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Perceived Social Support and Preventive Health Behavioral Outcomes among Older Women

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Introduction

As women live longer, they are likely to experience more severe diseases, which may be chronic and/or non-life-threatening. In addition, women spend a greater portion of their remaining years disabled (Tabloski, 2004). Although social support is considered to be important for both men and women, research suggests that the quality and quantity of social support has a profound impact on women (Antonucci & Jackson, 1987). Antonucci and Akiyama (1995) found that women had larger social support networks and more sources of support than men. Thus, strong social support among older women helps maintain independence longer than those who are socially isolated. This strong social support is linked to better health outcomes for older people and may positively influence the health status of older women (Ashida & Heaney, 2008). Social support has long been a concept of interest in explaining and predicting health-promoting behaviors in women (Hurdle, 2001). Health promotion programs have used social support to change behaviors, such as breast self-examination and mammography (Mayer, Beach, Hillman, Kellogg, & Carter, 1991). For example, older African American women have used their social support networks for source of information regarding breast health (Mayer et al., 1991; Tessaro et al., 2000). Although studies have reported beneficial effects of social support on an individual's health and well-being (Berkman, 1985; Berkman & Glass, 2000; Berkman, Glass, Brissette, & Seeman, 2000), little research has been conducted to determine whether or not social support is important in promoting health behaviors during the course of life. By studying the positive effects of social support on health behaviors over time, this study will contribute to the understanding of health-promoting behaviors among older women across their life span. The principal aim of this study is to document and examine positive social support indicators that facilitate the maintenance of healthy behaviors (i.e., physical activity, moderate alcohol consumption, and non-smoking) among aging women.

Theoretical Background

Based on the original stress and social support theory, researchers from a variety of disciplines have studied ways in which social support affects an individual's physical and mental health. Seminal and current works have documented the protective effects of social support in the reduction of risk for mental and physical health (Blazer, 1982; Cohen, 1988;

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Data Disclaimer: The original collector of the data, ICPSR, and the relevant funding agency bear no responsibility for uses of this collection or for interpretations or inferences based upon such uses.

House, Landis, & Umberson, 1988; Seeman, 2000). This study's two main suppositions are the main effect hypothesis and the buffering hypothesis. The main effect hypothesis posits that social relationships influence individuals' health and well-being under all conditions (Loucks, Berkman, Gruenewald, & Seeman, 2006). Conversely, the buffering hypothesis suggests that social relations are most influential predominantly during times of stress (Uchino, 2006). To understand how social relationships influence an individual's health and well being, Kahn and Antonucci (1980) proposed the convoy model of social relationships. According to the convoy model, individuals are surrounded by a network of people (Kahn & Antonucci, 1980). In terms of gender, women reported providing more support, having more frequent contact with network members, being more satisfied with friends, and having larger and more multifaceted social networks than men (Antonucci, 1990). The convoy model of social relationships states that individuals move through life with a group of people from whom they derive support, self-definition, and a sense of stability and continuity (Antonucci & Jackson, 1987; Kahn & Antonucci, 1980). Expectations about and reactions to support are highly influenced by the individual's convoy of social relations (Plath, 1980). This concept provides a useful framework for understanding the antecedent and consequent circumstances associated with social relationships. Family and friends can be an especially effective convoy through which support is provided and received (Antonucci, 2001; Antonucci, Birditt, & Webster, 2010).

