

Social Relationships, Leisure Activity, and Health in Older Adults

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Objective: Although the link between enhanced social relationships and better health has generally been well established, few studies have examined the role of leisure activity in this link. This study examined how leisure influences the link between social relationships and health in older age. **Method:** Using data from the 2006 and 2010 waves of the nationally representative U.S. Health and Retirement Study and structural equation modeling analyses, we examined data on 2,965 older participants to determine if leisure activities mediated the link between social relationships and health in 2010, controlling for race, education level, and health in 2006. **Results:** The results demonstrated that leisure activities mediate the link between social relationships and health in these age groups. Perceptions of positive social relationships were associated with greater involvement in leisure activities, and greater involvement in leisure activities was associated with better health in older age. **Conclusion:** The contribution of leisure to health in these age groups is receiving increasing attention, and the results of this study add to the literature on this topic, by identifying the mediating effect of leisure activity on the link between social relationships and health. Future studies aimed at increasing leisure activity may contribute to improved health outcomes in older adults.

Keywords: leisure activity, social relationships, health, older age, structural equation model

With aging, individuals often decline in physical and cognitive functions, and social networks may narrow (Chen & Feeley, 2013). Because much of the literature has demonstrated that social relationships are positively associated with health status across the life span (e.g., Cohen, 2004; Uchino, Cacioppo, & Kiecolt-Glaser, 1996), the narrowing of social networks (as one measure of social relationships) may be problematic for health in older age and lessen subjective well-being, life satisfaction, and quality of life (Berkman & Syme, 1979; Cohen, 2004). Thus, identifying modifiable factors that may aid in more limited establishing social relationships is important: Health-promoting behaviors, such as leisure activity, may strengthen the link between social relationships and health.

Cohen and Wills (1985) proposed a main effects model to test that link: positive social relationships (i.e., higher social support or lower social strain) benefit health outcomes in adults, regardless of the stress they experience, in part by motivating the use of health-promoting behaviors (Smith & Christakis, 2008). Individuals with

enhanced social relationships not only improve psychological well-being (e.g., by gaining a sense of belonging and lessening depression), but also physical health (e.g., by enhancing immune function and reducing heart attack risks) (Cohen, 2004). Employing this main effects framework, Chen and Feeley (2013) used structural equation modeling (SEM) and 2008 Health and Retirement Study (HRS) data to examine the link between social relationships and well-being, finding that well-being improves with higher levels of social support or lower levels of strain, which indirectly mediated individuals' loneliness. Although their findings supported a main effects model, their cross-sectional sample did not provide sufficient evidence of positive changes in well-being. Thus, they recommended that future research explore other potential mediators between social relationships and well-being.

Leisure activity has been examined as such a mediator (e.g., Cohen-Mansfield, Marx, Thein, & Dakheel-Ali, 2010). In this context, leisure activities are defined as preferred and enjoyable activities participated in during one's free time (Kleiber & Nimrod, 2009), and characterized as representing freedom and providing intrinsic satisfaction (Kelly, 1996). Individuals can recover from stress and restore social and physical resources (Pressman et al., 2009) through leisure activities. Leisure activities with others may provide social support and, in turn, mediate the stress–health relationship (Coleman & Iso-Ahola, 1993), enrich meaning of life (Carruthers & Hood, 2004), recovery from stress, and restoration of social and physical resources (Pressman et al., 2009), as well as helping older adults adapt to potential restrictions of chronic conditions (Hutchinson & Nimrod, 2012) and overcome negative life events (e.g., losing a loved one) (Janke, Nimrod, & Kleiber, 2008).

Because engaging in leisure activities may affect different aspects of well-being (Gautam, Saito, & Kai, 2007), the specific type of leisure activity may be particularly salient, with some types of

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activities providing more benefit than others. Paillard-Borg, Wang, Winblad, and Fratiglioni (2009) examined five types of leisure activities in older adults—mental, social, physical, productive, and recreational—to assess how participation affects health status. They found that mental activities (e.g., writing, reading) were not only the most popular type of leisure activities, but also enhanced well-being the most. In contrast, Silverstein and Parker (2002) divided 15 leisure activities into six domains: culture—entertainment, productive—personal growth, outdoor—physical, recreation—expressive, friendship, and formal—group. They found that engaging in friendship-type leisure activities (e.g., visiting friends) resulted in the highest quality of life in older Swedish adults. Finally, in a recent review of literature on social and leisure activities and well-being in older adults, Adams, Leibbrandt, and Moon (2011) concluded that informal social activity (e.g., going to clubs) benefited well-being the most.

