Activities of Daily Living, Social Support, and Future Health of Older Americans

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ABSTRACT. The authors investigated the relation of activities of daily living (ADL) and social support satisfaction to illness status 10 years later among 4,870 married older adults in the Health and Retirement Study (F. Juster & R. Suzman, 1995). The authors tested the direct and indirect effects of 1992 ADL, as well as family and friends support satisfaction and spousal social support satisfaction on 2002 illness status. The hierarchical multiple regressions found, controlling for 1992 illness status, ADL protected against future illness, and family and friends and spousal support satisfaction had small, surprisingly positive, effects on greater 2002 illness. The ADL × Family and Friends Support Satisfaction and the ADL × Spousal Support Satisfaction crossproduct interactions were also small positive predictors of later illness. The authors discuss several possible mechanisms that explained this unexpected result. The authors concluded that, depending on whether the recipient is in need of support and depending on the source of the support, the older adults do or do not benefit from the support.

Keywords: activities of daily living, health, older adults, social support

AMERICANS ARE LIVING LONGER THAN EVER. In 2007, there were 37.9 million Americans ages 65 years or older, representing 12.6% of the U.S. population. This number is projected to increase to 40 million in 2010 and to 55 million in 2020 (Administration on Aging, 2009). The epidemiological change in the leading causes of death from infectious or acute illness to chronic or degenerative illness, along with the increasing number of older people, challenges public health notions (Goulding, Rogers, & Smith, 2003). In the United States, 80% of people who are 65 years of age or older have at least one chronic condition, and 50% have at least two (National Center for Chronic Disease Prevention and Health Promotion,
Therefore, it is important to determine the factors that protect older adults from chronic conditions.

Activities of daily living (ADL) may be one of these protective factors. Generally conceptualized for older adults, ADL are the ability to complete most daily self-maintenance activities. Such ADL are daily activities necessary for people to be able to live independently and include ambulation, bathing, continence, dressing, eating, toileting, transferring, and the like. Instrumental ADL, which are related to ADL, are core life activities of independent living that include telephone use, money management, and medication management. Many instrumental ADL contain an aspect of high integrative-cognitive function not normally found in ADL (Aniansson, Rundgren, & Sperling, 1980; Jette & Branch, 1981; Jette, Branch, & Berlin, 1990). If adults can perform basic ADL and instrumental ADL, they will presumably succeed in independent living (Kell, Bell, & Quinney, 2001).

Leinonen, Heikkinen, and Jylhae (2001) investigated older adults’ ADL and health and found that decline in self-rated health was associated with later decrease in physical activity. Other researchers have found a relation between ADL and mortality (Beltran, Cuadrado, Martin, Carbajal, & Moreiras, 2001; Ramos, Simoes, & Albert, 2001) even after controlling for effects of age, poor self-rated health, low body mass index in women, and being an unmarried man (Scott, Macera, Cornman, & Sharpe, 1997). In addition, elders with light uncomplicated care needs who enter a nursing home are negatively influenced by their perceived inability to manage ADL and instrumental ADL (Grando et al., 2002).

Social support may also protect older adults’ health. Carpenter (2002) found that for nursing home patients, perception of family support was associated with greater health. In another study related to the association between social support and general health, greater loneliness was associated with higher probability of having a coronary condition (Sorkin, Rook, & Lu, 2002). Similarly, isolated elderly women had both poorer psychological well-being and poorer functional health than did nonisolated elderly women (Thompson & Heller, 1990).

Several studies have shown social support to also be a moderator variable that may adjust the strength of beneficial relationships for older adults. Such psychological resources for older adults increase the likelihood of positive changes in well-being (Wells & Kendig, 1999). Lawton (1981) affirmed that access to a family caregiving network reduces the likelihood of institutionalization of the elderly. Oppegard et al. (1984) found that hearing loss and vision loss are related to increased depression and anxiety among older adults but only for those with less than average access to the family support.

However, as many studies have suggested, there is also a nonfunctional side of social support. For example, Coyne, Wortman, and Lehman (1988) indicated that emotional overinvolvement by family members can be a damaging experience for stressed individuals. Similarly, women with rheumatoid arthritis who were being criticized by their spouses were found to be more poorly adjusted as compared with their counterparts with less critical husbands (Manne & Zautra, 1989). Thus, although the literature in general indicates that social support produces positive
outcomes, other studies suggest that it may not always be supportive or in the recipient’s best long-term interest (e.g., Fiore, Becker, & Coppel, 1983; Rook, 1984).

