

Marital Status as Contingency for the Effects of Neighborhood Disorder on Older Adults' Mental Health

Alex Bierman

Department of Sociology, California State University, Northridge.

Objectives. This study examines whether the effects of neighborhood disorder on changes in levels of depression differ between the married and nonmarried, and whether these differences are because the married are less likely to experience a decrease in mastery due to neighborhood disorder.

Methods. Data are derived from a longitudinal study of adults aged 65 and older in the Washington, DC, metropolitan area over a 2-year period (2001–2003).

Results. Neighborhood disorder is positively related to change in depression and negatively related to change in mastery, but only for the nonmarried. Differences between the married and nonmarried in changes in mastery explain differences in effects of neighborhood disorder on change in depression.

Conclusion. This research contributes to the study of aging and health by demonstrating that neighborhood conditions continue to affect mental health well into late life by shaping older adults' mastery, but a social connection to a marital partner helps mitigate these effects.

Key Words: Neighborhoods—Marital status—Mental health—Perceived control—Stress.

NEIGHBORHOODS beset by signs of disorder, such as unruly residents, dilapidated structures, and crime, can have substantial consequences for the psychological well-being of residents of these neighborhoods (e.g., Latkin & Curry, 2003; Schieman & Meersman, 2004). The effects of neighborhood disorder on mental health are of particular concern for older adults. The cessation of work and the increase in mobility limitations that tend to accompany aging are likely to heighten the importance of the neighborhood as an arena for social interaction (Cantor, 1975; Oh, 2003) so that neighborhood conditions increase in salience in late life (Glass & Balfour, 2003). In addition, increases in physical frailty associated with aging can lead to greater feelings of vulnerability to environmental threats (Pearlin & Skaff, 1995). As a result, problematic neighborhoods may be especially detrimental for the mental health of older adults, even if perceptions of the level of disorder in the neighborhood do not increase with age. The particular importance of neighborhood conditions for older adults is demonstrated in research showing that community conditions are more likely to affect the health of older as compared with younger adults (Robert & Li, 2001).

A stress process perspective on mental health suggests, however, that the effects of stress on mental health are not unitary and may vary by different aspects of social status (Pearlin, 1999). Hence, socially proscribed categories of older adults may be at greater risk for the mental health effects of neighborhood disorder in a process of “double jeopardy.” Research on double jeopardy in the context of aging has primarily examined whether the aging process is

more detrimental to the health of racial minorities and women (e.g., Ferraro & Farmer, 1996; Rodeheaver & Datan, 1988), whereas other research has examined whether stressors experienced in late life may differ in their mental health effects by race and gender (e.g., Brooks, Kahana, Nauta, & Kahana, 2007; Milkie, Bierman, & Schieman, 2008). However, little research has examined how marital status may condition influences on mental health in late life, which is surprising because one of the most fundamental social status differences in mental health is marital status (Umberson & Williams, 1999). This lack of attention to marital status is also surprising because aging is often accompanied by a decrease in the size of one's social network and the frequency of interaction within one's social network (Ajrouch, Antonucci, & Janevic, 2001; Due, Holstein, Lund, Modvig, & Avlund, 1999; Morgan, 1988); consequently, marriage is likely to be a central resource for social support in late life during times of stress. Social support from families has in turn been highlighted in weakening the effects of stressors on the mental health of older adults (Fukukawa et al., 2004), and social support has been shown to buffer the effects of neighborhood disorder on mental health (Schieman & Meersman, 2004).

For these reasons, this research examines whether increases in psychological distress associated with neighborhood disorder are greater for older adults who do not have a marital partner. In the next section, a theoretical framework is outlined to explain how marital status may moderate the effects of neighborhood disorder on mental health. This framework focuses on loss of perceived control as a mediator

in the relationship between neighborhood disorder and psychological distress. It is suggested that, in part by being a conduit for social support, marriage will inhibit a loss of perceived control due to neighborhood disorder, which will in turn weaken the effects of neighborhood disorder on older adults' mental health.

