LONELINESS AMONG DISABLED OLDER ADULTS:

THE IMPORTANCE OF MARITAL AND NON-MARITAL RELATIONSHIPS

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ABSTRACT

Research demonstrating the significance of marital and non-marital relationships for well-being among disabled older adults is lacking. Drawing on the stress process and life course perspectives, we expand our understanding of the social context of disablement by considering how marital quality and non-marital social support affect loneliness among disabled married older adults. Using nationally representative data from the *National Social Life, Health, and Aging Project* (NSHAP), we found that functional impairment predicted higher levels of loneliness, positive marital and non-marital relationships were associated with lower levels of loneliness, and the effect of functional impairment on loneliness was diminished among those with higher levels of both family support and strain. We did not find support from family or friends to offset the negative consequence of being in a low quality marriage. These results underscore the salience of *both* marital and non-marital relationships on the association between disability and loneliness in late-life.

EXTENDED ABSTRACT

BACKGROUND

The risk of disability is generally more pronounced among older adults (Land and Yang 2006). Far from being a "natural" part of the aging process, disablement is a physiological phenomenon that is grounded in one's social environment (Fried et al. 2004). Yet, by presenting challenges to routine functioning and activities of daily living (Korporaal, van Groenou and van Tilburg 2008), disablement may result in a loss of independence and autonomy and potentially hamper these social relationships. Prior research has only recent begun to explore the social contexts and consequences of disablement (see Warner and Kelley-Moore 2010).

Loneliness, an adverse emotional state based on a subjectively assessed disconnect between one's social needs and one's ability to meet these social needs (Cacioppo, Hawkley and Berntson 2003; Cornwell and Waite 2009), is a particularly important socially situated condition that can be affected by disability. Notably, older adults who are functionally impaired are more likely to be lonely (Russell 2009; Savikko et al. 2005). Nevertheless, there is a need to better understand how disability is influenced by the quality of close social ties in old age, and in turn, how the quality of such relationships impact loneliness, especially considering that socially supportive relationships, in which an individual's social needs are met (Berkman et al. 2000; Seeman 1996; Thoits 1982), are associated with advantageous health outcomes (Turner and Marino 1994; Wethington and Kessler 1986) and lower levels of loneliness (Tomaka, Thompson and Palacios 2006).

Given that most older adults are married and that the spouse is often regarded as an individual's most stable (Waite and Gallagher 2000) and meaningful source of social support (Nock 1998; Waite 2005; Waite and Lehrer 2003), it is important to acknowledge the centrality

of marriage as an institution that guides and directs one's social life in old age (Warner and Kelley-Moore 2010). However, the social complexities of marriage in old age are far from being fully understood and acknowledged, especially as they related to health and well-being. In particular, empirical research demonstrating how marital quality, along with the quality of relationships with social ties outside the marital dyad, inform our understanding of the social context of disability and, ultimately, the ability to meet salient social needs in old age is lacking. Using the stress process (Pearlin et al. 1981) and the life course perspective (George 2003), our research focuses on the social context of disability by examining the influences of marital quality and non-marital social support on both loneliness itself, and the relationship between disability and loneliness among older adults. This study builds on earlier work concerning the social context of disablement (Warner and Kelley-Moore 2010) , which demonstrates that marital quality is not lower among disabled persosns and that positive marital quality can moderate the association between functional limitations and increased loneliness, by incorporating indicators of social support and strain from family members and friends.

METHODS

Data come from the *National, Social Life, Health and Aging Project* (*NSAHP*) (Waite et al. 2007), a nationally representative sample of 3,005 community-dwelling individuals between the ages of 57 and 85 in the contiguous United States. The NSHAP sample was selected using a multistage area probability design and includes an oversample of blacks, Hispanics, men, and individuals between the ages of 75 and 85. The NSHAP study's final weighted response rate is 75.5%. In-home interviews of eligible participants were conducted in both English and Spanish by trained interviewers between July 2005 and March 2006. To assist in the collection of information and minimize respondent burden, certain questions were included in a leave-behind

questionnaire that a randomly selected set of respondents were asked to complete and return by mail following the in-home interviews. The return rate for the leave behind questionnaire was 84%.