In sum, research on ADL, social support, and health has shown that health is closely related to ADL and social support, especially among older adults. Although many studies have investigated the relations between health and either ADL or social support, few studies have investigated the relation among all three. In addition, many of these studies are cross-sectional and thus do not have the advantage of temporal precedence to suggest potential causal influences. To address these issues the present study examined the moderator roles of social support for the relationship of ADL and older adults’ health 10 years later.

**Method**

**Participants**

We used longitudinal data obtained from Wave 1 (1992) and Wave 6 (2002) of the Health and Retirement Study (HRS)—a nationally representative panel study on older Americans—funded by the National Institute on Aging and conducted by the Institute for Social Research at the University of Michigan (Juster & Suzman, 1995). We selected all married participants who were between the ages of 52 and 62 years in 1992 and present in both waves (N = 2,596 women, M age = 56.5 years, SD age = 2.7 years; 2,274 men, M age = 56.3 years, SD age = 2.9 years).

**Measures**

*ADL.* We measured ADL using a 17-item questionnaire in which participants rated on 6-point Likert-type scale ranging from 1 (*not at all difficult*) to 6 (*don’t do*). This questionnaire probes an individual’s physical strength, lower and upper body mobility, fine motor skills, and ability to perform other ADL. The questions asked respondents about whether they have difficulty in performing activities such as walking several blocks, bathing or showering without help, and dressing without help. Researchers have validated this measure in previous studies (Rodgers & Miller, 1997; Wallace & Herzog, 1995). We reverse-scored the items so that better ADL functioning resulted in higher scores. In the present study, the mean ADL score was 3.71 (SD = 0.36, range = 1.18–4.00), and the internal consistency reliability of ADL measure was .75.

*Social Support Satisfaction*  
Because support partially depends on the source (Dakof & Taylor, 1990; i.e., some actions are considered to be helpful when they come from a particular source but not from other network members), we selected five items on social support from different sources from the HRS Family Structure Transfers section. The items loaded on two factors: spousal support (3 items) and family and friends support (2 items; r = .37, p < .01). Because spousal support has a unique benefit, and if
it lacks, cannot be fully compensated by other sources (Brown & Harris, 1978; Coyne & DeLongis, 1986; Lieberman, 1982), such as family (e.g. parents, siblings, children) and friends, this splitting was found appropriate. Spousal support satisfaction items concerned participants’ degree of satisfaction with time they spend together with their spouse, amount of time they spend with each other in their free time, and how important their marriage is for them. Family and friends support satisfaction items were about participants’ degree of satisfaction with their family life and friendships. In the present study, the mean family and friends social support satisfaction score was 4.69 ($SD = 0.52$, range = $1.00$–$5.00$). Similarly, the mean spousal support satisfaction score was 4.31 ($SD = 0.67$, range = $1.00$–$5.00$). Higher scores on these scales indicate higher satisfaction with spousal social support and family and friends social support, respectively. The internal consistency reliability of family and friends social support satisfaction and spousal support satisfaction measures were .54 and .56, respectively.

Illness Status

We conceptualized both 1992 and 2002 illness was conceptualized as a continuum of number of diagnoses such as hypertension. Seven items, selected from the Health Status section of the HRS—concerning hypertension, diabetes, cancer, lung disease, heart condition, stroke, and arthritis—provided an illness-status score. In the present study, the mean illness-status score was 1.92 ($SD = 1.22$, range = $0.00$–$7.00$). A higher sum, with items all in the direction of illness, indicates more diagnoses and poorer health.