Neighborhood Disorder, Loss of Perceived Control, and Marriage as Protective Factor

An important mechanism for explaining the effects of neighborhood disorder on psychological distress in older adults is likely to be loss of sense of control over life. In keeping with previous research in the sociology of mental health, perceived control is seen as "the extent to which one regards one's life chances as being under one's control in contrast to being fatalistically ruled" (Pearlin & Schooler, 1978, p. 5). Attention to loss of perceived control is guided by research showing that loss of perceived control is one of the most prominent mechanisms for the effects of stress (Avison & Cairney, 2003). Loss of perceived control is a prominent mediator in the stress process because the impression that success is merely random and people have little influence on their own lives can be quite distressing (Mirowsky & Ross, 2003). In addition, people with low levels of perceived control will also be less likely to attempt to find solutions to the problems that they face (Mirowsky & Ross, 1990), thereby prolonging stressful conditions and increasing the likelihood that new stressors will arise.

Research in fact demonstrates that neighborhood disorder is related to lower levels of perceived control (Downey & Van Willigen, 2005; Schieman & Meersman, 2004). Neighborhood disorder is associated with reductions in perceived control because, by definition, people who see their neighborhoods as disordered perceive their environment as chaotic and unpredictable, and perceptions of randomness in one's environment can decrease the sense that the environment can be controlled (Abeles, 2003). On a broader scale, neighborhood disorder is likely to be associated with reduced control because residents are confronted with a context in which they are stymied in their efforts to achieve a fundamental goal, to create a living environment that is safe, clean, and free of threat (Ross, Mirowsky, & Pribesh, 2001). Neighborhood disorder is therefore likely to affect the mental health of older adults in part by decreasing a sense of control over life.

Marriage may help older adults to retain a sense of control when they face neighborhood disorder, thereby helping to protect older adults from the effects of neighborhood disorder on distress. Ross (1991) points out that the social support provided by the married partner can give individuals "the confidence, security, and self-assurance that help them feel in control of their lives and able to cope with problems" (p. 832). Additionally, within marriages there are "established patterns of responsibilities and commitments" (Schieman & Taylor, 2001, p. 470). Marriage provides established patterns

of social interaction that create a sense that one's social environment is ordered, predictable, and responsive to one's needs, thus further bolstering individual sense of control. These benefits have been demonstrated in research indicating that the married have higher levels of perceived control than the nonmarried (Bierman, Fazio, & Milkie, 2006; Cotten, 1999), and research suggesting that these advantages are not simply due to selection effects (Marks & Lambert, 1998).

It is important to differentiate the processes being suggested here. Much research has examined the direct effects of marriage on mental health (e.g., Bierman et al., 2006; Simon, 2002; Williams, 2003). However, little research has examined whether marriage may provide a benefit by *moderating* the effects of other influences. This is a critical distinction when examining older adults. Many older adults may have been married for years if not decades, so marriage may not lead to increases in perceived control specifically in late life or decreases in distress. At the same time, marriage may still provide benefits for the mental health of the older adults by creating a proximal social arena of care that weakens the influence of more distal control-debilitating stressors. Consequently, a central contribution of this research is to call attention to the way in which marriage may be beneficial for mental health not simply through a direct effect but also by preventing the effects of stress on mental health.

Aims

In summary, this article has two related aims. The primary aim is to examine whether nonmarried older adults are more vulnerable to the effects of neighborhood disorder on psychological distress than their married counterparts. The secondary aim is to examine whether marital status plays a role in this vulnerability by conditioning the extent to which neighborhood disorder influences loss of perceived control.

METHODS

Sample

Data for this study come from the Aging, Stress, and Health (ASH) study. The ASH study is a longitudinal study of people 65 years and older residing in the District of Columbia and two adjoining Maryland counties, Prince George's and Montgomery. Consistent with the purpose of the project to investigate status inequality and health disparities, a socially and economically diverse sample was sought. The three locales subsume this diversity. Sample selection and recruitment began with the Medicare Beneficiary files for the three areas. In addition to the names of all people 65 years and older who are entitled to Medicare, the files provided information about the race and gender of each beneficiary. To maximize the social and economic diversity within the sample, a total of 4,800 names were randomly

