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Physical Disability and Depression in Older Adults: Predictability of Structural and Functional Aspects of Social Support

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Two aspects of social support(structural and functional) were examined in associations between physical health and depressed affect among community residing older adults(n=230). Structural support was operationalized as participation in social(organizational) activities; functional support was operationalized as satisfaction with social contacts. Deterioration of physical health predicted lower levels of social participation, but less social participation did not directly predict more depressed affect. Rather, social participation had an indirect effect on depressed affect through its impact on satisfaction with social contacts such that less participation predicted less satisfaction, which in turn, predicted more symptoms of depression. Moreover, functional disability(ADL needs) interacted with social participation in predicting satisfaction with social contacts. That is, less social participation was related to less satisfaction with social contacts when functional disability was relatively low; but when functional disability was high, the level of participation made little difference in satisfaction with social contacts. Thus, higher ADL needs seem to buffer the effects of decreased social participation on satisfaction with social contacts and, in turn, on depressed affect, suggesting that the effects of structural and functional aspects of social support vary according to the level of functional impairment.

Keywords : older adults, depression, physical health, social support, satisfaction with social contacts

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Abundant evidence indicates that physical health is related to psychological well-being (e.g., depression) in older adults (e.g., Meeks, Murrell, & Mehl, 2000; Parmelee, Katz, & Lawton, 1991; Schulz & Williamson, 1993; Williamson & Schulz, 1992a, 1992b). The relation between physical health and psychological well-being is often conceptualized in the context of a stress and coping model such as the one proposed by Lazarus and Folkman (1984a, 1984b). For example, Williamson and Schulz (1995b; Schulz & Williamson, 1993), in their research with frail elderly persons and their caregivers, have tested a unidirectional model in which psychological distress follows the onset of debilitating physical illness. It is also assumed that psychosocial variables play important roles in the association between physical illness and psychological well-being (see Williamson & Schulz, 1995b; Williamson & Shaffer, in press, for reviews). The research reported in this paper focuses on one category of these variables i.e., social support.

However, the large literature on social support makes this less than a straightforward endeavor. In fact, previous research seem to indicate strongly that social support is a multifaceted concept with myriad determinants and consequences. Although, at this point, it is clear that social support facilitates coping with stressful experiences (e.g., Cobb, 1979; Cohen & Wills, 1985; Cutrona, Russell, & Ross, 1986; Russell & Cutrona, 1991; Williamson & Schulz, 1992b; Williamson, Schulz, Bridges, & Behan, 1994) and that a supportive network is crucial in adapting to disability among older adults (e.g., Williamson et al., 1994), the varied conceptualizations of social support have provoked considerable discussion about which aspects of support are most valuable in a particular stressful circumstance (see, for example, reviews by Cohen & Wills, 1985; Russell & Cutrona, 1991). After considerable debate, it is now generally accepted that, depending on how it is measured, social support may have both direct (main) and indirect (buffering) effects on outcomes (e.g., Cohen & Wills, 1985). Direct effects are most likely to be obtained through structural measures of social support; buffering effects are most likely to appear when the measure is functional in nature (see Cohen & Wills, 1985 for a full discussion; also see Kessler & McLeod, 1985; Thoits, 1995).

My intent in conducting this study was not to provide evidence for one side or the other. Indeed, it is concurred with the observation that, regardless of how it is conceptualized or measured, social support is positively related to well-being (e.g., Antonucci, 1990; Barrera, 1986; Murrell, Norris, & Chipley, 1992). Rather, my position was that both are important in adaptating to physical illness. However, structural support and functional support may contribute to depressive affect in older adults in different ways (Murrell, Norris, & Chipley, 1992), and structural support may directly affect and also interact with aspects of functional support. Recently, Antonucci, Fuhrer, and Dartigues (1997) examined relative contributions of the structural and functional aspects of social support to depressive symptomatology, and found that functional social support variables (i.e., satisfaction with social contacts) accounted for the most variance in depression, a result consistent with earlier findings (e.g., Oxman, Berkman, Kasl, Freeman, & Barrett, 1992). Thus, functional (subjective) measures of social support appear to be more important than structural (objective) social support measures when the outcome is depressed affect. Still, these findings indicate that both aspects of social support predict mental health outcomes (e.g.,

depressed affect) in older adults.

Structural support refers to, among other things, the degree of social participation, whereas functional support refers to, among other things, the extent to which one's interpersonal relationships provide a satisfactory level of support (Cohen & Wills, 1985; Murrell, Norris, & Chipley, 1992). Because of its demonstrated relevance to well-being among older adults (e.g., Newsome & Schulz, 1996), in this study, structural support was operationalized as participation in organizational and religious activities that constitute an important source of interaction with social network members for older adults. Functional social support was operationalized as satisfaction with social contacts, a construct that encompasses not only how much support a person receives but also how much support a person wants and/or needs (Schulz & Williamson, 1993; Williamson & Schulz, 1992b).