Results

Table 1 shows the correlation coefficients among all measures. As expected, these correlations suggest that better ADL functioning in 1992 predicted lower illness status (i.e., better health) both concurrently ($r = -.30, p < .01$) and 10 years later ($r = -.23, p < .01$). Moreover, with better functioning in 1992, concurrent satisfaction with social support from family and friends ($r = .16, p < .01$) and spouse ($r = .05, p < .01$) also increased but more modestly. Family and friends support satisfaction and spousal support satisfaction were related ($r = .31, p < .01$) but at a level that suggests that they are distinct constructs, even adjusting for a potential diminishment in the observed correlation because of the somewhat low reliability of these measures (Cohen, Cohen, West, & Aiken, 2002) with only two and three items, respectively. As expected, illness status in 1992 was strongly related to the same construct 10 years later ($r = .64, p < .01$). Although modest, the relation between 1992 spousal social support and concurrent 1992 illness status, $r = -.06, p < .01$, reversed direction when predicting future (2002) illness, $r = .05, p < .01$. Although not significant with concurrent illness status, $r = .01, p > .05$, the relationship of 1992 family and friends social support with 2002 illness status, $r = .04, p < .01$, was significant.
TABLE 1. Intercorrelations among Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1992 activities of daily living (BDI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.71</td>
<td>0.36</td>
</tr>
<tr>
<td>2. 1992 illness status</td>
<td>−.30**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.11</td>
<td>1.01</td>
</tr>
<tr>
<td>3. 1992 family and friends social support</td>
<td>.16**</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.69</td>
<td>0.52</td>
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<tr>
<td>satisfaction</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 1992 spousal social support satisfaction</td>
<td>.05**</td>
<td>−.06**</td>
<td>.31**</td>
<td></td>
<td></td>
<td></td>
<td>4.31</td>
<td>0.67</td>
</tr>
<tr>
<td>5. 2002 illness status</td>
<td>−.23**</td>
<td>.64**</td>
<td>.04**</td>
<td>.05**</td>
<td></td>
<td></td>
<td>1.92</td>
<td>1.22</td>
</tr>
<tr>
<td>6. Gender</td>
<td>−.15**</td>
<td>.08**</td>
<td>.00</td>
<td>−.17**</td>
<td>−.04**</td>
<td></td>
<td>1.53</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Note. Scores shown in parentheses are alpha internal consistency reliabilities. No reliability measure is shown for 1992 illness status or 2002 illness status because these are cause-indicator constructs and not psychometric scales (K. A. Bollen, 1989).

Following this examination of zero-order correlations, we conducted two hierarchical multiple regression analyses, both regressed the 2002 illness status (dependent variable) of these older adults. For these regressions, predictors were the data collected 10 years before the 2002 illness-status dependent variable. One of the regression models used 1992 family and friends social support satisfaction, and the other used 1992 spousal social support satisfaction as the social support predictor of 2002 illness status. Before running the regression analyses, as Aiken and West (1991) suggested, the predictors were linearly transformed by subtracting the respective sample mean from each predictors, and these centered variables were used as predictors and then multiplied for the interaction term. In addition, the dependent variable was also centered. The complete set of predictors in both of these hierarchical regression models are shown in Table 2. First, we entered the 1992 illness status into the regression equation; thus, a residual change on illness status from 1992 to 2002 aimed to be predicted by the following predictors. On the second step, we entered 1992 ADL into the equation, and on the third step, depending on the model, we entered either (a) the 1992 family and friends social support satisfaction or (b) spousal social support satisfaction. As a final step, we entered into the equation the interaction between 1992 ADL and 1992 family and friends or spousal social support satisfaction.

According to results of both hierarchical multiple regressions (see Table 2), all of the predictors, although modest, were important in what they reveal. In both models, higher 1992 ADL functioning predicted lower 2002 illness, with both betas approximately equal to −.04. The main effects of 1992 social support
<table>
<thead>
<tr>
<th>Variable</th>
<th>Family and friend social support satisfaction</th>
<th>Spousal social support satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE B$</td>
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<tr>
<td>Step 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992 illness status</td>
<td>0.77</td>
<td>0.01</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
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<tr>
<td>1992 ADL</td>
<td>−0.13</td>
<td>0.04</td>
</tr>
<tr>
<td>Step 3</td>
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<td></td>
</tr>
<tr>
<td>Social support satisfaction</td>
<td>0.10</td>
<td>0.03</td>
</tr>
<tr>
<td>Step 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992 ADL $\times$ 1992 Social Support Satisfaction</td>
<td>0.12</td>
<td>0.06</td>
</tr>
</tbody>
</table>

*Note.* ADL = activities of daily living.

*p < .05.

***p < .001.
satisfaction also largely tracked one another, with spousal support satisfaction ($\beta = .09, p < .001$) somewhat more influential than family and friends social support satisfaction ($\beta = .04, p < .001$). Both of these main effects of support satisfaction suggested that greater satisfaction with support predicts somewhat worse illness status 10 years later. The interaction of ADL with family and friends support satisfaction ($\beta = .02, p < .05$) also contributed to the prediction of later illness, with a negative stress buffering effect. Similarly, the interaction of ADL with spousal support satisfaction ($\beta = .03, p < .05$) was also significant in predicting later illness.