selected, equally divided among the three locales, Blacks and Whites, women and men, creating 12 groups, each containing 400 names. The goal was to enlist a sample of 1,200 people living independently, with approximately 100 in each of the 12 groups. Approximately 65% of all eligible respondents (1,741) who were contacted agreed to participate, yielding 1,167 cases. The age distribution within the four gender-race groups was similar to the population from the 2000 Census (Schieman & Plickert, 2007). Interviews for Wave 1 occurred during 2000–2001; two additional interviews were conducted, each 1 year apart. Interviews in the first wave were in person, whereas the shorter follow-up interviews were conducted over the telephone. Of the original 1,167 elders, 1,000 were interviewed at Wave 2 (85.69% retention), and 925 individuals were interviewed at Wave 3 (79.26% retention). In keeping with previous analyses of these data (e.g., Schieman & Plickert, 2007), changes between Wave 1 and Wave 3 were analyzed because of insufficient change in levels of depression between Waves 1 and 2. Because neighborhood disorder was asked only at Wave 1, a small number of individuals who moved during the course of the study ($n = 54$) were not included in analyses. Preliminary probit analyses that controlled for race, gender, age, education, time in the neighborhood, and functional limitations indicated that baseline depression, mastery, marital status, and neighborhood disorder did not significantly differentiate movers or stayers, suggesting that moving was not a function of neighborhood disorder, marital status, mastery, or depression. An additional number of respondents ($n = 35$) indicated marital transitions during the course of the study. Because this was too small a number to provide analytic groups of sufficient size to examine separate moderating effects of transitioning into or out of marriage, these individuals were also not included in analyses. Preliminary probit analyses also suggested that baseline depression, mastery, and neighborhood disorder did not influence the probability of experiencing a marital transition; those married at baseline were more likely to experience a marital transition, which is in accordance with the age of the sample.

Measures

Depression.—Psychological distress was measured using what is arguably the most commonly used indicator of distress in the sociological study of mental health, depression. Depression is useful as a primary indicator of distress because feelings of depression are a common type of distress that correlate with other aspects of distress, such as anxiety and anger, as well as clinical diagnoses of depression (Ross & Mirowsky, 2006). Depression was measured using four items taken from the Hopkins Symptoms Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), which asked about the occurrence of each symptom over the

past week: “feel downhearted or blue,” “lack enthusiasm for doing anything,” “feel bored or have little interest in things,” and “cry easily or feel like crying.” Response choices were *no days* (1), *1 or 2 days* (2), *3 or 4 days* (3), and *5 or more days* (4). Responses were averaged to create a scale of depression (Cronbach’s $\alpha = .76$ at Wave 1 and $.71$ at Wave 3), with higher scores indicating higher levels of depression.

Mastery.—Perceived control was measured using four items from Pearlin and Schooler’s (1978) mastery scale. Questions on the scale include: “You have little control over the things that happen to you,” “There is really no way you can solve some of the problems you have,” “You often feel helpless in dealing with problems of life,” and “Sometimes you feel that you are being pushed around in life.” Response choices were *strongly agree* (1), *agree* (2), *disagree* (3), and *strongly disagree* (4). All responses were coded so that higher values indicated greater mastery. Responses were averaged to create a mastery scale (Cronbach’s $\alpha = .72$ at Wave 1 and $.71$ at Wave 3).