Social Support

In epidemiologic studies, social support measures have often focused on structural measures of social relationships, social network size, or on functional measures of an individual's own perception of support available or support received. Early studies assessed social support by quantifying and summarizing social relationships, such as marital status, church attendance, and number of close friends (Berkman & Syme, 1979; House, Robbins, & Metzner, 1982). Social support can be used as a resource provided by others (Cohen, Mermelstein, Karmarck, & Hoberman, 1985), particularly family and friends, and can be divided into subtypes of functional support, such as emotional, informational, and instrumental support (Dunkel-Schetter, Blasband, Feinstein, & Herber, 1992). For example, emotional support, which encompasses love and affection--often from a spouse, family member, or close confidante--can make an individual feel loved, and thus motivate health-enhancing behaviors. Instrumental support includes tangible assistance with concrete needs, such as lending money, helping with childcare, or providing aid when someone is sick (Wills, 1985). Instrumental support may help the individual maintain or regain his or her health by providing healthy meals or refilling needed prescriptions. Similarly, affirmation support can simply affirm the individual's values, for instance, the importance of engaging in preventive or rehabilitative health behaviors. Informational support is related to the provision of advice, information, or guidance (Berkman & Glass, 2000). These interpersonal transactions include recipients and providers, as well as their feelings and cognitions. House, Kahn, McLeod, and Williams (1985) recommended that researchers assess all levels of social support, including social relationships, social networks, and social support received (i.e., emotional, informational, and instrumental support). However, not all relationships are supportive, and many researchers now recognize that structural aspects of social networks, such as the absolute number or density of social contacts, do not necessarily translate into an increase in support received (House et al., 1985).

Culture, Social Support and Health Behaviors

Culture was exhibited within a group's values, beliefs, norms, behaviors, and familial and social relationships (Betancourt & López, 1993; Helman, 2000; Hughes, Seidman, & Williams, 1993). The influence of culture on health decision-making and behaviors has

received increasing attention in social research (Dressler, Balieiro, & Dos Santos, 1997; Dressler & Bindon, 2000; Dressler, Balieiro, Ribeiro, & Ernesto Dos Santos, 2005; Garcés, Scarinci, & Harrison, 2006; Helman, 2000; Kreuter & McClure, 2004). Dressler et al. (1997), Dressler and Bindon (2000) and Dressler et al. (2005) hypothesized that cultural norms guide behavior, and expectations specified that support from some sources (i.e., family members) was more appropriate than support from other sources (i.e., friends). The research studies examined the cultural norms regarding the patterns of available social support and blood pressure, and also explored the relationship between cultural expectations of social support and the availability of social support in middle-aged Brazilians (Dressler et al., 1997). They found that cultural norms existed among who should provide support across specific contexts (i.e., dietary habits or physical activity), as well as the degree to which an individual's support, which deviated from that cultural norm, was associated with increased blood pressure, (e.g., after adjusting for age, gender, body mass index, and social integration). Their findings suggested unique characteristics that explained the cultural influences of social support and health behavior change (Dressler et al., 1997). The study was replicated among rural middle-aged African Americans in the southern United States, giving similar results (i.e., individuals, who held strong cultural norms in specific lifestyles and who also had perceived positive social support, had lower blood pressure) (Dressler & Bindon, 2000). Furthermore, other researchers (Airhihenbuwa, Kumanyika, Agurs, & Lowe, 1995; Airhihenbuwa & Liburd, 2006) noted that African Americans acknowledged that their behavior came from their cultural perspective as that outlook related to their perceptions and beliefs about exercise and health. Based on previous research, it is important to note that culture has many factors that influence a person's health-related beliefs and actions. Individual, environmental, socioeconomic, and other factors can have both independent and synergistic effects on an individual's beliefs and behavior (Airhihenbuwa & Liburd, 2006). The importance of culture, which is relative to these other factors in understanding or changing health beliefs and behaviors, varied under different health-related outcomes (Airhihenbuwa et al., 1995; Airhihenbuwa & Liburd, 2006). Airhihenbuwa et al. (1995) found that the emphasis of non-Hispanic whites on individualism and the strong fear of death as a health motivation reflected fundamental cultural differences between Afrocentric and Eurocentric worldviews. Culture plays a critical role in the decision to seek social support. But due to the types of social support and the extent that social support eases stress, research on the relationship between social support and culture in older women has been limited.

Social Support and Health Behaviors

Considerable evidence links social support with increased health-promoting behaviors and decreased health-compromising behaviors (Geertsens, 1997), such as dietary habits, physical activity, smoking habits, alcohol intake, and adherence to medical regimens (Allgöwer, Wardle, & Steptoe, 2001; Campbell et al., 2000; Cohen, Underwood, & Gottlieb, 2000; Povey, Conner, Sparks, James, & Shepherd, 2000; Sternfeld, Ainsworth, & Quesenberry, 1999). For example, Campbell et al. (2000) studied 1,198 African American church members who participated in a four-year nutritional intervention study. They found that church members were more successful at increasing their fruit and vegetable intake if they reported belonging to a close-knit congregation than those who were less successful at changing to a healthier diet. Allgöwer et al. (2001) found that low social support was related to sedentary behavior, irregular sleep, and increased alcohol consumption in both male and female university students.