Consistent with existing evidence, I believe that physical disability predicts lower levels of social participation (Blazer, 1982; Simonsick, Kasper, & Phillips, 1998; Thompson & Heller, 1990) and greater depressed affect in older adults. In addition, it is proposed that both the structural and functional aspects of social support are important to well-being. However, I speculated that the components of support are hierarchically ordered with structural factors (e.g., the ability to continue participating in previously valued activities such as organizations and church activities) predicting greater satisfaction with social contacts which then, in turn, predicts less psychological distress. This proposition is consistent with Activity Theory (Havighurst, 1963, 1968; Lemon, Bengtson, & Peterson, 1972; Longino & Kart, 1982; Maddox, 1965; Reitzes, Mutran & Verrill, 1995) and the Activity Restriction Model of Depressed Affect (see, for example, Williamson & Shaffer, in press) in which the loss of ability to continue normal activities represents a threat to one's sense of self.

For this study, I constructed a unidirectional model in which it was hypothesized that physical disability would predict decreased social participation, which, in turn, would predict less satisfaction with social contacts. Less satisfying levels of social contacts were then expected to predict more depressed affect. I was also interested in interactive associations among the variables in the study model. Accordingly, tests for moderation were conducted as recommended by Baron and Kenny (1986). I considered these analyses to be primarily exploratory in nature.

Method

Procedures and Sample

Portions of the data used in this study were collected as part of a longitudinal study on physical illness and depression in geriatric outpatients and have been reported elsewhere (Schulz & Williamson, 1993; Williamson & Schulz, 1992a, 1992b). Physicians and physician's assistants (PAs) provided medical evaluations based on medical records, physical examinations, and tests. Study participants provided remaining data (e.g., demographics, perceived physical health, social participation and satisfaction, and depression) through structured interviews that lasted approximately 90 minutes, which were usually conducted in their own homes.

Participants were recruited from two outpatient geriatric clinics at the University of Pittsburgh. These clinics provide comprehensive assessment, medical care, case management, and primary health care for elderly adults from a broad social,

cultural, economic, and educational base. Eligibility criteria were: (a) 55 years of age or older at study onset, (b) community dwelling (i.e., noninstitutionalized), (c) no history of major recurrent depression, schizophrenia, psychosis, organic mental disorder, or dementia, (d) no evidence of major depression in the 6 months prior to recruitment, (e) no history of alcoholism, and (f) a score of at least 25 out of 30 on the Folstein Mini-Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975), evaluated prior to study participation. Out of a total of 414 individuals who met eligibility criteria, 230 (55.6%) agreed to participate.

The mean age of participants was 72 years (range = 59 to 95). Of the total sample of 230, 158 were women. Approximately two thirds were White, and all remaining respondents were Black. Most were either married (33.9%) or widowed (40.0%). The mode of household annual income was between $5,000 and $10,000. Almost two thirds of the sample had at least a high school education. Almost one third were Catholic, and more than one half were Protestant.

Measures

Physical health status

Patients' physical health was assessed multidimensionally. These data were provided by both medical staff and patients.

Physician-rated health. At the time of enrollment in the study, each participant's chart contained the results of complete neurological and physical examinations (including assessment of visual acuity and hearing), and laboratory evaluations performed according to established practiced at the clinics. Thorough medical histories (including drug and substance use) were taken from patients and available family members. A summary measure was derived from patient histories, physical examinations, and laboratory tests. Using the Cumulative Illness Rating Scale (CIRS; Linn, Linn, & Gurel, 1968), physicians or PAs estimated each patient's degree of physical impairment in 12 categories (e.g., cardiac, vascular, respiratory, neurological) on a 5-point scale (0 = no impairment, 4 = extremely severe impairment). Ratings were summed to yield a total CIRS score with a mean in this sample of 6.6 (*SD* = 3.2, range = 1 to 16).

Patient-reported overall health. A single item asked participants to rate their current health on a scale of 1 (poor) to 5 (excellent). Such measures appear to be excellent predictors of emotional distress (e.g., Pearlman & Uhlmann, 1991; Williamson & Schulz, 1992b) and mortality (e.g., Idler & Kasl, 1991) even after controlling for more complex, objective measures of health status. Mean in this sample was 3.0 (*SD* = 1.1, range = 1 to 5), indicating that, on average, participants perceived their health as good.

