Thompson et al., 2000; Haley et al., 1995). The inclusion of the cultural justifications of caregiving as a resource in this study reflects the cultural values and beliefs (e.g., reciprocity, sense of duty, and God's will) of African Americans that can influence providing care to older family members. Cultural socialization in the African American community helps create beliefs and attitudes about caring for dependent others in the family that encourage developing coping strategies (resources) to deal with stressors in the caregiving situation. Furthermore, Lawton, Rajagopal, Brody, and Kleban (1992) found that African American caregivers, as opposed to White caregivers, more strongly identified with traditional values that encouraged providing care to older dependent people in the family. More specifically, Lawton and colleagues found that African American caregivers, as compared with their White counterparts, expressed that caregiving was less intrusive in their lives. Therefore, we expect that cultural justifications for caregiving will influence health outcomes and contribute to the knowledge on health and caregiving among African American caregivers.

METHODOLOGY

Sampling Procedures

The caregivers in this study were primary caregivers to older African Americans who were members of the Duke Established Populations for Epidemiologic Studies of the Elderly (EPESE) (Comoni-Huntley, Blazer, Service, & Farmer, 1990). Three criteria were used to select older participants from the EPESE. These criteria were self-report of race as Black or African American, an inability to perform two or more basic activities of daily living (ADLs) (Branch, Katz, Kniepmann, & Papsidero, 1984), and a score of ≥ 3 (indicating mild to severe cognitive impairment) on the Short Portable Mental Status Questionnaire (SPMSQ; Pfeiffer, 1975). A total of 202 elderly participants were identified who were African American and met one or more of the other criteria.

All 202 elderly participants or their proxy respondents were contacted between 1995 and 1997 by first sending them a letter describing our study and how we obtained their names, addresses, and phone numbers. A follow-up telephone screening interview with the elderly participants or proxy respondents was conducted to determine whether there was a primary caregiver who had the *major* responsibility for and/or who provided the *majority* of care to them. If identified, that person was contacted by phone to verify his or her caregiving roles and responsibilities, and an in-person interview was scheduled. If there were any discrepancies in identifying and verifying the caregiver, the care recipient was recontacted. In the few cases where this occurred, we were able to identify the appropriate caregiver. This resulted in a total of 187 primary caregivers being interviewed during the first wave of the study.

Two weeks prior to the 9-month anniversary of their wave 1 interview, primary caregivers were sent a letter thanking them for participating in the wave 1 interview and informing them that an interviewer would be contacting them to schedule the second interview. A total of 136 primary caregivers completed interviews during the second wave of the study. With use of the same procedures for contacting participants in wave 2, the third wave of interviews included 120 primary caregivers.

Attrition

For this study, only the primary caregivers that remained in this role throughout all three waves of the study were included. This resulted in a total of 107 of 187 primary caregivers remaining in the study. Table 1 reveals the attrition data for the study. More than half (45/80; 56%) of the caregivers who dropped out of the study did so because the care recipient to whom they were providing care either died or was institutionalized. Twenty-six of the 80 (32.5%) caregivers either refused to be interviewed, were unable to be contacted, or moved out of the area. Finally, 9 of the 80 (11%) caregivers were excluded from this study because they changed from the role of primary caregiver or indicated that the care recipient no longer required a caregiver.

With *t* tests and χ^2 analyses, where appropriate, we compared the primary caregivers that were included in this study with those who were excluded using wave 1 data. Primary caregivers that remained in the study did not significantly differ from those who did not in terms of background characteristics (age,

Table 1. Attrition Across Three Waves of Data Collection

Wave 1 (<i>n</i> = 187)	Between Wave 1 and Wave 2 (<i>n</i> [% of Previous Wave])	Between Wave 2 and Wave 3 (<i>n</i> [% of Previous Wave])
Remained in study	125 (66.8)	107 (85.6)
Total attrition	62 (33.2)	18 (14.4)
Care recipient died	16/62 (26)	9/18 (50)
Care recipient institutionalized	13/62 (21)	7/18 (39)
Refused/unable to contact/moved	26/62 (42)	0/18 (0)
Changed roles/caregiver no longer needed	7/62 (11)	2/18 (11)

gender, and education), caregiving stressors (care recipient's ADL, care recipient's cognitive status, and caregiver role strain), or resources (mastery and cultural justification).