Previous studies have widely investigated the link between social relationships and health, as well as between leisure and health, but comparatively little research has examined whether leisure mediates the link between social relationships and health in older adults based on a main effects model. We adopted this model to examine both psychological (i.e., social relationships) and behavioral (i.e., leisure activities) influences on older adults' health, supplementing the findings of earlier studies. We investigated whether leisure mediates the association between social relationships and health outcomes (i.e., physical health and psychological well-being), using HRS data in 2006 and 2010 and SEM. Our conceptual model (see Figure 1) indicates that, although social relationships independently predict both physical health and psychological well-being, we hypothesized that leisure activity would mediate these links. We posited that higher levels of positive social relationships would be associated with better health, and that leisure activities would explain part of that relationship.

Method

Participants

Data were drawn from HRS, originally launched in the United States in 1992, supported by the National Institute on Aging and the Social Security Administration, and designed to monitor health and related social roles in adults over age 50. Core interviews were conducted in participants' homes in 1992; follow-up interviews

were conducted by phone every two years thereafter. The HRS surveys a representative sample of 26,000 Americans every two years (<http://hrsonline.isr.umich.edu>). Starting in 2006, HRS also began collecting psychosocial data (e.g., life satisfaction and leisure activities) through self-administered questionnaires on a random sample of 50% of core interview participants (i.e., 13,000 Americans). One half of those participants were interviewed in 2006 ($n = 6,500$), and one half in 2008 ($n = 6,500$). Those who were interviewed in 2006 were reinterviewed in 2010. The present study was based on data from the subsample of HRS respondents in 2006 and 2010 core interviews who also completed the psychosocial questionnaire in 2006 and 2010 ($n = 4,697$). We eliminated cases for participants who had missing data on any of the key analytic variables (i.e., social support, social strain, and leisure activity in 2010; physical health and psychological well-being in both 2006 and 2010). The final analytic sample included 2,965 older adults between ages 50–96 years ($M = 64.62$ years, $SD = 9.92$), most of whom were married (91.8%) and White (83.1%); half (50.2%) were female (see Table 1). Compared with the overall sample in 2010 (average age = 69.79 years; female = 54.8%; married = 59%; White = 83.55%), the analytic sample was quite similar.

Measures

Our latent constructs were developed with scaled HRS data that assessed self-reported social relationships in 2010, leisure activities in 2010, psychological well-being in both 2006 and 2010, and physical health in both 2006 and 2010. Each scale was tested for reliability before conducting the main effects model; and factor analysis tested latent variable quality based on the main effects model (Cohen & Wills, 1985). For instance, the six health-related scales described below (i.e., number of comorbidities, body mass index [BMI], self-reported health, depressive symptoms, life satisfaction, and insomnia) were combined into two latent variables, physical health and psychological well-being, based on factor analytic results and previous literature (e.g., Hopman et al., 2009). Detailed information on the study measure follows and is summarized in Table 2.

Social relationships. The independent latent variable “social relationships” represents the quality of social integration: level of social support and strain experienced from a spouse or partner, other family members, children, or friends, developed by Walen

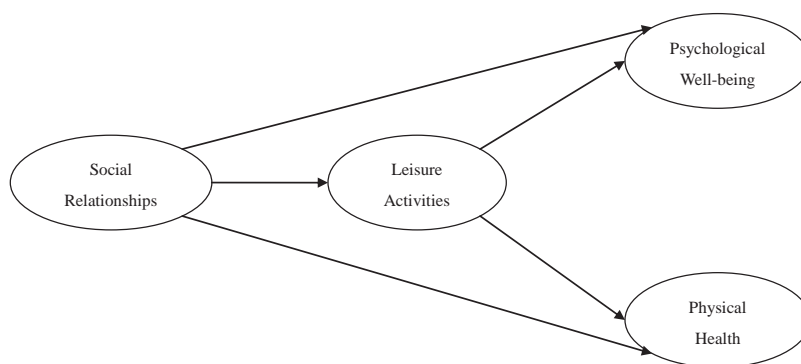


Figure 1. Tested conceptual model.