Patient-reported functional impairment. Using the Activities of Daily Living (ADL) Scale derived from the Older Americans Resource and Service Scales (OARS; Duke University, 1978), participants reported how much difficulty they experienced in performing 18 aspects of daily living (7 item assessed personal care activities such as bathing, dressing, and eating; 11 items assessed more instrumental activities such as managing money, shopping for personal items, and taking medications) on a 4-point scale (0 = none, 3 = unable to do). Mean ADL score was 4.2 with considerable variability (*SD* = 7.9, range = 0 to 52). Responses were assumed to create an 18-item index with Cronbach's alpha of .91.

Social Participation

Structural support was operationalized as four indicators of social (e.g., organizational) activities and involvement in a social network. First, to assess global organizational involvement and activities, participants were asked to specify **the number of organizations**, clubs, or groups to which they belonged. An additional open-ended question requested a list of the types of organizations participants were attending most often (e.g., senior center, church-connected, fraternal/veterans, charitable, political). Participants were also asked to specify the number of times they had participated in the functions of each organization during the past six months, and these responses were summed to yield a measure of **frequency of organizational attendance**. On average, those in this sample belonged to 1.8 organizations (*SD* = 1.9, range 0 to 10) and reported an attendance rate of 20.0 (*SD* = 33.6, range = 0 to 194).

Second, to assess **changes in organizational attendance**, participants were asked whether their participation had decreased or increased in the last six months. That is, respondents specified both the number of organizations they had dropped and the number of organizations they had participated in less often during the last six months. For analytic purposes, the number of organizations dropped or participated in less often were summed to create the measure of changes in organizational participation in the last six months. Mean for this sample was 0.3 (*SD* = 0.9, range = 0 to 7).

Three additional items assessed **religious participation**. Specifically, respondents were asked: 1) whether they were currently participating in their religion (1 = no, 2 = yes), 2) how important religion was in their life (1 = of no importance, 2 = of some importance, 3 = of moderate importance, 4 = of great importance), and 3) frequency of religious service attendance in the last six months (1 = not at all, 2 = less than once per month, 3 = once or twice per month, 4 = once weekly, 5 = more than once a week). These items were combined to create a scale with Cronbach's alpha for internal reliability = .64. Mean score was 7.9 (*SD* = 2.4, range 3 to 11).

Satisfaction with Social Contacts

Functional aspect of social support was operationally defined as satisfaction with social contacts. Participants completed the measure of satisfaction with social contacts, which consisted of six items asking: 1) how the number of people they felt close to had changed in the past six months (1 = increased, 3 = decreased; reverse scored), 2) degree of satisfaction with the amount of social contact (1 = very dissatisfied, 5 = very satisfied), 3) degree of satisfaction with quality of social contacts (scored same as item 2), 4) how much time they would like to be spending with people they care about (1 = much less, 5 = much more; reverse scored), 5) how much socializing they were doing (1 = much less than I'd like, 5 = much more than I'd like), and 6) how much help/support they were currently receiving (1 = much less than I need, 5 = much more than I need). High scores indicated greater satisfaction with social contacts. This scale has been found to predict depressive symptomatology (Schulz, Williamson, Morycz, & Biegel, 1992; Williamson et al., 1994). Although response options for items 4), 5), and 6) are curvilinear rather than linear, Williamson and Schulz (1992b) found that few respondents indicated spending more time than they would like with people they care about (2.1%), doing more socializing than they would

like (5.6%), or receiving more help or support than they needed (3.4%). Tests for deviation from linearity revealed no F values approaching significance (i.e., all ps > .05). Consequently, responses to these items were analyzed as linear functions. Cronbach's alpha for internal reliability was .69. Mean score was 18.0 (SD = 3.2, range 6 to 23).

Depressive Symptoms

Psychological well-being was operationalized as low levels of depressed affect and measured by the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item self-report instrument developed for use in the general population specifically to avoid placing too much emphasis on the somatic factors that can confound symptoms of depression with the physical illness conditions that frequently characterize nondepressed older or disabled persons. Twenty items (e.g., I felt that people disliked me, and I thought my life had been a failure) were scored on a 4-point scale (0 = rarely or none of time, 3 = most or almost all the time) describing the frequency of occurrence during the previous week. Scores could range from 0 to 60, with higher scores reflecting more depressive symptoms. In this sample, alpha for internal reliability was .87. Mean score was 10.6 (SD = 9.2, range 0 to 54), indicating a higher average level of depressed affect than population means for similarly aged individuals (M = 7.4; Berkman et al., 1986). Scores of 16 and above are generally believed to indicate that the individual is at risk for clinical depression. In this sample, 23.7% (n = 54) were in this category with CES-D scores of 16 or higher.