Analytic Sample

Analyses are limited to respondents with a valid score on our dependent variable, the UCLA Short Loneliness Scale. Furthermore, since the items comprising the loneliness scale were asked in the Leave Behind Questionnaire, the 481 respondents (16% of the sample) who did not return the questionnaire were excluded from the analyses. Another 139 respondents were excluded due to item non-response on one or more of the three UCLA items. Altogether, 20.6% of the sample was excluded from the analysis due to missing information on the dependent variable.[1]

We also limited our analyses to respondents who reported being married or living together in a marriage-like cohabiting relationship, which excluded an additional 863 respondents.[2] Lastly, we excluded 50 respondents with missing information on at least one of the explanatory variables used in our analyses. Our final analytic sample includes 1,472 married older adults (48.9% of the total available sample).

Measures

Loneliness is treated as the dependent variable in our analyses and is measured using the UCLA Short Loneliness Scale, a three-item summated rating scale validated for use in surveys of older adults (Hughes et al. 2004). The primary explanatory variables in our analysis were

[1] Preliminary analyses of NSHAP respondents revealed the expected correlates for failure to return the Leave Behind Questionnaire (or, if returned, to provide complete responses to the UCLA Short-Loneliness Scale items). Male, black, Hispanic, unmarried, less educated, low income, and working respondents were less likely to return completed questionnaires and these factors are controlled in our multivariate models. Importantly, among married NSHAP respondents none of our primary explanatory variables—functional limitations, marital quality, social support from family, and social support from friends —were significantly associated with non-response.

[2] About 3% of respondents were in cohabiting relationships. Preliminary analyses indicated that the inclusion of non-married cohabiting persons had no substantive influence on the results presented below. As a consequence, we make reference to married persons and marital quality throughout the text in order to simplify the discussion.

physical disability, marital quality, family social support, and friend social support. Latent indicators of positive and negative dimensions martial quality, family support, and friend support were constructed from multiple items in NSHAP using factor analysis techniques. Refer to Table 1 for a complete list of variables used in the analyses, along with detailed descriptions of the coding schemes and univariate statistics.

Analytic Strategy

We employed Tobit or censored regression models to account for the restricted measurement of our dependent variable (Long 1997), where limited response categories result in a large cluster of responses at the lowest value. Our analyses were conducted in the following steps. First, we estimated a zero-order model to demonstrate the baseline relationship between physical disability and loneliness and then added the measures of martial quality and social support to determine whether martial quality or social support mediated the relationship between physical disability and loneliness. Then, we tested for moderating effects by estimating an interaction term between each measure of marital quality and physical disability, as well as each measure of social support and physical disability.

PRIMARY RESULTS

Table 2 presents the censored regression estimates used to test whether marital quality and/or social support mediate the relationship between physical disability and loneliness. The results indicate a positive relationship between disability and loneliness. Furthermore, positive marital quality, family support, and friend support predict lower levels of loneliness whereas negative marital quality, family strain, and friend strain are associated with higher levels of loneliness. After controlling for marital quality, social support, and additional demographic controls, the positive relationship between disability and loneliness remains statistically

significant, suggesting that neither marital quality nor social support mediate the relationship between disability and loneliness.

Table 3 presents the moderation model. The results from Table 3 illustrate marginal support for the moderating effect of positive marital quality on the relationship between disability and loneliness, net of other factors. Interestingly, these data also provide some evidence that as levels of family support—as well as family strain, increase—the affect of disability on loneliness declines. Preliminary analyses revealed no statistically significant interactions between disability and social support from friends.

CONCLUSION

The results further our understanding of how the quality of both marital and non-marital relationships influence the association between disability and loneliness, as well as loneliness itself. The quality of older adults' close social ties do indeed have an impact on loneliness, but they do not explain the relationship between disability and loneliness. However, these results do provide some support for the argument that the effect of disability on loneliness varies by levels of positive marital quality, family support and family strain. In particular, the interaction between family strain and disability suggests that even when family ties are less than satisfactory, the very presence of these relationships are better than no relationships at all when it comes to loneliness among married older adults.