Table 1
Sociodemographic Characteristics of Study Sample From the
2006 Health and Retirement Study

Variables	Frequency (%)
Age (years)	
50–64	1,029 (34.7)
65–74	1,142 (38.5)
75–84	667 (22.5)
Over 85	127 (4.3)
Education	
Less than high school	585 (19.7)
High school	1,491 (50.3)
Some college	152 (5.1)
Four-year college	437 (14.7)
More than college	300 (10.1)
Sex	
Male	1,476 (49.8)
Female	1,489 (50.2)
Marital status	
Never married	17 (0.6)
Widowed	76 (2.6)
Separated	147 (5.0)
Married	2,725 (91.9)
Race	
White	2,608 (88.0)
Black	276 (9.3)
Others	81 (2.7)

Note. $N = 2,965$.

and Lachman (2000), and was found to be reliable in previous studies (e.g., Chen & Feeley, 2013). Social support was measured by 3-point items, anchored by 1 (*not at all*) and 3 (*a lot*). A sample item of social support is: “How much do they really understand the way you feel about things?” Social strain was measured with four 3-point items, anchored by 1 (*not at all*) and 3 (*a lot*). A sample item of social strain is: “How often do they make too many demands on you?” A higher score represent higher social strain or social support. To combine social strain and social support into the latent variable “social relationship,” the social strain items were reverse-coded and summed so that a higher score indicated lower social strain. A factor analysis for all social support and strain and

the concepts of main effect model supported combining this overall latent variable for two support and strain items.

Leisure activities. Frequency of leisure activities ranged from 1 (*never*) to 6 (*daily*), based on participants’ previous leisure experiences with 18 separate leisure activities. A sample question is: “How often you do each activity: Watch TV?” The latent variable “leisure activities,” which was viewed as a mediator between social relationships and physical health as well as psychological well-being, measured four types of leisure activities (i.e., mental [e.g., read books, watch TV]; social [e.g., do activity with grandchildren, go to a club]; physical [e.g., do home maintenance, walk]; and productive [e.g., cook, make clothes]), based on previous literature (i.e., Adams et al., 2011; Paillard-Borg et al., 2009) and exploratory factor analytic results. Noting that leisure is defined as not involving paid employment (Kleiber, Walker, & Mannell, 2011), we also included household chores (e.g., do home maintenance, cook) as a type of leisure activity (e.g., Paillard-Borg et al., 2009). The scales were averaged as indicators for participation levels in the four types of leisure activities, with higher scores reflecting greater participation.

Physical health. The latent variable “physical health” included BMI, self-reported physical health, and number of comorbidities, measured as controls in 2006 and as outcomes in 2010. Combining these variables into such latent variables was referred to in previous studies (e.g., Hopman et al., 2009) and supported by our factor analyses. To create a BMI indicator where the larger score indicated riskier BMI, we calculated BMI by dividing respondents’ self-measured weight by squared height and categorized it as: 1 (*normal* [BMI = 18.5–25 kg/m²]), 2 (*underweight* or *overweight* [BMI = 16–18.5 kg/m² or 25–30 kg/m²]), 3 (*moderately to severely underweight* or *overweight* [BMI = 15–16 kg/m² or 30–40 kg/m²]), and 4 (*very severely underweight* or *overweight* [BMI = < 15 kg/m² or > 40 kg/m²]), according to the World Health Organization’s definition and categorization of BMI. Self-reported physical health measured respondents’ subjective health, ranging from 1 (*poor*) to 5 (*excellent*), were derived from the National Health Interview Survey (Wallace & Herzog, 1995). The number of comorbidities was based on the total diagnosed chronic conditions (i.e., high blood pressure, diabetes, cancer, lung disease,

Table 2
Summary of Latent Variable Descriptions

Latent variables	Measurements	Years	Coding
Social relationships	Social support	2010	Sum score of all items
	Social strain	2010	Reversed all items then sum score of all items
Leisure activities	Mental	2010	Mean score of all items
	Physical	2010	Mean score of all items
	Social	2010	Mean score of all items
	Productive	2010	Mean score of all items
Physical health	BMI	2006, 2010	1 (<i>normal</i>) to 4 (<i>very severely underweight</i> or <i>overweight</i>)
	Number of comorbidities	2006, 2010	Total number of chronic conditions
	Self-reported physical health	2006, 2010	Reversed the item*
Psychological well-being	CES-D	2006, 2010	Sum score of all items*
	Insomnia	2006, 2010	Sum score of all items*
	Life satisfaction	2006, 2010	Reversed all items then mean score of all items*

Note. BMI = body mass index; CES-D = Center for Epidemiologic Studies Depression Scale.