Statistical Analyses

Data were analyzed in stages. First, preliminary analyses evaluated the extent to which demographic variables were related to the variables in the study

Table 1. Intercorrelations Among Variables in the Hypothesized Model.

	1	2	3	4	5	6	7	8	9
1.CIRS									
2.Subjective Health	-.40**								
3.ADL	.42**	-.33**							
4.Number of Organizations	-.26**	.20**	-.15						
5.Attendance Frequency	-.12	.14	-.21**	.44**					
6.Changes in Attendance	.09	-.05	.08	.29**	.15				
7.Religious Participation	-.19**	.15	-.08	.17	.26**	.05			
8.Social Satisfaction	.01	.13	-.02	.07	.17	-.18**	.15		
9.CES-D	.21**	-.38**	.19**	-.04	-.12	.10	-.08	-.36**	

Note. CIRS = Cumulative Illness Rating Scale (Linn, Linn, & Gurel, 1968); ADL =Activities of Daily Living; CES-D = Center for Epidemiological Studies-Depression Scale (Radloff, 1977).
** p < .01.

model to determine whether any of these variables should be included in subsequent analyses.

Second, standard path analyses (Darlington, 1990) tested predicted associations between variables in the study model.

Finally, to explore interactions among the variables in my model, Baron and Kenny's (1986) procedures were utilized to assess moderation effects.

Results

Preliminary Analyses

To examine the extent to which variables in the proposed model were related, bivariate correlations among the primary variables of interest were evaluated. Intercorrelations among the primary variables of interest are shown in Table 1. To control for Type I error, only correlations at $p <$ .01 or better were considered to be significant. The three physical health variables were intercorrelated in predictable ways. In addition, all three physical health variables were correlated with depressive symptoms.

However, the pattern of correlations among health and social support variables was complex. Greater impairment as assessed by physicians (CIRS) was related to participating in fewer organizations and less religious participation. Poorer patient-reported subjective health was related to participating in fewer organizations. Higher levels of ADL disability were associated with less frequent organization attendance.

Bivariate correlations among social participation variables were also evident. That is, the more organizations to which participants belonged were associated with more frequent participation in organization functions and more change (i.e., decline) in attendance over the last six months. Moreover, those who were more involved in their religion reported more frequent attendance in organizational activities. In addition, less decrease in organizational attendance over the past six months was related to greater satisfaction with social contacts. Finally, as expected, satisfaction with social contacts was correlated with depression scores (CES-D); that is, greater satisfaction with social contacts was related to less depressed affect.

Testing the Predicted Model

Path analyses. Standard path analysis (e.g., Darlington, 1990) was used to test the unidirectional path model specifying that poorer health status predicts less social participation which in turn leads to less satisfaction with social contacts and, consequently, to higher levels of depressed affect. In bivariate analyses, the 3 physical health variables (i.e., CIRS, subjective overall health, and ADL) were each correlated with some of the 3 social participation variables (i.e., number of organizations, frequency of organizational attendance, and religious participation). Although it was not correlated with any of physical health variables, changes in organizational attendance was also included in these analyses since, as described above, it was correlated with satisfaction with social contacts. In the first step of the path analyses, the 4 social participation variables were respectively regressed onto the set of 3 physical health variables. In the second step, satisfaction with social contacts was regressed onto the 3 physical health and 4 social participation variables. In the third step, depressed affect was the criterion, and satisfaction with social contacts was added to the list of predictor

Table 2. Path Coefficients: Predictors of Social Participation, Satisfaction with Social Contacts, and Symptoms of Depression.