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Table 1: Model Variables, Coding, and Descriptive Statistics, Analytic Sample of Married Older Adults (N=1,472) [a]

Variable	Description and Coding	Mean	S.D.	Corr.
Dependent Variable				
Loneliness	UCLA Short Loneliness Scale. Summated score of three items assessing the frequency that R felt " lack [of] companionship," "left out," and "isolated from others" with responses to each of 1= "hardly ever (or never)," 2= "some of the time" and 3="often. ($\alpha = 0.82$). Items were recoded by subtracting one: range 0-6.	0.75	1.29	1.00
Independent Variables				
Functional Limitations	Count of any difficulty with seven activities of daily living, including walking one block, walking across a room, dressing, bathing, eating, getting and out of bed, and using the toilet (KR20 = 0.81): range 0 to 7.	0.70	1.51	0.07**
Marital Quality				
Positive Marital Quality	Estimated factor score; ($\alpha = 0.62$): range -3.40 to 0.69	0.00	0.77	-0.40***
Negative Marital Quality	Estimated factor score; ($\alpha = 0.60$): range -0.75 to 2.51	0.00	0.73	0.36***
Social Support				
Family Support	Estimated factor score; ($\alpha = 0.64$): range -1.74 to 0.64	0.00	0.69	-0.11***
Family Strain	Estimated factor score; ($\alpha = 0.46$): range -0.49 to 2.22	0.00	0.56	0.24***
Friend Support	Estimated factor score; ($\alpha = 0.67$): range -1.22 to 1.26	0.00	0.71	-0.12***
Friend Strain	Estimated factor score; ($\alpha = 0.47$): range -0.36 to 3.61	0.00	0.57	0.09***
Control Variables				
No Family	No Family Members (1 = yes; 0 = otherwise)	0.01	—	0.08**
No Friends	No Friends (1 = yes; 0 = otherwise)	0.03	—	0.14***

(Continued Below)

Table 1 (Continued)

Variable	Description and Coding	Mean	S.D.	Corr.
Age	Age of Respondent mean centered: range -9.88 to 18.12	0.00	7.53	-0.05†
Female	Female (1=yes; 0=otherwise).	0.44	—	0.05†
Race/Ethnicity				
White [b]	Non-Hispanic White (1=yes; 0=otherwise).	0.85	—	-0.10***
Black	Black (1=yes; 0=otherwise).	0.07	—	0.12***
Hispanic	Hispanic (1=yes; 0=otherwise).	0.06	—	-0.01
Other	Other/ Race Ethnicity (1=yes; 0=otherwise).	0.02	—	0.06*
Cohabiting	Relationship legal status. 1=Currently Cohabiting, 0=Currently Married.	0.03	—	-0.02
Times Previously Married	Number of Times Previously Married: range 0 to ≥ 2.	0.41		0.08**
Education				
Less than High School	Less than a High School (1=yes; 0=otherwise).	0.13	—	0.06*
High School [b]	High School or equivalent (1=yes; 0=otherwise).	0.25	—	0.01
Some College	Some post-secondary education (1=yes; 0=otherwise).	0.33	—	0.03
College and Beyond	Four-year degree or more (1=yes; 0=otherwise).	0.29	—	-0.08**
Income				
Less than $25,000	Household income of < $25,000 last year (1=yes; 0=otherwise).	0.14	—	0.08**
$25,000 to < $50,000	Household income of $25,000 to < $50,000 last year (1=yes; 0=otherwise).	0.28	—	0.04
$50,000 to < $100,000 [b]	Household income of $50,000 to < $100,000 last year (1=yes; 0=otherwise).	0.31	—	-0.09***
$100,000 or More	Household income of ≥ $100,000 last year (1=yes; 0=otherwise).	0.18	—	-0.04
Income Missing	Income Missing (1=yes; 0=otherwise).	0.08	—	0.04
Social Integration				
Working	Working for pay (1=yes; 0=otherwise).	0.37	—	0.01
Religious Attendance	Frequency attended religious services in the past 12 months: responses coded from 0=never to 6= a few times per week.	3.30	2.25	-0.04†
Network Size	Number of persons in Respondent's discussion network, excluding spouse: range 0 to ≥ 5	2.77	1.60	-0.06*

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Notes: [a] All estimates were weighted to account for differential probabilities of selection and differential non-response; Mean is equivalent to the proportion coded 1 for dummy variables; S.D. = Standard Deviation (omitted for dummy variables); Correlation between variable and UCLA Short Loneliness scale; α = Cronbach's alpha for internal reliability of continuous measures; KR20= Kuder-Richardson Formula 20 for internal reliability of dichotomous measures ; [b] Serves as reference category in multivariate analyses.