Using procedures that Cohen et al. (2002) recommended, we computed the simple regression of 2002 illness status on 1992 ADL for high (.52) and low ($-.52$) levels of family and friends support satisfaction (i.e., $M \pm SD$). Next, we tested the slope of each regression line to determine whether they were statistically significant (Aiken & West, 1991). This analysis revealed that the negative regression of 2002 illness status on ADL occurred when family and friends support satisfaction was both low (slope coefficient = $-.89, p < .001$) and high (slope coefficient = $-.70, p < .001$; see Figure 1). For family and friends support satisfaction, high ADL slightly decreased the level of later illness for older adults, but more so for those with low family and friends social support satisfaction. Similarly, among the older adults with low ADL, those with low family and friends support satisfaction reported less subsequent illness. Thus, regardless of ADL level, compared with older adults with low family and friends support satisfaction, those with higher support satisfaction had greater illness 10 years later.

We repeated this procedure for the 1992 ADL × Spousal Support Satisfaction interaction. These findings were mixed (See Figure 2). Here, 1992 ADL were negatively related to 2002 illness status when spousal support satisfaction was low (slope coefficient = $-.88, p < .001$). Also, 1992 ADL were positively related to 2002 illness status when spousal support satisfaction was high (slope coefficient = $-.71, p < .001$). Similar to the family and friends social support satisfaction, for spousal support satisfaction, high ADL decreased 2002 illness status for all older adults, but more so for those with low spousal support satisfaction. However, among the older adults with lower ADL, those with low spousal support satisfaction reported greater subsequent illness. Those older adults with low ADL but high spousal support satisfaction reported fewer illnesses 10 years later.

**Discussion**

All independent variables significantly predicted 2002 illness status. In both regression models, the most important predictors of 2002 illness of older adults were the main effects of ADL and social support, with spousal social support satisfaction proving itself somewhat more important. The interactions of 1992 ADL and support satisfaction contributed a small amount of additional variance in both models. As may be expected for participants who were present in both 1992

and 2002 (i.e., those participants who were alive to complete the 2002 10-year follow-up, an inclusion criteria for the present study), there was a main effect of 1992 ADL, with better functioning predicting slightly less 2002 illness.

Beyond this, family and friends and spousal support satisfaction added an additional moderate main effect, with greater 1992 social support satisfaction predicting somewhat worse 2002 illness status. Further analyses showed that regardless of the source of the social support and the level of ADL (except for older adults having low ADL but having high spousal support satisfaction), compared with older adults having low social support satisfaction, those with higher social support satisfaction reported worse health 10 years later.

Thus, this study suggests that spousal, but not family and friend support, is beneficial to older adults who have low ADL but not high ADL. This finding makes sense for two different reasons. First, as Hagedoorn et al. (2000) suggested in relation to cancer patients, when patients are not distressed, they may not benefit from active engagement by their spouse. In other words, support from the spouse particularly affects the ones who need it most. Similarly, only the older adults who have low ADL—but not high ADL—benefited from spousal support. Second, it is likely that because of opportunity and level of involvement, a spouse is the
person most likely to provide support in case of a need (Beach, Martin, Blum, & Roman, 1993; Dakof & Taylor, 1990), and the support received from outside the marriage may not be sufficient for the lack of support within the marriage (Julien & Markman, 1991). Moreover, because marriages are primary sources of emotional support (Heller & Rook, 1997), especially for chronically ill individuals (Revenson, 1994), marriage has positive effects on health; compared with unmarried ones, married individuals tend to live longer and healthier lives (Hughes & Gove, 1981). A possible mechanism of this finding may be that spousal support may foster a healthy environment for individuals to maintain a recommended lifestyle, as spouses’ support for the individuals’ health behavior was found to be a predictor of individuals’ health behavior (Fekete, Parris Stephens, Druley, & Greene, 2006). Thus, when a person is in need of support and when this support comes from the spouse, older adults benefit from the support.

A modest but unexpectedly positive relation between social support satisfaction and future illness status may be explained by several mechanisms. A sick role model applied to social support (Miczo, 2004) suggests greater support predicts greater sick role behavior. Similar to the present findings, Miczo’s findings suggested that sick role attitudinal factors correlated positively with social support. This sociological model of sick role is that support allows ill individuals to adopt a greater sick role, which is reinforced, and thus greater health problems are reported with greater support.