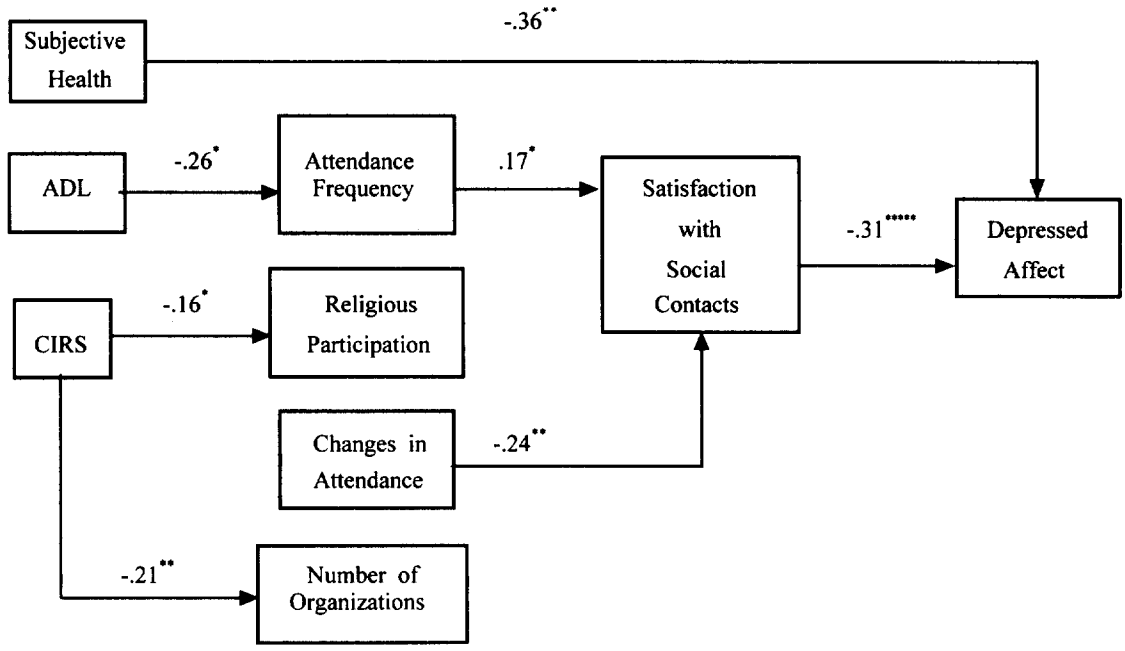
	Number of Organizations	Religious Participation	Attendance Frequency	Changes in Attendance	Social Contact Satisfaction	CES-D
Subjective Health	.10	.10	.08	-.09	.09	-.36**
ADL	-.03	.02	-.26*	.07	.05	-.05
CIRS	-.21**	-.16*	.07	.08	.21	.01
Number of Organizations	--	--	--	--	-.07	.01
Religious Participation	--	--	--	--	.14	-.17
Attendance Frequency	--	--	--	--	.17*	.01
Changes in Attendance	--	--	--	--	-.24*	-.02
Social Contact Satisfaction	--	--	--	--	--	-.31****
R2	.08****	.04*	.06*	.03	.23***	.30****

Note. ADL = Activities of Daily Living; CIRS = Cumulative Illness Rating Scale (Linn, Linn, Gurel, 1968); CES-D = Center for Epidemiological Studies Depression Scale (Radloff, 1977).
* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .0001$.

variables. These regression analyses explained 8% of the variance in number of organizations (F = 6.46, $p < .001$), 4% of the variance in religious participation (F = 3.35, $p < .05$), 6% of the variance in attendance frequency (F = 3.72, $p < .05$), 23% of the variance in satisfaction with social contacts (F = 3.77, $p < .001$), and 30% of the variance in depressed affect (F = 4.56, $p < .0001$). Results of these analyses are shown in Table 2, and significant pathways are diagrammed in Figure 1.

As can be seen, patient-reported overall health directly predicted depressed affect such that better patient-reported subjective health was directly related to lower levels of depressed affect. Of the health variables, ADL exerted a direct effect on frequency of organizational attendance, and CIRS exerted a direct effect on number of organizations and religious participation. More specifically, higher ADL needs were related to less frequency of organizational attendance, and greater impairment as assessed by physicians (CIRS) was related to less religious participation and fewer number of organizations. Frequency of organizational participation was positively related to satisfaction with social contacts, which emerged as a direct predictor of depressed affect. Although no physical health variables in these analyses directly predicted changes in attendance, changes in attendance predicted satisfaction with social contacts. In other words, as the more organizational involvement dropped or decreased in the past six months, less satisfaction with social contacts could be predicted. Less satisfaction with social contacts, in turn, predicted higher levels of depressed affect.

The pattern of these results suggests that, although none of the social participation variables



Note. Only statistically significant path coefficients are shown.
ADL = Activities of Daily Living.
CIRS = Cumulative Illness Ratings Scale (Linn, Linn, & Gurel, 1968).
* $p < .05$. ** $p < .01$. ***** $p < .00001$.

Figure 1. Path Model of Predictors of Social Participation (Frequency of Organizational Attendance, Religious participation, Changes in Organizational Attendance, and Number of Organizations), Satisfaction with Social Contacts, and Depressed Affect

were correlated with symptoms of depression (as shown in Table 1), social participation variables (specifically, frequency of organizational attendance, changes in attendance) have indirect effects on symptoms of depression through their impacts on satisfaction with social contacts.

In sum, as speculated, the deterioration of physical health status predicted less social participation. However, less social participation did not directly predict greater levels of depressed affect. Rather, the proposed pathway appeared to be more complex such that less social participation indirectly predicted higher levels of depressed affect through its direct effects on less satisfaction with social contacts. These associations between physical health, social participation, satisfaction with social contacts, and depressed affect were explored by further tests for moderation.