* A higher score means a lower level of health or well-being.

heart condition, and stroke) reported by participants (“Has a doctor ever diagnosed you with . . .?”).

Psychological well-being. The latent variable “psychological well-being” represented the effects of depressive symptoms, life satisfaction, and insomnia. Depressive symptoms were measured using the abbreviated 8-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The items were summed to create an indicator for psychological distress, with a higher score reflecting greater depressive symptomatology. Life satisfaction was measured by Diener’s (1994) 5-item Subjective Well-being Scale, with responses ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Total scores were created by reversing the scales and summing the responses, with a higher score indicating a lower level of life satisfaction. Insomnia was measured using four yes/no questions regarding sleep quality, which were summed into a scale score, with a higher score indicating a lower sleep quality. We included insomnia in our latent variable “psychological well-being” based on its association with negative resources (e.g., stress, mental disorder) and psychological well-being (Bastien, Vallieres, & Morin, 2001), as well as our factor analyses. These scales are often established and found to be reliable (e.g., Gallo & Rabins, 1999).

Demographic. Variables found to be correlates of social relationships and health were also included in the model as control variables: age, race, and education at baseline in 2006. These data were drawn from the core interviews: age (0 = 50–64, 1 = 65–74, 2 = 75–84, and 3 = 85 above), race (1 = *white*, 2 = *black*, and 3 = *others*), and highest degree of education (0 = *less than high school*, 1 = *some college*, 2 = *4-year college*, and 3 = *more than college*).

Analytic Procedures

Analyses were performed using SEM in Amos, Version 20 (Arbuckle, 2006). A two-step procedure tested the theoretically based relationships among the four latent variables (i.e., social relationships, leisure activities, physical health, and psychological well-being).

First, in examining the hypothesized mediating effects of leisure activity in the link between social relationships and health, we used Baron and Kenny’s (1986) four condition test: (a) the independent variable “social relationships” must affect the mediator “leisure activities”; (b) the independent variable “social relationships” must affect the dependent variables “psychological well-being” and “physical health” without the mediator “leisure activities”; (c) the mediator “leisure activities” must affect the dependent variables of “psychological well-being” and “physical health”; and the independent variable “social relationships” must affect the dependent variables “psychological well-being” and “physical health” via the mediator “leisure activities”; and (d) once the previously stated conditions all hold as expected, the effect of the independent variable “social relationships” on the dependent variables “psychological well-being” and “physical health” must be significantly smaller in the third condition than in the second. Additionally, the Sobel test is recommended to test the significance of the change in the coefficient in the fourth condition (Hsu, Cai, & Li, 2010). The mediating role of leisure activities is supported if all four conditions are satisfied.

Second, SEM was used to test our conceptual model: (a) to examine the mediating effect of leisure activities in path models; and (b) to evaluate the tested conceptual model (see Figure 1). Noting that the mediation SEM analysis was developed to examine whether the effect of one variable (e.g., social relationships) on another (e.g., physical health and psychological well-being) is mediated by an intermediate variable (e.g., leisure activities), it is “inherently noncausal” (Bollen & Pearl, 2013, p. 1). That is, the mediation SEM analysis does not examine the causal relationships. Furthermore, because the purpose of SEM is to examine relationships between variables and to analyze relationships between latent variables (Stoelting, 2002), its focus is on understanding this mechanism rather than establishing causal relationships (Stavola & Daniel, 2012). The final structural model was constructed with a directional path leading from the latent independent variable (social relationships in 2010) impacting the mediator (leisure activities in 2010), in turn impacting the latent dependent variables (psychological well-being and physical health in 2010). Additionally, latent variables measured in 2006 (psychological well-being and physical health) were included as control variables, which helped to avoid potential biases that participants’ previous health conditions may have posed to their current health conditions. Model fit was evaluated with three goodness-of-fit indices: the comparative fit index (CFI; Bentler, 1990), the Tucker–Lewis index (TLI; Tucker & Lewis, 1973), and the root mean square error of approximation (RMSEA; Steiger, 1990). Minimum TLIs and CFIs of .90 were required for model acceptance, and values of .95 or greater were regarded as an indication of good model fit. RMSEAs of less than .06 were indicators of a good-fitting model (Hu & Bentler, 1998).