Health Measures

Psychosocial health.—The psychosocial health of the caregivers was measured using the five-item general health subscale of the MOS-36 (McHorney, Ware, Lu, & Sherbourne, 1994). Caregivers were asked to rate their health as either “excellent,” “very good,” “good,” “fair,” or “poor.” Caregivers were also asked to respond to four additional statements concerning their health in relation to others, their expectations about their health, and the condition of their health. Responses were converted to percentile scores ranging from 0 to 100 and averaged. Higher scores were indicative of better health. The reported Cronbach α for this subscale was .78 (McHorney et al., 1994). For subjects in this study, the Cronbach α was also .78.

Physical functioning.—The caregivers' physical functioning was evaluated using the 10-item physical functioning subscale of the MOS-36 (McHorney et al., 1994). The items ask the respondents to evaluate how their health limits typical activities such as lifting or carrying groceries or walking one block. Scores were converted to percentiles, with higher percentiles indicating better health. The reported Cronbach α for this subscale is .93 (McHorney et al., 1994). For subjects in the current study, it was .91.

Caregiver Background Variables

Age, gender, and education were used as caregiver background variables in this study. Age, a continuous variable, was measured in years. Gender was coded as 1 for females and 0 for males, and caregivers' education was measured as high school graduate (coded as 1) or not a high school graduate (coded as 0).

Stressors

Care recipient's physical dependency and cognitive status, caregiver's role strain, and caregiver's total number of morbidities at baseline were used to measure stressors. Primary caregivers assessed the physical dependency of care recipients using the Older Americans Resources and Services (Duke OARS; Fillenbaum, 1988) subscale on ADL with a reported reliability of .84. A Cronbach α score of .77 was found for this

Table 2. Cultural Justifications for Caregiving Scale

I give care because:
a. It is my duty to provide care to elderly dependent family members.
b. It is important to set an example for the children in the family.
c. I was taught by my parents to take care of elderly dependent family members.
d. Of my religious and spiritual beliefs.
e. By giving care to elderly dependent family members, I am giving back what has been given to me.
f. It strengthens the bonds between me and them.
g. I was raised to believe care should be provided in the family.
h. It is what my people have always done.
i. I feel as though I am being useful and making a family contribution.
j. My family expects me to provide care.

Note: Response categories are as follows: 4 = strongly agree, 3 = somewhat agree, 2 = somewhat disagree, and 1 = strongly disagree.

From Dilworth-anderson (1995).

six-item ADL scale for subjects in the current study. Each item was scored on a 3-point scale ranging from 2 (unable to perform task) to 0 (able to perform task without help). The summed scores ranged from 0 (no physical dependency) to 12 (highly dependent). The cognitive status of care recipients was assessed by administering the SPMSQ to each care recipient. Higher scores on this scale indicated greater cognitive impairment. The Cronbach α for this measure in this study was .82. The role strain involved in performing the caregiving role was evaluated using the seven-item Global Role Strain Scale (Archbold, Stewart, Greenlick, & Harvath, 1990). Scores can range from 7 to 28, with higher scores indicating that the caregiver was experiencing a great deal of stress in performing his or her caregiving role. The reported Cronbach α for this scale was .76 (6 weeks) and .78 (9 months; Archbold et al., 1990). For this study, we found a Cronbach α of .79. Morbidity was measured by asking participants if they had health problems when they began their caregiving role and if they had developed any new health problems since they began their caregiving role. Caregivers who indicated they had health problems were asked to identify those problems. The total number of health problems identified in wave 1 (before caregiving and since caregiving) was used as a measure of morbidity.

Resources

Caregiver's mastery in the caregiving role and cultural justifications for providing care were used as measures of caregiver resources. The mastery that caregivers have regarding their caregiving role was measured using the six-item Caregiving Mastery Scale (Lawton, Kleban, Moss, Rovine, & Glicksman, 1989). Higher scores indicated more competence and mastery in the caregiving role, and the scores ranged from 6 to 24. Reported Cronbach α values for this scale range from .65 to .75. The newly developed 10-item Cultural Justifications for Caregiving Scale (Dilworth-Anderson, unpublished) was used to assess caregivers' cultural reasons and expectations in providing care to elderly relatives (see Table 2 for scale items). Scores ranged from 10 to 40, and higher scores indicated having strong cultural reasons for giving care as evidenced by identifying with norms, beliefs, and expectations. Cronbach α

Table 3. Correlation Matrix ($N = 107$)