Social Support and Women's Health Promotion

High levels of social support were related to a healthier diet, reduced risk of weight gain, and increased physical activity among women (Ainsworth, Wilcox, Thompson, Richter, & Henderson, 2003; Brunt, Schafer, & Oakland, 2000; Eyler et al., 1998; Eyler et al., 1999; Henderson & Ainsworth, 2003; Israel, Farquhar, Schulz, James, & Parker, 2002; Kelsey et al., 2000; Warren-Findlow & Prohaska, 2008). Eyler et al. (1998) assessed the association of social support on physical activity outcomes in a national sample of African American, Latina, Native American, and Asian American women aged 40 and older. They found that regardless of ethnicity, women who reported low perceived social support for physical activity were more likely to be sedentary. Peterson, Yates, and Hertzog (2008) developed a social support intervention to promote physical activity in Midwestern non-Hispanic middle-aged white women. They found that the main sources of emotional support for physical activity came from spouses and friends. Ainsworth et al. (2003) reported that perceived social support was a significant prediction in engaging in physical activity among mid- to late-life African American women (Ainsworth et al., 2003). Henderson and Ainsworth (2003) found that African American women were more likely to meet the current recommendations for physical activity if they had exercise companions (i.e., walking with family members or friends).

While the previous studies found a positive association with social support and health behavior outcomes, the research consisted of women with a median age of less than 60 years (Ainsworth et al., 2003; Drayton-Brooks & White, 2004; Dupertuis, Aldwin, & Boss, 2001; Eyler et al., 1999; Henderson & Ainsworth, 2003; Marcoux, Trenkner, & Rosenstock, 1990; Peterson et al., 2008; Warren-Findlow & Prohaska, 2008). In a cross-sectional study, Resnick, Orwig, Magaziner, and Wynne (2002) found that friends were more likely to indirectly influence exercise behavior among a sample of older adults (mean age of 86 years). However, the participants were not asked to differentiate the relationship between social support related to the initiation of an exercise program versus social support related to the adherence of a consistent exercise program over time.

Berkman and Glass (2000) argued for an even larger conceptual model of the role of social support on health. They suggested that the effect of social support must be seen as a multi-level process beginning with the larger cultural context that shapes social networks. Those social networks, in turn, influence health through social support, social influence, and access to material resources. Several researchers have emphasized the importance of social relationships in preventive health behavior. While previous research has contributed to our knowledge of the importance of social relationships on health behavior (Berkman et al., 2000; Cohen, Underwood, & Gottlieb, 2000; Cousins, 1995), one limitation noted in earlier studies is the lack of focus on a variety of health behaviors across the life span of aging women. This paper seeks to fill this knowledge gap by investigating whether or not the impact of perceived social support from spouses, family members, and friends contributes to the prediction of physical activity, alcohol consumption, and cigarette smoking across the life span between older African American and non-Hispanic white women, regardless of demographic factors. Drawing from previous literature, we expected social relationships to have a significant impact on health behavior, but it is not clear which relationships will affect specific health-related behaviors.

Methods

Study Design

Data for this study were derived from the Americans' Changing Lives (ACL) survey, a stratified, multi-stage area probability sample of non-institutionalized individuals, aged 25

years and older, living in the 48 contiguous states (House, 2003). The survey over-sampled African Americans aged 60 and older. The first wave, conducted in 1986, interviewed 3,617 individuals (e.g., face-to-face). The second wave, conducted in 1989, involved face-to-face interviews with 83% of the Wave I survivors ($n = 2,867$). The third wave, conducted in 1994, consisted of 2,562 individuals or their proxies. The interviews were done either face-to-face or via telephone (see House, 1986, 2003; House, Kessler, & Herzog, 1990; House et al., 1994; Lantz et al., 1998; Lantz et al., 2001) for more detail on the research design). This study used a subset of the ACL data that focused on older women aged 60 and older. With less than 2% of the sample representing other racial groups, this study focused exclusively on older African Americans and non-Hispanic whites. The study used data from Wave I (1986), Wave II (1989), and Wave III (1994) of the ACL survey. The sample was restricted to African-American females and non-Hispanic white females, aged 60 and older, who participated in all three waves of the survey ($n = 671$). The total sample consisted of 180 African-American women and 491 non-Hispanic white women.