Another explanation for this unexpected result may be the selection criteria of the sample. Ill older adults who survived to be included in this 10-year longitudinal study received greater support as their illness became worse. As shown in the zero-order correlations, although cross-sectionally, social support provided a small protective illness reduction, longitudinally, the small illness increase with greater support is actually social support, especially spousal support being mobilized to aid ill and frail individuals. This longitudinal effect is seen in conjunction with the selection criteria of the study.

Furthermore, older adults, who were highly satisfied with the social support they received, may have relied on the possible continuation of this support, and consequently may have not taken care of their health, which may have resulted in worse health 10 years later. On the other hand, older adults, who were not satisfied with the support they received, might have thought that if they would get sick, there would be no one who would take care of them and engaged in health promoting behaviors that resulted in better health.

Frazier, Tix, and Barnett (2003) stated that theory and research on support ignored the relational context in which the support is offered and received. Several studies have shown that received support is associated with negative effects (Barrera, 1986; Barrera, Sandler, & Ramsay, 1981; Bolger, Zuckerman, & Kessler, 2000; Revenson & Majerovitz, 1990). Bolger et al. (2000) argued that enacted emotional support is beneficial only if it is invisible to the recipient and that the awareness of receiving support requires an emotional cost and the most effective
support is the one unnoticed by the recipient. Moreover, reception of the help entails a cost to the self-esteem of the receiver because the recipients notice that they are having difficulties in coping with stressors (Fisher, Nadler, & Whitcher-Alagna, 1982; Shapiro, 1978). Thus, in order to show its buffering effects, the support needs to be invisible to the recipient.

Amarel (2001) offered several mechanisms to explain negative outcomes of the support even if it is delivered with well intentions and pleasantly. First, by challenging the recipients’ sense of competence and resulting in upward social comparison, support takes a toll on their self-esteem. In other words, the support signals incompetence (Fishere et al., 1982). Second, support draws attention to the problem, which may result in cognitive appraisal costs (Lazarus, 1991). Third, support challenges the recipient’s autonomy (Ryan & Solky, 1996). Fourth, support makes the recipient feel indebted to the provider (Walster, Berscheid, & Walster, 1973). Last, Amarel stated that if the support is provided together with concrete performance challenge, performance anxiety could be heightened. Thus, because of these possible mechanisms, actual received support—as opposed to perceived support—may result in negative effects.

The finding that suggests better health among older adults because of high spousal support despite the low daily activity level may be explained by a stress buffering model (Cohen & Willis, 1985). According to this model, people with strong social support tend to have better health than those with weak social support, but only regarding exposure to stressors. In other words, support protects individuals from the potentially negative influence of stressful events (Dalgard, Bjork, & Tambs, 1995). Similarly, the present study stated that social support is especially beneficial for older adults when it comes from the spouse and when older adults are not capable of accomplishing their basic daily activities.

Although ours is a longitudinal study conducted with a probability sample, it is not without its limitations. First, social support satisfaction measure was less than ideal. It included few items, and this, in turn, decreased the reliability of the measure. Second, as in the other longitudinal studies, lack of a follow-up may also be a problem for this study. Some of the participants showing increases in illness over the 10-year period might have been too sick to participate by the 2002 wave, and this may have limited the generalizability of the findings. Last, we determined the illness status by using an index on the basis of the diagnoses. Higher levels of social support in 1992 may have created a stronger push for participants to seek medical attention, which, in turn, may have made diagnoses more likely by 2002. Future studies need to address these issues in order to obtain more reliable and generalizable findings. Because support is complex and takes multiple forms, each form of it may associate with different outcomes for the recipient (Beach & Gupta, 2006). Similarly, the present study suggests that social support may serve as a health-promoting factor when the individual has low levels of ADL, and the support comes from the spouse. However, in other conditions, where the individual has potential for ADL and have high levels of social support, the social support
may serve as health-deteriorating factor. Thus, depending on whether the recipient needs support and depending on the source of the support, the older adults do or do not benefit from the support.

**AUTHOR NOTES**

Özlem Bozo is an assistant professor at Middle East Technical University in Ankara, Turkey. Her research interests are gerontological health, caregiver well-being, psychooncology, and death anxiety, and its relationship with health-promoting and health-compromising behaviors. Charles A. Guarnaccia is an associate professor of clinical psychology and clinical health psychology at the University of North Texas. His research interests are Type II diabetes, metabolic syndrome, racial and ethnic health disparities, and how factors differ between racial and ethnic groups.

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