Test for Moderation

The results of path analyses reported above suggested that variables such as social participation

Table 3. Mean Scores of Satisfaction with Social Contacts as a Function of Activities of Daily Living and Frequency of Organizational Attendance.

		Activities of Daily Living	
		Low	High
Frequency of Attendance	Low	16.98	17.85
	High	18.66	17.96

DV: Satisfaction with Social Contacts

and satisfaction with social contacts intervene in the relation between physical health status and depressed affect. To further specify the nature of these associations, a test for moderating effects of social participation variables and satisfaction with social contacts was conducted according to Baron and Kenny's (1986) procedure.

Analyses revealed that frequency of organizational attendance was a moderator in the association between ADL and satisfaction with social contacts. More specifically, in the test for the moderation, the ADL x frequency of organizational attendance interaction term was significant (t = -2.97, p < .01) after controlling for the main effect of ADL and the frequency of organizational attendance. Thus, frequency of organizational attendance appeared to moderate the relation between ADL and satisfaction with social contacts.

To illustrate this interaction, ADL and the frequency of organizational attendance were split at the medians (*Mdn* = 1.0 and 4.5, respectively), and mean scores for satisfaction with social

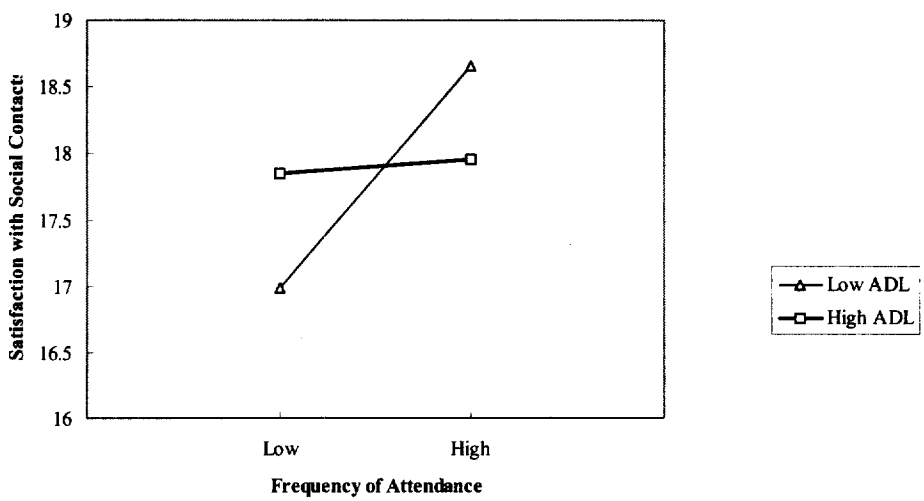


Figure 2. Satisfaction with social contacts as a function of ADL and frequency of attendance

contacts were calculated for each group. The means are shown in Table 3 and the patterns of means for each group are illustrated in Figure 2.

These results suggest that satisfaction with social contacts does not vary according to the frequency of organizational attendance when ADL needs are high. Rather, it appears that when older adults are relatively functionally unimpaired, less frequent participation in organizations is related to lower levels of satisfaction with social contacts. More importantly, recall that less satisfaction with social contacts consistently predicted higher levels of depressed affect (see Figure 1). Although more complex than originally hypothesized, this pattern of results does a role of structural social support as functional ability declines. Specifically, the decrease in satisfaction with social contacts (and the accompanying increase in depressed affect) that appears to occur normally (i.e., among those low in ADL needs) was not observed among participants with high levels of ADL needs. Thus, increasing ADL needs appear to buffer the association between decreasing frequency of organizational attendance and satisfaction with social contacts (and, subsequently, depressed affect as well). In other words, although social participation is an important predictor in depressed affect, it's not the absolute level of social participation but the degree of satisfaction with social contacts to predict depression for functionally impaired older adults.

Discussion

Consistent with earlier findings (e.g., Parmelee, Katz, & Lawton, 1991; Schulz, Williamson, Knapp, Bookwala, Lave, & Fello, 1995; Williamson & Schulz, 1992a, 1992b, 1995a), indicators of physical health (e.g., subjective evaluation of overall health, objective health indicators, ADL needs) were associated with psychological distress. That is, poorer health indicators were strong predictors of greater levels of depressed affect.