Neighborhood disorder was measured using an eight-item scale adapted from Ross and Mirowsky’s (1999) neighborhood disorder scale. This scale measures respondents’ perceptions of both physical and social dysfunctions within the neighborhood and therefore provides a broad overview of respondents’ perceptions of disorder in their neighborhoods. Items on the scale were as follows: “Your neighborhood is noisy,” “There is vandalism,” “There are run-down houses or buildings,” “There is trash on the streets,” “People hang around on the streets,” “There is crime,” “There is alcohol and drug use,” and “There is heavy traffic.” Respondents indicated the degree to which each statement described how much they saw and experienced their neighborhood, with possible responses including *not at all* (1), *somewhat* (2), *quite a bit* (3), and *very much* (4). A principle components analysis of these items showed one component with an eigenvalue above 1, which accounted for over 50% of the variance in the items and had loadings at approximately .5 or above, indicating that reports of physical and social disorder cohere on one measure. Responses were therefore averaged to create a scale of perceived neighborhood disorder (Cronbach’s $\alpha = .80$), with higher scores indicating more neighborhood disorder. Although these are respondents’ own subjective ratings of the neighborhood, research indicates moderate to strong relationships between respondent and observer ratings of neighborhoods (Andresen, Malmstrom, Miller, & Wolinsky, 2006; Perkins & Taylor, 1996), and longitudinal research indicates that the measures of psychological distress do not predict changes in perceptions of neighborhood disorder (Hill, Ross, & Angel, 2005), suggesting that residents of neighborhoods can provide accurate indications of neighborhood conditions. In addition, some have pointed out research showing that the construct validity of respondents’ reports of neighborhood disorder is higher than observer assessments, supporting the argument

that residents of neighborhoods are at least as able to describe their neighborhoods as outside observers (see Ross et al., 2001, p. 571). More importantly, although objective or observer ratings of neighborhood conditions are useful in many contexts, these alternative measures do not necessarily indicate a respondent's own experiences with disorder, and it is personal experiences with disordered conditions that are hypothesized to influence perceived control and distress. It is for these reasons that what is of focal interest in this research is a respondent's report of neighborhood disorder.

Marital status.—Marital status was measured as a dichotomous variable in which 1 = married and 0 = nonmarried. Some research splits the nonmarried into separate types (e.g., Simon, 2002), but this research uses sample sizes in the thousands, which allows for much larger cell sizes and statistical power than would be possible in this study if the nonmarried were broken into specific groups. Additionally, because the current research is focused on how stress may affect people differently depending on whether they have a marital partner, rather than the way in which resources may vary by nonmarried group or life course trajectory, it is more appropriate to examine the moderating effects of marriage with a dichotomous variable. A small number of nonmarried individuals ($n = 13$) indicated at baseline “living with someone you consider to be your partner,” and because of their small number, these individuals could not be analyzed as a separate group and were excluded from analyses.

Covariates.—All covariates were measured at baseline. Social and economic statuses associated with perceived control and mental health were included as covariates to rule out the possibility that relationships between these statuses and exposure to neighborhood disorder could create spurious relationships with the outcomes. These statuses included race (coded so that 1 = Black, 0 = White), gender (coded so that 1 = women, 0 = men), work status (1 = working, 0 = not working), owning one's home (1 = owns home, 0 = does not own), education, and income. Education was measured by asking respondents: “Can you tell me how far you went in school?,” with response choices ranging from 1 (*eighth grade or less*) to 6 (*college graduate or more*). Income was measured by asking for total household income before taxes in the past year, including salaries for everyone in the household, money market funds, Social Security, pensions, real estate, or government entitlements, with response choices ranging from 1 (*less than \$10,000*) to 11 (*\$100,000 or more*). Following previous research on neighborhood disorder that controls for subjective indicators of financial strain as an important aspect of socioeconomic status (e.g., Hill et al., 2005), respondents' ratings of difficulty meeting five basic needs (clothing, food, housing, transportation, and medical expenses) were also included as a covariate. Response categories were 1 (*not at all difficult*) to 3 (*very*

difficult), and the mean of the five responses was used (Cronbach's alpha = .81). Age in years was included to take into account age variations in health disparities. Supplementary analyses indicated no significant nonlinear relationships between age and change in mastery or depression.

Because of the focus in this research on marriage, differences in family experiences that may spuriously lead to differences in moderating effects of marriage were also taken into account. These experiences include number of children, number of people living in the home, and years in current marital status. Similarly, because levels of social integration tend to vary by marital status (Bierman et al., 2006), social integration was also controlled. Formal social integration was controlled using three measures—frequency of attendance at religious meetings, secular meetings, and volunteering. Informal social integration was controlled using measures of frequency of visiting friends and frequency of speaking to friends and relatives on the telephone. Responses ranged from *never* (1) to *daily* (6) for each measure.