Source: National Social Life, Health, and Aging Project (NSHAP).

Table 2: The Association between Functional Limitations, Marital Quality, Social Support, and Loneliness among Married Older Adults, Tobit Regression Estimates (N=1,472) [a,b]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Functional Limitations	0.16**	0.16**	0.12*	0.13*	0.13**	0.09†
Positive Marital Quality		-0.99***			-0.96***	-0.90***
Negative Marital Quality		0.66***			0.46**	0.50**
Family Support			-0.44***		-0.17	-0.20†
Family Strain			1.27***		0.87***	0.79***
Friend Support				-0.61***	-0.23†	-0.25*
Friend Strain				0.81***	0.24†	0.18
Age [c]						-0.03*
Female						0.18
Race/ Ethnicity						
Black						0.58*
White [d]						—
Hispanic						-0.35
Other						1.14*
Cohabiting						-0.60**
Times Previously Married						0.29
Education						
Less than High School						0.32
High School [d]						—
Some College						0.12
College and Beyond						-0.07
Income						
Less than $25,000						0.04
$25,000 to < $50,000 [d]						—
$50,000 to < $100,000						-0.36†
$100,000 or More						-0.56*
Income Missing						0.16
Social Integration						
Working						0.09
Religious Attendance						0.01
Network Size						-0.01
Intercept	-1.04***	-0.95***	-1.00***	-1.05***	-0.94***	-1.00***
Sigma	2.77	2.44	2.64	2.68	2.35	2.29
Model Fit [e]						
Log Likelihood	-2037.69	-1911.47	-1983.67	-2005.63	-1874.24	-1850.73
Δ Model χ^2	8.46**	252.44***	108.04***	64.12***	326.90***	47.02***
Δ *df*	1	3	3	3	8	17

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Notes: [a] All estimates were weighted to account for differential probabilities of selection and differential non-response; [b] Controls for "no family" and "no friends" are omitted from the table. [d]Variable is mean-centered; [c] Serves as reference category; [e] Δ Model χ^2 is improvement in model fit and Δ *df* is the change in degrees of freedom relative to the preceding model; For Model 1 the comparison is to the null model without any predictors (not shown), and for Models 2-5 the comparison is to Model 1.

Source: National Social Life, Health, and Aging Project (NSHAP).

Table 3: The Moderating Effects of Marital Quality and Family Social Support on the Association between Functional Limitations and Loneliness among Married Older Adults, Tobit Regression Estimates (N=1,472) [a]

	Model [b]
Functional Limitations	0.10*
Positive Marital Quality	-0.81***
Negative Marital Quality	0.54**
Family Support	-0.08
Family Strain	0.90***
Marital Quality Interactions	
Positive Marital Quality *x* Functional Limitations	-0.18†
Negative Marital Quality *x* Functional Limitations	-0.12
Family Social Support Interactions	
Family Support *x* Functional Limitations	-0.18*
Family Strain *x* Functional Limitations	-0.14†
Intercept	-0.97***
Sigma	2.28
Model Fit [c]	
Log Likelihood	-1845.38
Δ Model χ^2	10.70*
Δ *df*	4

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Notes: [a] All estimates were weighted to account for differential probabilities of selection and differential non-response; [b] Model also includes controls for friend support, friend strain, reporting no family, reporting no friends, age, female, race/ ethnicity, whether current partnership a cohabitation, the number of times previously married, education, income, working for pay, religious service attendance, and size of network (excluding spouse); [c] Δ Model χ^2 is improvement in model fit relative to the model excluding the interaction terms (see Model 6, Table 3).

Source: National Social Life, Health, and Aging Project (NSHAP).