More importantly, the main purpose of this study was to examine the role of social support in the relation between physical health and depressed affect in older adults. It was proposed that declining physical health in older adults would predict decreases in social participation and that these decreases might then predict higher levels of depressed affect. Results partially supported this proposition. Standard path analyses revealed that physical health directly predicted social participation. More specifically, poorer evaluation of overall health, greater impairment as assessed by physicians, and more ADL difficulties were proximally related to less social participation. In addition, contrary to the proposition, social participation did not directly predict depressed affect. Rather, in the relation between physical health and depressed affect, social participation indirectly predicted depressed affect when satisfaction with social contacts was introduced into the equation. In sum, it was revealed that, in general, poorer health status predicted less social participation. Less social participation, in turn, predicted less satisfaction with social contacts, which in turn, predicted higher levels of depressed affect.

Satisfaction with social contacts appeared to play a pivotal role in predicting depressed affect in present investigation. That is, as participants were more satisfied with their social contacts, depressed affect decreased. These data support earlier findings regarding associations between social relations and health and general well-being in

older adults (e.g., Berkman & Syme, 1979; Cobb, 1976; George, Blazer, Hughes, & Flower, 1989). Specifically, in an effort to specify the relationship between social relations and depression, recent studies have emphasized the distinction between structural / objective aspects of social relations such as size and composition and functional / subjective aspects of social relations including satisfaction with social contacts (see Antonucci et al., 1997, for a review). Results in this investigation indicated hierarchical order of two aspects of social support in predicting depressed affect for physically ill older people. That is, structural aspects of social support (i.e., social participation) decreased as physical health was deteriorated and indirectly predict greater level of depressed affect by interacting with functional support (i.e., satisfaction with social contacts).

In addition, in exploratory analyses, ADL needs interacted with the frequency of organizational attendance in predicting satisfaction with social contacts such that less social participation (i.e., less frequent participation in organizations) was related to less satisfaction with social contacts only when ADL needs were relatively low. This finding is consistent with the notion that the association between social support and depression appears to be particularly relevant to older persons suffering impairment in ADLs (Oxman et al., 1992; Oxman, Barrett, Freeman, & Manheimer, 1994; Oxman & Hull, 1997; Schulz & Decker, 1985; Turner & Noh, 1988). Thus, the importance of satisfaction with social contacts in this study appears to emphasize the beneficial role of the functional aspect of social support when older adults experience relatively low levels of functional impairment.

Recently, socioemotional selectivity theory (Carstensen, 1992, 1993, 1995) supports our findings regarding differential effect of structural and functional social support in older adults. This theory posits that, across the life-span, individuals gradually reduce the rates of interaction with other people and deliberately withdraw from social participation, while maintaining and increasing interaction with close friends and family so that older individuals maximize gains and minimize risks in their social domains and emotional satisfaction. Therefore, although the absolute level of social participation for older adults is decreased, the level of satisfaction with close relationship is maintained and increased (Carstensen, Cross, & Fung, 1998). Together with those findings, this investigation contributes to the literature by providing corroborating evidence for the differential effects of the structural and functional aspects of social support on psychological well-being in older adults.

Limitations, Directions for Future Research, and Conclusions

One of the limitations of this study is that the sample was not representative of the total population of older adults because only noninstitutionalized individuals were eligible to participate. Therefore, the sample was generally healthier than, for example, nursing home residents were. It seems likely that this factor alone restricted the range of many (probably most) of the variables in our study. These are issues that may be resolved in the future by employing a sample of older adults with a wider range in health status and following their progression over a longer period of time.

Secondly, the distinction between the structural and functional aspects of social support might not be enough to explain multidimensional nature of social ties. More recently, researchers have urged

greater attention to the distinction between negative and positive sides of social ties (Rook, 1997). For exmple, Rook studied the relative impact of positive (e.g., having others to turn for help) and negative social interactions on older women's well-being. Negative social interaction included isolating oneself from others in order to avoid disturbed social ties. The results indicated that, although both positive and negative social ties affected well-being, negative ties had the greater impact. Negative social ties were significantly associated with less psychological well-being. Positive ties with others were significantly related to well-being only when they involved positive affect (particularly comfort) and sociability. Thus, it underscores the importance of assessing the specific qualities or content of social ties (Rook, 1984; Sarason, Levine, Basham, & Sarason, 1983) and complexities of social network involvement in later adulthood (Rook, 1997). More recently, Ingersoll-Dayton, Morgan, and Antonucci (1997) extended Rooks' suggestions by proposing that negative social exchange might be most potent when older adults are contending with other life stress. In addition, the way of assessment for social participation would be considered for future research. In this study, social participation was assessed by attendance frequency, changes in attendance frequency, and the number of participating organizations. However, other aspects of social participation in terms of quality or the degree of commitment in the social participation would be included in the assessment of social participation. Therefore, inclusion of more diverse dimensions of social support warrants future research on the differential effects of social support in older adults with poor physical health.