Because access to neighborhood social resources varies by tenure of residence (Oh, 2003), time in the neighborhood was measured by controlling for years spent at the address. Individuals who had lived in the address less than a year were given a value of 1. Similarly, because physical limitations likely affect both neighborhood experiences and levels of mastery and depression (Mirowsky, 1995; Schieman & Plickert, 2007), physical limitations were controlled. In a four-item measure of basic functional limitations, respondents indicated if they had difficulties dressing, getting in and out of bed, toileting, and bathing. Responses ranged from 1 (without difficulty) to 4 (unable to do this without complete help from someone or special equipment), and the mean of the four responses was used (Cronbach's alpha = .88).

Means, standard deviations, and zero-order correlations for all variables used in analyses are described in the Appendix.

Statistical Analyses

Models are analyzed using full-information maximum likelihood (FIML) regression. FIML estimation of regression models is preferable to the more typical ordinary least squares regression because estimates are produced using the information that is available for each observation (Bollen & Curran, 2006), “including information about the mean and variance of missing portions of a variable, given the observed portion(s) of other variables” (Wothke, 2000, p. 224), so that FIML estimation is capable of providing unbiased, efficient parameter estimates in the presence of missing data (Enders, 2006), and, in the presence of sample attrition, FIML provides far more unbiased estimates compared with more conventional missing data methods (such as listwise deletion or mean imputation) (Wothke, 2000). Use of FIML does assume that data are “missing at random” (MAR), but even when data are not MAR,

Table 1. Effects of Neighborhood Disorder on Change in Mastery and Depression

	Model 1	Model 2	Model 3	Model 4	Model 5
	Change in Mastery		Change in Depression		
Focal variables					
Neighborhood disorder	-.050 (.042)	-.157 (.059)**	.081 (.041)*	.164 (.056)**	.151 (.056)**
Married	-.038 (.047)	-.037 (.047)	-.047 (.045)	-.048 (.044)	-.053 (.044)
Neighborhood Disorder × Married		.214 (.082)**		-.167 (.078)*	-.149 (.078)
Change in mastery					-.099 (.029)**
Control variables					
Baseline mastery	-.574 (.036)***	-.576 (.036)***			
Baseline depression			-.589 (.030)***	-.586 (.030)***	-.580 (.030)***
Age	-.010 (.003)**	-.011 (.003)***	.005 (.003)	.006 (.003)	.005 (.003)
Gender	.010 (.038)	.007 (.038)	.015 (.036)	.018 (.036)	.018 (.036)
Race	.021 (.040)	.020 (.039)	-.023 (.038)	-.023 (.038)	-.019 (.037)
Education	.034 (.013)*	.035 (.013)**	.003 (.013)	.002 (.013)	.004 (.012)
Income	.012 (.008)	.012 (.008)	.001 (.008)	.001 (.008)	.000 (.008)
Own home	.065 (.053)	.052 (.053)	-.026 (.050)	-.015 (.050)	-.011 (.050)
Work status	.012 (.043)	.014 (.043)	-.024 (.041)	-.024 (.041)	-.028 (.040)
Financial strain	-.005 (.072)	-.014 (.072)	.196 (.067)**	.202 (.067)**	.221 (.067)**
Years in marital status	-.001 (.001)	.000 (.001)	.000 (.001)	.000 (.001)	.000 (.001)
Number of children	-.001 (.009)	-.003 (.009)	.004 (.009)	.005 (.009)	.004 (.009)
Number of people in home	-.003 (.018)	-.005 (.017)	.001 (.017)	.002 (.017)	.004 (.017)
Religious attendance	.000 (.014)	.000 (.013)	-.005 (.013)	-.005 (.013)	-.006 (.013)
Organizational attendance	.003 (.017)	.002 (.017)	-.008 (.016)	-.006 (.016)	-.004 (.016)
Volunteering	.008 (.013)	.009 (.013)	-.033 (.012)**	-.033 (.012)**	-.034 (.012)**
Frequency visiting friends	.025 (.013)	.025 (.013)	.014 (.013)	.014 (.013)	.016 (.013)
Frequency speaking on the telephone	-.025 (.015)	-.025 (.015)	.008 (.014)	.008 (.014)	.004 (.014)
Time in neighborhood	-.001 (.001)	.000 (.001)	.000 (.001)	.000 (.001)	.000 (.001)
Functional limitations	-.112 (.070)	-.102 (.070)	.119 (.068)	.110 (.068)	.105 (.067)
Constant	2.278	2.328	0.112	0.073	0.096
R ²	.249	.257	.351	.356	.365

Notes: Nonstandardized coefficients are presented with standard errors in parentheses.