Measures

Sociodemographic Characteristics—Sociodemographic characteristics were assessed at Wave I. Age and education were measured in years. Race included African Americans and non-Hispanic whites only (African American = 1). Marital status was coded dichotomously: married individuals (coded 1) compared to individuals who were not married (coded 0). Income represented total household income within the past year.

Health Status—Individuals were asked to rate their health on a 5-point Likert scale (i.e., “excellent” to “poor”) at each interview. The self-rated health measure has been shown to be highly predictive of health outcomes and mortality (Idler & Benyamini, 1997), and also has a high test-retest reliability (Cronbach’s $\alpha = .90$) (Lundberg & Manderbacka, 1996). From a list of 10 conditions, the Chronic Health Conditions Index was created to identify individuals’ health status during the past 12 months (House, 1986): arthritis or rheumatism, lung disease, hypertension, heart attack, diabetes, cancer, foot problems, stroke, broken bones, or urine incontinency. These conditions were summed to create a measure for the number of health conditions. Finally, functional impairment was measured on a 4-point Likert scale from items measuring activities of daily living (i.e., bathing, climbing stairs, walking, or doing heavy housework). The range consisted of the most severe functional impairment to no functional impairment.

Social Support Measures—Perceived social support was assessed at each interview and divided into three subscales: spouse positive support index, friends and relatives positive support index, and child positive support index. The spouse positive support index consisted of two items (Cronbach’s $\alpha = .70$); the friends and relatives positive support index consisted of two items (Cronbach’s $\alpha = .72$); and the child positive support index consisted of two items (Cronbach’s $\alpha = .74$). The scale was standardized based on the mean and standard deviation of the baseline sample. Higher scores indicated greater positive support.

Health behaviors—Two types of behaviors were assessed from Wave I to Wave III: health behaviors (i.e., physical activity) and risk-taking behaviors (i.e., smoking and alcohol consumption). These behaviors are henceforth referred to as “health behaviors” to indicate behaviors that either promote or are detrimental to health. The first measure, the physical activity index, asked respondents how often they engaged in the following activities: working in the garden or yard, participating in active sports or exercise, and taking walks. A 4-point Likert scale response ranged from “often” to “never.” The index was scored by taking the mean of the three items. A high value scored by respondents indicated a high level of physical activity (Cronbach’s $\alpha = .43$) (Umberson, 1992). The latter two sets of

measures concerned smoking and drinking behavior. The measure of smoking behavior asked respondents whether they currently smoke. A dummy variable was created where 1 = current smoker and 0 = non-smoker. Similar to the measures concerning smoking, respondents were questioned about alcohol, that is, whether or not the respondent drinks. A dummy variable was created where 1 = current drinker and 0 = non-drinker.

Statistical Analysis

All statistical analyses were performed with SAS Version 9.1.3 (SAS Institute Inc., Cary, NC). Statistical significance for quantitative analyses was determined at $\alpha = 0.05$. The independent variables used in the analysis were age, race/ethnicity, education, marital status, income, health behavior-specific support, and positive support from spouse, children, and friends. "Positive support from spouse" was nested within the married variable because it was not relevant for unmarried women. To examine the effect of perceived social support on health behaviors, the study began with descriptive statistics of the sample's demographic characteristics (see Table 1). T-tests were used to compare means, and standard deviations were computed on numeric demographic variables by race and wave. For categorical demographic variables (i.e., marital status, years of education, income, health status, chronic conditions, and functional health), χ^2 tests were conducted to examine frequencies and percentages of categories by race and wave. Data were summarized as mean (SD) for age, physical activity, and social support, or number (percentage) for marital status, years of education, income, health status, chronic conditions, and functional health.