Even with its limitations, however, the present study provided some insight into the differential effectiveness of structural and functional aspects of social support in older adults with chronic illnesses by examining the specific situations in which each aspect of social support was effective e.g., where greater satisfaction with social contacts existed to predict better psychological well-being. Future research might be directed toward more clearly identifying those situational factors that facilitate and impede social support.

Furthermore, the persistent decrease in social participation to cope with chronic stressors may, over time, be associated with health-related outcomes. Recall that some findings in this investigation provided potential evidence for the differences in results according to the extent to which older adults were functionally impaired. The possibilities range from long-term health benefits to problems in intimate relationships and reduced access to social support networks. If future research indicates that less social participation is an adaptive short-term response to daily stress, one challenge will be to design interventions that maximize both short- and long-term health benefits of withdrawal and minimize long-term damage to social relationships. In addition, the findings in this investigation suggest potential interventions that might be deliberately created to provide good quality of life for those who are suffering from functional disabilities. Results indicating the hierarchical importance of the structural and functional aspects of social support in association between functional disability and depressed affect in older adults suggest that such interventions will be designed to provide substantial circumstances where greater satisfaction with social contacts would be yielded while maintaining the level of social participation for physically disabled older adults. Maintaining

greater levels of satisfaction with social contacts for older adults may be of particular interest to community interventions for older people.

In conclusion, although declining physical health status may lead older adults to decreases in their social activities, these decreases due to deterioration of physical health appears to be effective only when older adults strengthen or maintain their level of satisfaction with social contacts. Therefore, the effectiveness of various aspects of social support seems to warrant further research that includes more sophisticated measurement of various constructs of social support and more diverse groups of the population in order to specify underlying processes involved in the association between physical health and psychological well-being in older adults.

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노년기의 신체적 건강과 우울증간의 관계: 구조적 및 기능적 측면의 사회적 지지 효과를 중심으로

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노년기의 신체적 건강 수준과 우울증의 관계에 있어서 사회적 지지의 효과를 보다 자세히 살펴보기 위하여 사회적 지지의 구조적 측면과 기능적 측면으로 세분하여 조사하였다. 구조적 측면의 사회적 지지는 사회활동 참가도에 의하여, 기능적 측면의 사회적 지지는 사회적 접촉 만족도에 의하여 각각 조작적으로 정의·측정되었다. 미국 필라델피아 주 피츠버그 (Pittsburgh, Philadelphia)에 위치한 한 병원의 노인 병동 외래 환자 230명을 대상으로 조사를 실시한 결과, 노년기의 신체적 건강 수준 저하에 따라 사회활동 참여도가 낮아졌으며, 궁극적으로는 우울증의 정도가 더 심해지는 것으로 나타났다. 그러나, 낮은 사회활동 참여도가 우울증 심화를 직접적으로 예측한다기 보다는, 낮은 사회활동 참여도에 따른 사회적 접촉 만족도의 저하에 의해 우울증이 심화되는 것으로 나타났다. 따라서, 노년기의 신체적 건강 수준에 따른 우울증의 심화에 있어서 사회활동 참여도 (구조적 측면의 사회적 지지)와 사회접촉 만족도 (기능적 측면의 사회적 지지)가 매우 중요함을 보여주었다. 특히, 신체적 건강의 한 지표인 신체 기능 수준은 사회적 지지의 두 가지 측면과 상호 작용하여 우울증에 효과를 보이는 것으로 나타났다. 즉, 신체 기능 수준의 저하 정도가 상대적으로 약한 경우에는, 신체적 기능 저하에 따른 사회 활동 참여도의 저하로 인해 사회접촉 만족도가 낮아져 우울증이 심화되는 것으로 예측되는 한편, 신체 기능 수준의 저하 정도가 상대적으로 심한 경우 사회활동 참여도가 낮아진다 하더라도, 사회적 접촉 만족도에 별다른 영향을 미치지 않는 것으로 나타났다. 그러므로, 신체적 건강수준의 저하에 따른 사회 활동 참여도의 저하 및 사회접촉 만족도의 저하에 따른 우울증의 심화는 신체적 기능의 손상 정도에 따라 서로 다른 경로를 보이며, 이 결과는, 노년기의 신체적 건강 수준과 우울증의 관계를 설명하는데 있어서 사회적 지지의 구조적·기능적 측면의 효과가 신체적 기능 저하의 수준에 따라 상대적으로 차이를 보이는 것으로 논의되었다.

주요어: 노년기, 우울증, 신체적 건강, 사회적 지지, 사회적 접촉 만족도