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

methods that assume MAR often present results that are better than those produced using more conventional estimation procedures (Allison, 2003). Simulation studies that compare FIML and multiple imputation procedures indicate a large degree of similarity of results (Collins, Schafer, & Kam, 2001), and because FIML could be directly employed to estimate regressions using MPLUS 5.0, its use was favored in this research.

Following previous research on change in depression (e.g., Mirowsky & Ross, 2001; Schieman & Plickert, 2007), difference scores in depression and mastery (T3 – T1) are analyzed as the dependent variables, controlling for Time 1 status to control for regression to the mean. Analyses are conducted in two stages. In the first stage, change in mastery is analyzed. Change is analyzed using two models. The main-effects model examines whether and how neighborhood disorder is related to change in mastery, independent of the controls. The second model, the double jeopardy model, includes an interaction between neighborhood disorder and marital status to test whether the relationship between neighborhood disorder and change in mastery differs between the married and nonmarried. The second stage of the analyses examines changes in depression. The first two models follow the previous analyses, with a main-effects

and double jeopardy model. A third model controls for change in mastery to examine whether differences between the married and nonmarried in changes in mastery explain why neighborhood disorder has different associations with change in depression for the married and nonmarried. In all models, the measure of neighborhood disorder is centered over its mean prior to the creation of the interaction term to reduce multicollinearity (Aiken & West, 1991).

RESULTS

Table 1 presents predictors of change in mastery and depression. Model 1 indicates that, independent of controls, perceptions of neighborhood disorder at Time 1 are not significantly related to changes in mastery. This does not indicate, though, whether the association between neighborhood disorder and change in mastery may be limited to specific groups, such as the nonmarried. This question is addressed in Model 2, in which an interaction between neighborhood disorder and marriage is entered into the model. This interaction is significant, indicating a significant difference in the degree to which neighborhood disorder is related to change in mastery over time. Ancillary analyses run separately for the married and nonmarried indicate that neighborhood

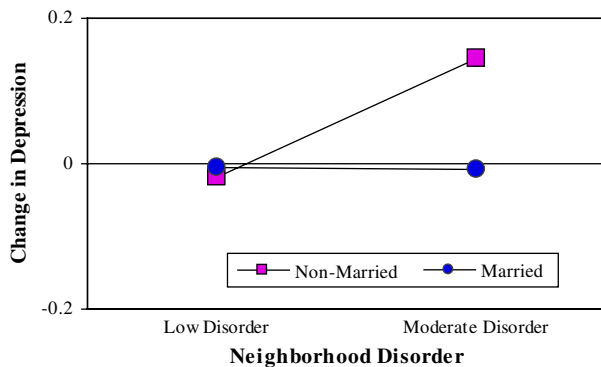


Figure 1. Effects of neighborhood disorder on change in depression.

disorder is significantly and negatively related to change in mastery for the nonmarried ($b = -0.164, p < .01$) but not for the married ($b = 0.029, p > .10$). Thus, greater levels of neighborhood disorder are related to losses in mastery for the nonmarried, but for the married, greater levels of disorder are not significantly related to changes in mastery.

The next set of models examines change in depression. Model 3 indicates that, independent of controls, neighborhood disorder is significantly and positively related to change in depression, supporting previous findings that indicate that the residents of disordered neighborhoods experience increases in psychological distress. However, Model 4 indicates a significant interaction between neighborhood disorder and marital status, indicating that the relationship between neighborhood disorder and change in depression differs for the married and nonmarried. These differences are illustrated in Figure 1, which uses Model 4 to present the predicted mean change in depression separately for the married and nonmarried at the minimum for disorder and a moderate amount of disorder (M a mean of 2). Figure 1 indicates that higher levels of neighborhood disorder are related to increases in depression for the nonmarried, but not for the married. Ancillary analyses conducted separately for the married and nonmarried confirmed this, as neighborhood disorder was significantly and positively related to change in depression for the nonmarried ($b = 0.164, p < .05$), but not for the married ($b = .002, p > .10$).