We estimated our models using Generalized Estimating Equations (GEE), which is a preferred analytic technique when time-dependent, auto-correlated data are used (Liang & Zeger, 1986). Before using the GEE method, the dataset needed to be structured so that the statistical analysis system (SAS) recognized that the repeated measures are present for each respondent. The GEE method is one of several possible strategies for appropriately analyzing data from repeated measures. We chose the GEE method because it allowed for the estimation of lagged effects, which are central to this study. The GEE method is robust to violations of key assumptions (i.e., when non-normal multivariate is found) (Liang & Zeger, 1986). The coefficients produced by the GEE method are asymptotically unbiased and normally distributed, even when estimated using statistically dependent observations.

To test the hypothesis that social support is associated with health behavior outcomes, the longitudinal data from the three waves were analyzed using repeated measures of analysis of covariance (PROC MIXED). This method controlled for possible correlations between each individual measurement at the three time points. The analysis focused on women within each study wave ($n = 671$). The covariates of health behaviors (physical activity, alcohol consumption, and cigarette smoking), which were of primary interest, were the perceived positive social support indices (spouse, children, and friends). Control variables included demographics (race, age, education, income, and marital status), health characteristics (functional health status, chronic conditions), and time.

Results

Study Sample

Table 1 shows the descriptive statistics of the sample. The variables were tested to evaluate any significant differences between social support and health behavior outcomes. The mean age of the participants was 69 years at Wave I. Many significant racial differences occurred in the sociodemographic variables. African American women were less likely to obtain a high school diploma ($p < .0001$), and they were more likely to earn less than \$10,000 annually than non-Hispanic white women at Wave I ($p < .0001$). At Wave I, 38.3% of

African American women reported being married, compared to 54.4% non-Hispanic white women, with the trend continuing across all three waves of the study ($p < .0001$). Similarly, African Americans were less likely to report their health status as being “excellent” or “good,” compared to non-Hispanic whites across their life span ($p < .0001$). Furthermore, African American women reported having higher levels of chronic conditions ($p < .01$ Wave I; $p < .0001$ Wave II – III) and functional limitations across their life span, compared to non-Hispanic white women ($p < .0001$ Wave I; $p < .05$ Wave II; $p < .01$ Wave III).

Although women in this age range are consistently inactive, African American women reported significantly lower frequency of physical activity throughout similar time frames, compared to non-Hispanic white women ($p < .0001$ Wave I – II; $p < .01$ Wave III). In comparison to non-Hispanic white women, African American women reported significantly lower consumption of alcohol use ($p < .0001$). Although not significant, African American women were less likely to report tobacco use across all three waves of the data, compared to non-Hispanic white women. Finally, African American women and non-Hispanic white women reported similar spousal support across all three waves ($p < .01$). Positive support from children increased as the population of women aged within the cohorts ($p < .01$ Wave II). No significant differences occurred in positive support from children for African Americans and whites in Waves I ($p = .11$) and III ($p = .13$). With the exception of a decline in Wave II, friendship support remained consistent for both African American women and non-Hispanic white women ($p = .91$, $p = .80$, $p = .54$, respectively).

Social Support and Health Behavior

Table 2 presents the effects of the multivariate factors on the health behavior outcomes. As African-American women aged, they were less likely to be physically active compared to non-Hispanic white women. In addition, functional limitations among this cohort played a pivotal role in decreased physical activity. In the repeated measures of analysis of covariance, we hypothesized that social support has an impact on physical activity--after controlling for demographic and health characteristics. The results of the analysis (see Table 2) showed that positive support from friends had a significant effect on physical activity ($p = 0.0072$). Levels of physical activity augmented as support from friends increased. The control variables that have significant effects on physical activity were age ($p < 0.0001$), race ($p < 0.0001$), education ($p < 0.01$), income ($p < 0.01$), and number of chronic conditions ($p < 0.05$).

Alcohol consumption was measured as a binary response. The estimated coefficients of the significant effects indicated that African American women were less likely to engage in drinking. However, women with higher education or income levels were more likely to drink. No significant differences occurred in alcohol consumption due to positive social support groups (i.e., spouse, children, or friends). The control variables that have significant effects on alcohol consumption were age ($p < 0.0001$), race ($p < 0.0001$), education ($p < 0.0001$), and income ($p < 0.0001$). Finally, age ($p < 0.0001$) and marital status ($p = 0.0376$) were the main determinants in whether or not the respondents engaged in smoking. Analyses of smoking status revealed that older women and married women were less likely to be cigarette smokers. Again, no significant differences occurred in cigarette smoking due to social support groups.