Results

Descriptive Statistics

As shown in Table 3, nearly all variables correlated significantly with each other, and in the expected direction. Physical health (BMI, self-reported health, the number of comorbidities) and psychological well-being (CES-D, insomnia, life satisfaction) were coded so that the larger the value, the lower the level of physical health and psychological well-being. Therefore, for example, the negative correlation between leisure mental activities and CES-D can be interpreted as: when individuals increase their frequency of engaging in mental leisure activities, their levels of depressive symptoms decrease; or, in contrast, when individuals report lower levels of depressive symptoms, they may engage in more mental leisure activities.

Path Models for Mediating the Effect of Leisure

According to Baron and Kenny (1986), the first three conditions were met with significant path coefficients between social relationships, leisure activities, and psychological and physical health (see Table 4). For the fourth condition, the Sobel test indicated that changes in the coefficient once the mediator was introduced were significant for psychological well-being ($t = -2.410, p < .05$) and physical health ($t = -2.993, p < .001$). Therefore, our analyses indicated that leisure activity partly mediated the relationships

Table 3
Correlation Coefficients of the Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Social support												
2. Social strain	.21**											
3. Mental activity	.07**	.03										
4. Social activity	.09**	-.06**	.29**									
5. Productive activity	.13**	-.07**	.31**	.28**								
6. Physical activity	.13**	.02	.34**	.30**	.27**							
7. CES-D	-.10**	-.17**	-.17**	-.09**	-.03	-.24**						
8. Insomnia	-.07**	-.13**	-.04*	-.05**	.03	-.12**	.42**					
9. Life satisfaction	-.22**	-.20**	-.14**	-.08**	-.08**	-.20**	.32**	.18**				
10. BMI	-.05**	-.10**	-.01	.02	.03	-.15**	.04*	.05**	.08**			
11. Self-reported health	-.12**	-.11**	-.25**	-.17**	-.16**	-.16**	.37**	.29**	.33**	.15**		
12. Comorbidities	-.05**	-.033	-.15**	-.07**	-.10**	-.24**	.16**	.14**	.15**	.19**	.42**	
M	3.10	3.38	3.92	2.49	2.81	4.07	1.07	6.62	2.37	2.12	2.72	1.46
SD	.59	.53	.96	1.04	.98	1.35	1.65	1.97	.87	.84	1.03	1.12

Note. A higher mean score means a lower level of health or well-being. CES-D = Center for Epidemiologic Studies Depression Scale.
* $p < .05$. ** $p < .01$.

between social relationships, psychological well-being, and physical health.

SEM Evaluation of the Tested Conceptual Model

The final model (see Figure 2) represented a good fit for the data, $\chi^2(148, N = 2,965) = 1,210.774, p < .001, CFI = .937, TLI = .919, RMSEA = .049$. As illustrated in Figure 2, there were significant direct effects between (a) social relationships and leisure activities; (b) social relationships and psychological well-being; (c) social relationships and physical health; (d) leisure activities and psychological well-being; and (e) leisure activities and physical health, controlling for education, race, psychological well-being, and physical health in 2006. As posited, social relationships predicted psychological well-being and physical health, and leisure activity partially mediated these relationships. More specifically, the levels of contribution from social support (standardized $\beta = 1.000$) and social strain (standardized $\beta = 1.194$) to the latent variable “social relationships” were similar to each other. Although psychological well-being was positively affected by social relationships and leisure activities more than was physical health, the coefficient for physical health changed the most when

leisure activities were added as a mediator to this model. Furthermore, physical leisure activities (standardized $\beta = 1.541$) contributed the most, while productive leisure activities (standardized $\beta = .454$) contributed the least to the latent variable “leisure activities.” The outcome of CES-D (standardized $\beta = 3.117$) in “psychological well-being” and self-rated health (standardized $\beta = 5.675$) in “physical health” were the two most impacted outcome variables.