Model 5 includes change in mastery as a predictor of depression to examine the extent to which this variable explains differences by marital status in the relationship between neighborhood disorder and change in depression. When change in mastery is included in the model, decreases in mastery are related to increases in depression, and the interaction between marital status and neighborhood disorder is reduced to nonsignificance. In alternative analyses that removed the measure of change in mastery from the model but included a control for baseline mastery, the interaction between neighborhood disorder and marital status was not substantially reduced in size or significance. Hence, these analyses suggest that the differences between married

and nonmarried older adults in the effects of neighborhood disorder on depression are in part because the married are less likely than the nonmarried to experience a decrease in mastery due to neighborhood disorder.

DISCUSSION

This article contributes to the study of stress and mental health in late life by demonstrating that research on the way in which social status conditions vulnerability to the effects of stress should include marital status as a critical contingency. Previous research has examined whether the effects of stress in late life vary by such characteristics as race and gender (e.g., Milkie et al., 2008), as well as whether aging itself is more detrimental to the health of African Americans and women (e.g., Ferraro & Farmer, 1996; Rodeheaver & Datan, 1988). However, aging is a time of decreasing social bonds and social activity (Ajrouch et al., 2001; Due et al., 1999; Morgan, 1988). Consequently, the social connection to a marital partner is likely to be a vital source of support and stability in late life that helps to moderate the relationship between stress and mental health. This is especially likely to be the case when older adults encounter disordered neighborhood environments. Previous research suggests that living in a disordered neighborhood can decrease individual perceived control (Downey & Van Willigen, 2005; Schieman & Meersman, 2004), but the presence of a marital partner is likely to create a more proximal arena of social concern and predictability within the larger neighborhood, thereby staving off effects of neighborhood disorder on perceived control and in turn preventing effects on psychological distress. This pattern can be seen in the results of these analyses. Neighborhood disorder was related to increases in distress over a 2-year period, but only for the nonmarried. Further, differences in effects of neighborhood disorder on distress were specifically because marriage prevented a loss in mastery due to neighborhood disorder. Therefore, although researchers have given little attention to the way in which marital status conditions the effects of stress in late life, it is clear that marriage may be an important stress buffer among older adults, and future research should examine whether marriage buffers the effects of additional stressors experienced in late life.

Additional research is necessary, though, to explain specifically *how* the presence of a marital partner may prevent losses in mastery. Because social support can help buffer the effects of stress, and marriage may be a primary source of social support in late life, it was suggested that marriage may buffer the effects of stress due to its social support function. However, additional analyses not shown here that controlled for perceived social support failed to substantially reduce the significance of these moderating effects. Further analyses that controlled for marital quality also did not reduce these moderating effects to nonsignificance. That neither the quality of the relationship nor advantages

in support explain these moderating effects suggests that it is the presence of a predictable, stable social relationship, rather than the content of the relationship, that is the primary source of these moderating effects. A predictable, stable social relationship likely provides these benefits by decreasing the sense of randomness and lack of predictability in the environment, which prevents a loss of mastery and the subsequent increase in distress. Hence, in addition to examining whether marital status moderates the effects of additional stressors, researchers should also examine more closely whether marriage provides a buffering effect by facilitating a sense of order and predictability within the environment.

In addition, some research indicates that the mental health effects of marriage may vary by gender (Simon, 2002), although other research reports no gender difference in the mental health effects of marriage across multiple outcomes (e.g., Bierman et al., 2006; Williams, 2003). This leads to the question of whether the moderating effects of marriage may vary by gender. In ancillary analyses, a three-term interaction involving gender, marriage, and neighborhood disorder did not significantly predict change in either mastery or depression, indicating no gender differences in the degree to which marriage moderated the effects of neighborhood disorder. However, if it is the presence of a stable, predictable relationship that underlies the moderating effects of marriage, rather than specific interactions within the marriage that may be patterned by gender, we would expect few gender differences in this moderation. Nevertheless, in addition to examining how marital status may contribute to double jeopardy when older adults experience stressors besides neighborhood disorder, future research should also consider whether marital status acts in concert with gender to create a state of *triple* jeopardy when other types of stressors are experienced.