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Physical functioning:W3	—										
2. Psychosocial health:W3	.49	—									
3. Age	-.24	-.19	—								
4. Education (high school)	.33	.34	-.25	—							
5. Gender (female)	-.08	.10	.05	.22	—						
6. CR cognitive status	-.11	-.11	.12	-.10	.11	—					
7. CR ADL	-.09	.04	.01	-.12	-.00	.09	—				
8. Role strain	-.33	-.17	.11	-.18	-.16	-.08	.29	—			
9. Morbidities	-.46	-.41	.24	-.24	-.04	.13	.02	.32	—		
10. Mastery	.14	.06	-.06	.20	.20	.19	.03	-.28	-.28	—	
11. Cultural justifications	-.08	-.03	-.07	-.21	-.03	.07	-.04	-.06	-.07	.07	—
Mean	81.29	67.43	55.88	.62	.79	4.17	1.86	14.69	1.11	18.77	36.36
SD	22.70	15.76	12.92	.49	.41	1.80	2.78	4.71	1.42	2.88	4.42

Note: W3 = wave 3; CR = care recipient; ADL = activities of daily living.

for this scale was .84 for primary caregivers in the current study.

Statistical Analysis

With use of the SAS V8 statistical software (Cary, NC), hierarchical regression equations were used to analyze the psychosocial and physical functioning of the caregivers. In hierarchical regression analysis, the independent variables are entered in a specified sequence. The analyses in the current study, which were guided by the stress and coping model, included building the model by hierarchically entering the variables in the following sequence: caregiver background characteristics, stressors, and resources (mediators). In addition to these variables, baseline psychosocial health and baseline physical functioning were included as background characteristics in their respective equations. By using baseline psychosocial and physical functioning as independent variables in the models, the effects of wave 1 psychosocial and physical functioning are removed from wave 3 psychosocial and physical functioning. This procedure gives a more accurate picture of the effects of the other variables on health at wave 3.

For the multiple regression equations, bivariate linear regression analyses were conducted to examine how each of the independent variables related, linear or curvilinear, to the dependent variables. Cultural justifications for caregiving had a curvilinear relationship with psychosocial health. Thus, it was included as a quadratic in the regression predicting third-year psychosocial health. Given the small sample size, bivariate analyses were used to reduce the number of variables to the suggested number of one tenth of the sample size (Roscoe, 1975). Potential background variables that were not significant ($p < .05$) in the bivariate analyses were removed from the final multivariate analyses. This process removed gender, time in the caregiving role, coresidence, and employment status as background factors in the psychosocial analysis. Time in the caregiving role, coresidence, and employment status were also removed from the physical functioning analyses.

Examination of the correlation matrix (Table 3) revealed that none of the independent variables used in this study were highly correlated ($r > .50$), which suggests multicollinearity was not an issue. Further, variance inflation factors were also examined to rule out multicollinearity among the independent variables. An α level of .05 was used to determine statistical significance.

RESULTS

Profiles of Caregivers and Care Recipients

Table 4 reveals descriptive information about the study sample. As shown, the mean age of the caregivers was 55.88 during wave 1, and the majority of them were women (79%). Approximately 53% of the sample of caregivers were working at the time of the first interview, and 62% had completed high school or above. Neither employment nor education status significantly changed between wave 1 and wave 3 for the caregivers. During wave 1, caregivers received an average score of 64.26 and 81.04 of a possible score of 100 for psychosocial and physical functioning, respectively. Caregivers' scores on psychosocial health and physical functioning measures were 67.43 and 81.29, respectively, at wave 3. Psychosocial and physical functioning did not significantly change from wave 1 to wave 3.

The care recipients for whom the caregivers cared had a mean age of 73.44 years during wave 1. Similar to caregivers, the majority of the care recipients were female (79%). During wave 1, the average ADL score for the care recipients was 1.86 of a maximum score of 12, and their mean score on the SPMSQ was 4.17 (of a possible score of 10); respectively, these scores reflect a low level of physical dependency and a moderate level of cognitive impairment. During wave 3, care recipients' ADL scores did not significantly change, although their level of cognitive impairment increased significantly.

Predicting Changes in Psychosocial Health

Table 5 reveals the results of the hierarchical regression equation assessing the predictors of change in psychosocial health. The first model included adding the caregiver background characteristics (age and education) along with baseline psychosocial health. Of these variables, only baseline psychosocial health was significant in predicting wave 3 psychosocial health ($\beta = .56, p \leq .001$). Higher psychosocial health during wave 1 was predictive of higher psychosocial health at wave 3. The first model explained 38% of the variance in wave 3 psychosocial health.