Discussion

The results of this study confirmed our hypothesis that the links between social relationships and physical health or psychological well-being were enhanced in the presence of leisure activities as a mediator, supporting a main effect model (Cohen & Wills, 1985), where adults with higher quality social relationships may be motivated to engage in health-promoting behaviors such as leisure activity and, in turn, reap more health benefits. Their social networks may value and so encourage participation in leisure activities as a vehicle to maintain health (e.g., Coleman & Iso-Ahola, 1993). Additionally, the physical type of leisure activity contributed the greatest effect to the latent variable “leisure activity.” The contribution of physical leisure activities may be most important for improving health when emotional or psychological needs have been satisfied by the high quality of older adults’ social relationships.

The results that leisure activities, especially physical ones, mediate the link between social relationships and health replicates findings in previous studies, which examined the main effect model in leisure and health (e.g., Cohen-Mansfield et al., 2010). Differences in specific criteria used to define leisure could contribute to the differences between the present and previous studies: Many researchers only examined “leisure-time physical activity” in their models (e.g., Bassett & Ginis, 2011), whereas the present study included four types of leisure activities. Indeed, physical leisure activity is most beneficial among the four types of leisure activities, while mental leisure activity also significantly correlated to health in our model. Because older adults may be involved in

Table 4
Modified Path Model and Test of the Mediating Effect

Path	Standardized β (SE)
First condition	
Social relationships → Leisure activities	0.182 (0.023)
Second condition	
Social relationships → Psychological well-being	-0.598 (0.103)
Social relationships → Physical health	-3.795 (0.407)
Third condition	
Social relationships → Psychological well-being	-0.488 (0.082)
Social relationships → Physical health	-3.113 (0.349)
Social relationships → Leisure activities	-0.785 (0.230)
Leisure activities → Psychological well-being	-0.137 (0.022)
Leisure activities → Physical health	-0.252 (0.074)

Note. All paths significant at the $p < .05$ level.

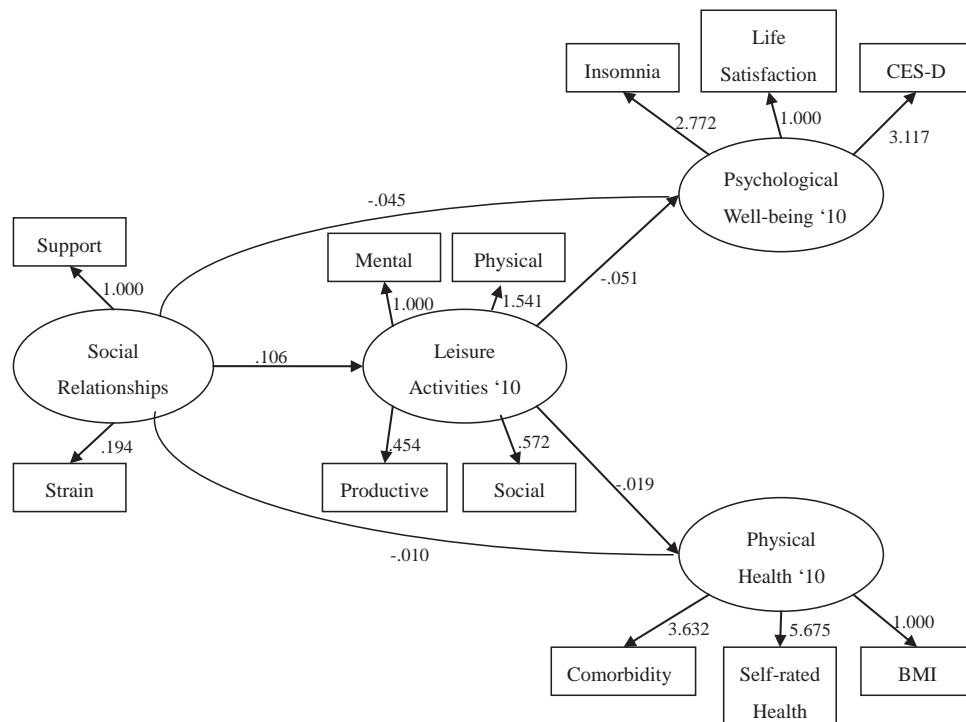


Figure 2. Final main effects model in the current study. All paths significant at the $p < .05$ level. Note that we controlled for education, race, physical health, and psychological well-being in 2006. CES-D = Center for Epidemiologic Studies Depression Scale; BMI = body mass index.

fewer and fewer physical activities during aging process, mental activities may be an alternative to improving health.