Discussion

The predictive factors examined in these analyses, which included demographics, health status, and positive social support, were moderately successful in predicting health behaviors. The individual predictors attained varied markedly by health behavior. The findings from the study support the notion that to fully understand older women's health

practices we need to examine individual as well as group differences. Historically, health researchers have regarded lifestyle as the sum of behavioral choices in multiple arenas (e.g., physical activity, diet, cigarette smoking, and alcohol use), influenced by underlying social relationships (Hu et al., 2000). This study examined the relationship between perceived positive social support and health behaviors among older women. We assumed that the older women lived in accordance with their assumed cultural model as a part of their everyday life (Goffman, 1959). Findings indicated that social relationships have a limited effect on health behavior among older women (Gallant & Dorn, 2001) concerning physical activity, cigarette smoking, and alcohol consumption.

The findings on physical activity in this study are consistent with other studies that show women tend to exercise less as they age (Kelly, Zyzanski, & Alemagno, 1991; U.S. Department of Health and Human Services (USDHHS), 1996; Wilcox, Castro, King, Housemann, & Brownson, 2000; Wilcox, Bopp, Oberrecht, Kammermann, & McElmurray, 2003). Although this study found that physical activity declined across the three time points for both older African American and non-Hispanic white women, the results confirmed other studies that older African American women were less likely to engage in physical activity (i.e., leisure-time physical activity, regular and vigorous physical activity, and occupational activity) compared to non-Hispanic white women (Brownson et al., 2000; U.S. Department of Health and Human Services (USDHHS), 1996; Wilcox et al., 2003).

The main finding from this study was that social relationships have a limited effect on health behavior among older women concerning physical activity. Although small, findings from this study provide preliminary evidence that support from friends is a significant factor to physical activity among older women. Both African American women and non-Hispanic white women were likely to engage in physical activity if they received support from their friends. Consistent with earlier studies of elderly women (Belza et al., 2004; Cousins, 1995; Gallant, Spitze, & Prohaska, 2007; Resnick, 2002), this study suggests that physically active friends could be a potential influence in encouraging women to become and continue to be physically active. Increase in physical activity could be due to the indirect or direct influences of social support, which can increase the likelihood of health-promoting behaviors. In addition, increased activity can occur when friends become exercise partners (Gallant, Spitze, & Prohaska, 2007; Resnick, 2002). In most ordinary social interactions, the female participants may subtly receive cues from others on how to live within the social and cultural expectations.

Consistent with previous findings, we found that the frequency of alcohol use declined with age (Caetano & Clark, 1998; Moore et al., 2005; Thomas & Rockwood, 2001). However, Moore et al. (2005) determined that among recent cohorts of older adults, alcohol consumption declined more slowly with increasing age due to the fact that baby boomers tend to be healthier. The study also had findings similar to other studies that reported dramatically higher rates of alcohol use among older non-Hispanic whites (Balsa, Homer, Fleming, & French, 2008; Moore et al., 2005). Similar to our findings, Balsa et al. (2008) also found that older non-Hispanic white drinkers were more likely to be college graduates, more likely to have higher incomes and more likely to have higher rates of exercise compared to African Americans. Likewise, the amount of emotional support received from family members and friends was not associated with consumption, suggesting that emotional support may not substitute for alcohol use as a coping mechanism among older women (Green, Freeborn, & Polen, 2001). African Americans are more likely to be lower frequency smokers (less than one-half pack per day) compared with non-Hispanic whites (LaVeist, Thorpe, Mance, & Jackson, 2007). Regarding social support, no interaction seemingly appeared between social support and race in predicting smoking behavior among women. Unlike our study, other researchers have found that strong social networks were associated

with a lower likelihood of smoking among African American women (Romano, Bloom, & Syme, 1991).