The second model included the addition of the caregiving stressors (care recipients' ADL and cognitive status, caregivers' role strain, and caregivers' morbidities). In this model, baseline

Table 4. Profile of Caregivers ($n = 107$) and Care Recipients ($n = 107$)

	Wave 1	Wave 3	
Variables	<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>
Caregivers			
Age (years)	55.88 (12.92)		
Gender ^a	.79		
Employment status ^b	.53 (.50)	.49 (.50)	.68
Educational status ^c	.62 (.48)	.64 (.48)	.42
Psychosocial health	64.26 (15.73)	67.43 (15.76)	1.48
Physical functioning	81.04 (23.10)	81.29 (22.70)	.08
Care recipients			
Age (years)	73.44 (6.10)		
Gender ^a	.79		
ADL	1.86 (2.78)	2.21 (2.98)	.88
SPMSQ	4.17 (1.80)	5.20 (2.51)	3.41*

Note: ADL = activities of daily living; SPMSQ = Short Portable Mental Status Questionnaire.

^aGender: 0 = male, 1 = female.

^bEmployment status: 0 = not employed, 1 = employed.

^cEducational status: 0 = non-high school graduate, 1 = high school graduate.

* $p < .05$.

psychosocial health remained positively associated with wave 3 psychosocial health ($\beta = .53, p \leq .001$). However, none of the caregiving stressors was significant in predicting wave 3 psychosocial health. The amount of variance in wave 3 psychosocial health explained by the second model was 39%.

The third and final set of variables added to the model was caregiver resources (caregiving mastery and cultural justifications), which yielded a significant R^2 change. Baseline psychosocial health remained a significant predictor ($\beta = .57, p \leq .001$), whereas none of the stressors were predictive of wave 3 psychosocial health. Both caregiving mastery ($\beta = -.22, p = .01$) and cultural justifications in its quadratic form ($\beta = -.24, p = .05$) were resource variables that significantly predicted wave 3 psychosocial health. Greater mastery in

performing the caregiving role in wave 1 was associated with a decline in psychosocial health during wave 3. Cultural justification had a curvilinear relationship with psychosocial health. As depicted in Figure 1, caregivers who scored the lowest on the Cultural Justifications Scale during wave 1 (i.e. those having the weakest cultural reasons for providing care) had the lowest psychosocial health in wave 3. Caregivers with moderate to strong cultural reasons for providing care (scores between 25 and 31) had higher psychosocial health during wave 3 than those with the weaker cultural reasons. On the other hand, caregivers with the strongest cultural reasons for providing care (scores of ≥ 31) had lower psychosocial health in wave 3 than those caregivers having moderate to strong cultural reasons for providing care during wave 1. The final model predicting wave 3 psychosocial health explained 45% of the variance.

Predicting Changes in Physical Functioning

As shown in Table 6, the first model predicting physical functioning yielded an R^2 value of .43. In this model, which included baseline physical functioning and caregiver background characteristics (age, education, and gender), baseline physical functioning ($\beta = .57, p < .001$) and education ($\beta = .22, p = .01$) were predictive of wave 3 physical functioning. Specifically, higher physical functioning at wave 1 was associated with higher physical functioning at wave 3, and those caregivers who were high school graduates had greater wave 3 physical functioning than those caregivers who were not high school graduates.

The second model included the caregiving stressors (care recipients' ADL and cognitive status, caregivers' role strain, and caregivers' morbidities) along with caregiver background characteristics. Baseline physical functioning ($\beta = .46, p < .001$) and education ($\beta = .19, p = .02$) remained significant predictors of wave 3 physical functioning. Of the caregiving stressors, only the total sum of morbidities ($\beta = -.19, p = .02$) predicted wave 3 physical functioning. Caregivers who had a greater number of morbidities during wave 1 had lower

Table 5. Summary of Hierarchical Regression Analysis for Variables Predicting Wave 3 Psychosocial Health ($N = 107$)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Caregiver background (wave 1)									
Psychosocial health	.56	.09	.56***	.54	.11	.53***	.57	.11	.57***
Age	-.05	.10	-.04	-.04	.10	-.04	.01	.10	.01
Education (high school)	2.69	2.83	.08	3.05	2.89	.09	3.20	2.92	.10
Stressors (wave 1)									
Care recipient ADL				.22	.48	.04	.34	.46	.06
Care recipient cognitive status				.09	.72	.01	.33	.72	.04
Caregiver role strain				.23	.31	.07	.02	.31	.01
Caregiver morbidities				-1.00	1.09	-.09	-1.28	1.07	-.12
Resources (wave 1)									
Caregiving mastery							-1.20	.47	-.22**
Cultural justifications							-.66	.44	-.18
(Cultural justifications) ^{2a}							-.09	.05	-.24*
R^2			.38			.39			.45
<i>F</i> for change in R^2						.44			3.18*

Note: ADL = activities of daily living.