Although the positive effect of leisure activity on psychological well-being was greater than on physical health in the overall model, the coefficient change in physical health was greater when leisure activity was added as a mediator. Physical decline is a common and largely progressive outcome of the aging process (Chen & Feeley, 2013), whereas psychological well-being may vary by person. Noting that self-reported physical health measurement contributes most to the latent variable “physical health” in the presented model, there may have been bias because it is a self-reported measurement. Individuals may have reported their physical health as better than it actually was.

The results provide additional evidence that leisure activity is a health-promoting behavior that may mediate the link between social relationships and health, which have both research and practical implications. First, leisure provides a broader concept of health-promoting behaviors, including more than physical activity. In a meta-analysis reviewing articles relating to the National Institutes of Health’s Cognitive and Emotional Health Project, Hendrie et al. (2006) indicated that physical activity may protect against cognitive decline in older adults, but did not discuss other health-promoting behaviors. Our findings also suggest that other types of leisure activities may provide insightful information when examining the link between social relationships and health outcomes. Second, engaging in leisure is a healthy lifestyle that most prevention research and interventions are designed to promote (e.g., Hutchinson & Nimrod, 2012). Leisure activity is a relatively inexpensive and easily accessible way for older adults to improve

health. Leisure activity may also help explain the impact of positive social relationships on physical health improvements in older adults. Intervention programmers may create environments to develop friendships in older participants as a first step. Adding regular leisure activities, especially physical types of leisure activities (e.g., walking), into the intervention could be the second step to broaden the positive effect of social relationships on physical health. Finally, as a health-promoting behavior, leisure may improve long-term psychological well-being and physical health in older adults, such as improvements of physiological and cardiovascular fitness (Iwasaki, Mannell, Smale, & Butcher, 2005). The present study not only provides evidence as to how older adults can improve their health, but also shows how researchers can inform health care delivery. For example, interventions for older adults—such as support for clinical assessments and treatment services—may be developed whereby leisure activities are defined as “behavioral medicine” aimed at improving older adults’ health. The findings may also help to identify which types of leisure activities may provide the greatest health benefit as part of those clinical assessments or treatment services. Finally, future intervention researchers may examine the effect of different physical types of leisure activities on the link between social relationships and health improvement for older adults.

Despite the large number of participants ($N = 2,965$) and the variety of measurements involved in, the design of the present study was not without limitations. First, although we controlled for age, race, education, and health status at baseline, other unmeasured factors, such as gender and marital status, may have influenced the results. Given that the power of personal characteristics

in health has been widely discussed, future research is necessary to explore differences across population subgroups based on a life-span developmental perspective in order to appreciate the power of early life, including ascribed and achieved social status (Alwin & Wray, 2005). Second, the psychosocial data used in the current study were only from the first wave in 2006, the year HRS started collecting data on leisure activity and life satisfaction. Although data in 2006 were included as controls, those data in the model tested were cross-sectional. Causal relationships cannot be examined in a cross-sectional data, because SEM only tests directionality in longitudinal data (Stoelting, 2002). Future research could examine a longitudinal change and causality in the current model once HRS launches the next wave of psychosocial data in 2014.

Conclusion

The present study underscores the contributions of leisure in the link between social relationships and health among older adults based on the main effect model. An improved understanding of the mediating effect of leisure activities in such a link is important for improvement and maintenance of health among the older population, which can be applied to effective intervention development to help older adults during the aging process. Leisure is a much broader concept than physical activity, which, as shown in the present study, nonphysical leisure activities mediated the link between social relationships and health as well. The findings have demonstrated the complex relationships between social relationships and health, and highlighted the power of leisure activities for developing future health policies and/or clinical interventions for older adults in the health promotion area.

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