Regardless of the outcomes in this study, it is worth noting that physical activity was influenced, although in a small way, by social support. These data are important because while women tend to live longer than men, they are also more likely to suffer from disability and chronic conditions. In addition, older women face a number of age-related challenges that may threaten their sense of independence and control, which may be particularly salient and important for this group (Baltes, 1995; Martire & Schulz, 2007).

Gallant et al. (2007) found that physical activity is easier when an individual has a friend to exercise with. This finding supports the theorized pathway that social support function of an individual's social network may potentially influence health behaviors by providing opportunities for companionship and recreation. Existing studies indicated that women, who had perceived support for their activity behaviors and who had social role models, were more likely to participate in physical activity (Eyler et al., 1999; Fleury & Lee, 2006). Moreover, Clark (1999) reported that older women preferred to exercise with other individuals who had similar ability and confidence. The participants in Clark's (1999) study emphasized the need for their exercise leader to represent them and not "some skinny young thing jumping around" (p. 59). If health educators trained older peers as exercise leaders in the community, this strategy may increase older women's levels of physical activity. The role of prevention is considered almost paradoxical in older adults because of the presumed cumulative negative effect of years of unhealthy behavior. However, growing evidence shows that prevention activities (e.g., regular physical activity, healthy diet, and smoking cessation) can have beneficial health effects along the continuum of aging.

This study provided some clear contributions to the literature, and the strength of this research was using longitudinal data to examine the relationship between social support and health behavior outcomes. However, it is important to discuss the limitations of this study. The respondents' attrition was a problem, and it was difficult to separate the effects of other environmental or personal changes over time. From a methodological perspective, the survey did not incorporate measures to ascertain the local knowledge, which, in turn, could improve models of individual psychosocial adaptation. Furthermore, the analyses were limited by the constraints on the choice of independent and dependent variables in the data analyses. Multi-item measures on specific health behaviors would have measured the complex health behaviors better than the single item and dichotomous measures used in this study. Potential risky health behaviors, such as alcohol consumption, were analyzed as a binary response. This is a limitation of the study in that the frequency and intensity of alcohol consumption is unknown. Furthermore, it is unclear whether a participant's alcohol consumption had negative health behavior outcomes (i.e., alcohol misuse and abuse) (Masters, 2003) or positive health behavior outcomes (i.e., the benefits of wine on cardiovascular disease) (Abramson, Williams, Krumholz, & Vaccarino, 2001; Bryson et al., 2006; Denke, 2000).

Another limitation is the restricted measures of social support. In the perceived support measure, emotional support was the only construct examined with regard to social support. The positive versus negative aspects of support were not measured, yet these factors may be important in evaluating the impact of social support on individuals (Ulbrich & Warheit, 1989). The data used are more than 10 years old, and health behavior may be different from current and future cohorts of women. Also, several surveys have been developed to capture cultural differences, as well as better measurements for health behaviors (i.e., physical activity). In addition, Likert scales often mask important issues such as the relationships between perceptions and behaviors that are the foundation of cultural understandings.

Traditional quantitative methods do not always uncover the complex nature of attitudes and practices, especially for older women or minority populations (Allison, 1988).

Finally, the study did not know the behavioral habits of the participants' social support network members. An area for future research would involve investigation into the history and evolution of the relationships with family and friends (Antonucci & Jackson, 1987). As we indicated earlier, it may be the case that unsupportive friends are replaced, whereas family members who are unsupportive may hinder behavioral change. In-depth qualitative interviews might delve into the history of relationships that involve negative components to determine whether those negative aspects are longstanding or more recent developments in response to the older women's health behavior outcomes.

Despite these limitations, this study broadened our understanding of the role of positive social support and physical activity across the life span of older individuals. Clearly, more appropriately designed research is needed to examine the critical role of social support in behavior change. It is important because social support can act as a pathway to help individuals regulate their own behavioral changes (Krause & Borawski-Clark, 1994), derived from their specific chronic conditions. Interventions may be based on using social support groups to facilitate individual behavioral changes, utilize peer-trained health educators, and create community sites (e.g., senior centers or religious institutions) that provide easier access to increase social support. By regarding lifestyle as the consequence of socially constructed choices, it is possible to identify interventions that will facilitate healthier lifestyle choices. In the face of ongoing health disparities, research efforts to build on the aspect of preventive care would be a step toward reducing morbidity among older women.