^aEntered as a quadratic term; cultural justifications is squared.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

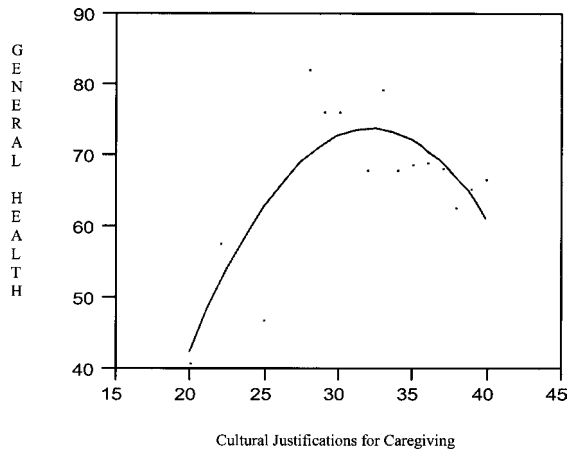


Figure 1. Curvilinear effects of culture on general health (predicted curve).

physical functioning than those caregivers with fewer numbers of morbidities. The second model explained 48% of the variance in wave 3 physical functioning, not a significant change over model 1.

Caregiver resources (caregiving mastery and cultural justifications for caregiving) were added to the third and final model. Baseline physical functioning ($\beta = .46, p < .001$), education ($\beta = .17, p = .05$), and total number of morbidities ($\beta = -.21, p = .02$) remained in the model as significant predictors of wave 3 physical functioning. However, none of the caregiving resources significantly predicted wave 3 physical functioning. The R^2 value for the final model was .49. However, the addition of stressor and resource variables in models 2 and 3 did not yield significant R^2 changes in the analyses. These findings suggest that specific attributes about caregivers, specifically their prior physical functioning and level of education, are more powerful predictors of their future

physical functioning than stressors and supportive resources that typically affect health outcomes for caregivers.

DISCUSSION

Two major questions guided the research. First, we were interested in knowing what combinations of background characteristics, caregiving stressors, and resources can explain different health outcomes over time among African Americans. Results from this study revealed that third-year psychosocial health was predicted by two resource variables (mastery and cultural justifications for caregiving), which operated as main effects in the model rather than as mediators as predicted. In the psychosocial health analysis, higher levels of mastery at wave 1 were associated with lower evaluations of psychosocial health at wave 3; very weak or very strong cultural justifications for giving care to dependent family members during wave 1 predicted less positive evaluations of psychosocial health during wave 3. Third-year physical functioning was predicted by a combination of background characteristics of the caregiver and stressors. Specifically, caregivers with a high school education (background characteristic) had higher physical functioning scores at wave 3, which is supportive of existing literature showing higher levels of education to be related to higher levels of physical functioning (Melzer, Izmirlian, Leveille, & Guralnik, 2001). Morbidity, a stressor, was also significant in predicting third-year physical functioning when controlling for baseline physical functioning. As expected, those caregivers with lower numbers of health problems at wave 1 had higher levels of physical functioning at wave 3 than those caregivers with higher numbers of health problems.

The second research question posed in this study was if culture can help explain the physical health effects of caregiving over time for African Americans. By including cultural justifications for caregiving as a resource variable, we found that culture does help to explain the physical health effects of caregiving over time among African Americans. Specifically, we found that cultural justifications for caregiving had a curvilinear effect on psychosocial health, with very weak

Table 6. Summary of Hierarchical Regression Analysis for Variables Predicting Wave 3 Physical Functioning ($N = 107$)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Caregiver background (wave 1)									
Physical functioning	.55	.08	.57***	.45	.09	.46***	.45	.09	.46***
Age	.03	.14	.02	.07	.14	.04	.05	.14	.03
Education (high school)	10.39	3.76	.22**	8.94	3.71	.19*	7.86	3.88	.17*
Gender (female)	-6.70	4.32	-.12	-7.95	4.28	-.14	-7.68	4.34	-.14
Stressors (wave 1)									
Care recipient ADL				.39	.63	.05	.36	.64	.04
Care recipient cognitive status				-.44	.95	-.04	-.30	.97	-.02
Caregiver role strain				-.64	.41	-.13	-.67	.41	-.14
Caregiver morbidities				-3.10	1.35	-.19*	-3.31	1.38	-.21*
Resources (wave 1)									
Caregiving mastery							-.18	.64	-.02
Cultural justifications							-.47	.39	-.19
R^2		.43			.48			.49	
<i>F</i> for change in R^2					2.56			.78	

Note: ADL = activities of daily living.
* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

and very strong cultural justifications for caregiving being predictive of poor psychosocial health. We believe caregivers that provide care because of a very strong identification with cultural values and beliefs are doing so out of a sense of duty, expectation, and obligation. Thus, these caregivers may be experiencing role engulfment (Skaff & Pearlin, 1992) or role captivity (Aneshensel, Pearlin, & Schuler, 1993). On the other hand, caregivers with low levels of cultural beliefs and values, as measured by the Cultural Justifications Scale, may be providing care out of necessity because there may not be anyone else available to provide care.

The results of this study make several contributions to the literature regarding the physical health effects of caregiving among African Americans. First, by including cultural justifications for caregiving in the analyses of health outcomes over time, we were able to determine the role culture had in predicting health outcomes. The inclusion of culture, as some researchers (Haley et al., 1995) have suggested, provided us with a more in-depth understanding of how cultural beliefs and values affect the kinds of outcomes examined in this study. Second, unlike most longitudinal studies examining caregiver health outcomes over time, this study was conducted using a sample of African American caregivers. Thus, we were able to discern findings that were counter to studies consisting of predominantly White caregivers (e.g., Dilworth-Anderson et al., 2002). Specifically, we found that for African American caregivers in this study, higher levels of mastery were associated with poor health outcomes, which may be a result of African American culture and/or socialization.

Additional contributions from this article include the use of multidimensional measures of health and longitudinal data analyses. A measure of psychosocial and functional health was used in this study. Psychosocial health provided information on subjective views from caregivers about how they evaluate their own health, whereas physical functioning provided a more objective view of the caregivers' ability to function in their role. Over time, each of these measures of health was affected differently by background characteristics, stressors, and resources. Finally, the contribution of longitudinal data in the study provided information that is seldom provided in the caregiving literature, especially on African American caregivers. Our findings show that combinations of caregiver background characteristics, stressors, and resources were important in predicting specific African American caregiver health outcomes over the course of a three-wave data collection period of 3 years.

Results from this study have important implications and can serve as a guide for future studies examining physical health effects of caregiving among African Americans. Similar to the work by Goode, Haley, Roth, and Ford (1998), our study showed that few of the caregiving stressors typically used in caregiving research were significant in predicting health outcomes among African American caregivers (only number of morbidities). Thus, further studies are needed to uncover the caregiving stressors that affect the health of African American caregivers. Because of the inability of the model to uncover many stressors related to caregiving, the possibility to observe the mediating effects of resources was also diminished. Instead, caregiving resources (i.e., mastery and cultural beliefs) had direct effects on the psychosocial health of African American

caregivers. These findings suggest that investigations are needed that employ different approaches to understanding long-term health outcomes and to uncover resources that mediate these outcomes.

The results of this study also point to the need to employ qualitative methods to more fully understand how certain levels of cultural beliefs and values can become associated with poorer health outcomes. This method may also provide insight into further socialization aspects of culture that can affect health that this study did not capture. For example, we believe the concept of "John Henryism," a term coined by James, Hartnett, and Kalsbeek (1983), can provide some guidance in explaining the effect mastery had on psychosocial health. "John Henryism," a synonym for prolonged, high-effort coping with difficult psychological stressors, is prevalent among African Americans and is assurance that the "job" gets done (James, Keenan, Strogatz, Browning, & Garrett, 1992). As found in other studies (e.g., Light, Brownley, & Turner, 1995), we found that this method of coping was associated with poor health outcomes.

Future studies should also examine health outcomes over longer periods, beyond 3 years, to explore the effect of time on African American caregiver health outcomes. Studying African American caregiver health outcomes over longer durations and at multiple time points might enable us to measure changes in mean health status as well as discern factors related to these health changes. Findings from this study and future studies examining the health effects of caregiving for African Americans are beneficial to both caregivers and their dependent elderly. Studies such as these can help to identify those caregivers who are at risk for poor health outcomes and consequently may not be able to provide care and support needed to their elderly dependent family members.

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