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Table 1

Racial Difference in Sociodemographics: Americans' Changing Lives, Wave 1 – Wave 3 (1986–1994)

		African American N = 180	Non-Hispanic Whites N = 491	
		Mean (s.d.)	Mean (s.d.)	Sig
Age	W1	69.08 (7.12)	69.02 (6.24)	ns
Education (<12 yrs.)	W1	70.6%	35.0%	***
Income (<10K)	W1	70.0%	34.4%	***
Marital status (Married)	W1	38.3%	54.4%	***
	W2	32.2%	47.7%	***
	W3	23.3%	35.8%	***
Health status (excellent to good)	W1	65.0%	80.9%	***
	W2	60.0%	75.2%	***
	W3	61.7%	74.8%	***
Chronic conditions (>2)	W1	72.2%	60.9%	**
	W2	74.4%	59.7%	***
	W3	76.7%	62.3%	***
Functional health (severe)	W1	47.2%	30.8%	***
	W2	45.0%	36.9%	*
	W3	56.7%	45.8%	**
Physical activity	W1	−0.63 (1.01)	−0.22 (1.08)	***
	W2	−0.87 (0.93)	−0.39 (1.02)	***
	W3	−0.56 (1.07)	−0.32 (1.10)	***
Alcohol consumption (Yes)	W1	28.9%	52.2%	***
	W2	19.4%	46.0%	***
	W3	14.4%	41.3%	***
Cigarette smoking (Yes)	W1	11.1%	16.9%	ns
	W2	10.6%	13.4%	ns
	W3	6.1%	9.2%	ns
Positive spousal social support	W1	−0.39 (0.80)	−0.27 (0.82)	**
	W2	−0.46 (0.80)	−0.33 (0.81)	**
	W3	−0.40 (0.72)	−0.24 (0.65)	**
Positive children social support	W1	0.22 (0.95)	0.34 (0.73)	ns
	W2	0.23 (0.87)	0.39 (0.66)	**
	W3	0.41 (0.70)	0.49 (0.63)	ns
Positive friends social support	W1	0.30 (0.98)	0.31 (0.83)	ns
	W2	0.24 (1.00)	0.22 (0.97)	ns
	W3	0.33 (0.96)	0.38 (0.86)	ns

Source: American Changing Lives

Physical activity items were reverse coded to represent 1=Never to 4=Often. The physical activity index was constructed by taking the arithmetic mean of the three items used to build the index. Social support items were reverse coded to represent 1=Not At All to 5=A Great Deal. The social support index was constructed by taking the arithmetic mean of the two items used to build the index.

¹ Mean (SD) for age, physical activity, and social support

*
 $p < .05,$

**
 $p < .01,$

 $p < .0001$

Table 2

Logistic Regression Coefficients for Health Behavior by Demographic, Health Status and Social Support among non-Hispanic White and African American Women Ages 60 Years and Older^a

	Physical Activity		Alcohol Consumption		Cigarette Smoking	
	B	SE	B	SE	B	SE
Ethnicity (White)	-0.2060**	0.0789	-0.8209***	0.1749	-0.4245	0.2769
Age	-0.0228***	0.0040	-0.0507***	0.0084	-0.106***	0.0127
Education	0.0757**	0.0275	0.2520***	0.0618	0.0347	0.0892
Income	0.0577**	0.0169	0.1327***	0.0385	0.0505	0.0517
Marital Status (Married)	-0.1254	0.1526	-0.1321	0.1163	-0.2989*	0.1438
Number of chronic conditions (>2)	-0.0408*	0.0182				
Spousal positive support	0.0147	0.0300	-0.0095	0.0649	-0.0397	0.0733
Children positive support	0.0420	0.0300	-0.1042	0.0601	-0.0270	0.0852
Friends positive support	0.0626**	0.0233	0.0393	0.0519	0.0691	0.0599

Note. N = 671. The study used data from Wave I (1986), Wave II (1989) and Wave III (1994) from the American Changing Lives Study.

^a Coefficients from the repeated measures models

* $p < .05$,

**

$p < .01$,

$p < .0001$