Given the strength of differences between the married and nonmarried in this study, one may in fact question whether marital status should be considered as a contributor to double jeopardy at all. Double jeopardy usually refers to *increased* risk for detrimental health outcomes, but this research indicated that the effects of neighborhood disorder were not significant for the married, suggesting a total lack of risk for the married. However, in light of previous research indicating that the nonmarried tend to have higher levels of psychological distress (e.g., Bierman et al., 2006; Williams, 2003), as well as evidence from this study showing that nonmarried older adults have higher mean levels of baseline depression, it is reasonable to apply the label of “double jeopardy” to the relationships examined here—a lack of a marital partner in late life is related to both higher levels of psychological distress *and* greater vulnerability to increases in distress due to neighborhood disorder, thereby indicating a state of double jeopardy.

There are several limitations to this study that should be acknowledged. It was not nationally representative, so the

question of whether the pattern of results observed here will generalize to broader samples remains. However, the diversity with which this sample was purposely gathered suggests that these results are likely to be applicable to a broader population. In addition, it would be useful to study the effects of neighborhood conditions over a longer length of time. It would also be useful to have examined neighborhood disorder at both waves so that the extent of perceived changes in neighborhood conditions, as well as changes in neighborhood location, could also have been examined. It is questionable, though, as to whether neighborhood conditions would have changed a substantial amount over only a 2-year period, and research on similar types of health outcomes indicates that the effects of neighborhood problems remain significant, even when changes in neighborhood problems are controlled (e.g., Hill & Angel, 2005). Furthermore, that the effects of neighborhood disorder can be observed over this short of a time period lends confidence to the robustness of these effects. It should also be noted that the effects observed here although significant were not extremely large—the adjusted mean change in depression predicted for the nonmarried due to a moderate level of neighborhood disorder was an increase of .145, and an adjusted mean loss of a similar size was predicted for mastery. However, as indicated in Table 1, few measures were significantly related to changes in depression, thereby illustrating the relative importance of neighborhood disorder for mental health in late life. Furthermore, it should also be noted that respondents had been living on average in their neighborhoods for many years; that neighborhood disorder was still related to changes in mental health highlights the relevance of neighborhood conditions for well-being across the life course.

CONCLUSIONS

Research on the sociology of mental health indicates that social status pervades each aspect of the stress process (Pearlin, 1999). Research has examined how marital status plays a role in this process by directly influencing mental health (e.g., Bierman et al., 2006; Simon, 2002), but little research has examined the role of marital status in moderating the effects of stress. This research shows that marriage protects the mental health of older adults from the stressful effects of neighborhood conditions, and marriage plays this role in part by preventing losses in mastery. This research therefore contributes to the literature on social status and mental health in late life by calling attention to the way that marital status should be considered by aging researchers in addition to race and gender as a social status that may condition the risk for psychological distress; marital status plays this conditioning role by modifying the relationship between stress and psychological distress.

Appendix
Zero-Order Correlations, Means, and Standard Deviations for Variables Used in Analyses

	1	2	3	4	5	6	7	8	9
1. Change in depression	1.000								
2. Baseline depression	-.552***	1.000							
3. Change in mastery	-.137***	.068	1.000						
4. Baseline mastery	.079*	-.327***	-.446***	1.000					
5. Neighborhood disorder	-.015	.119***	-.002	-.129***	1.000				
6. Married	-.031	-.084**	-.023	.103***	-.088**	1.000			
7. Age	.062	.049	-.065	-.110***	-.066*	-.203***	1.000***		
8. Gender	-.014	.122***	.002	-.081**	.002	-.389***	.102**	1.000	
9. Race	-.024	.005	.019	-.099**	.096**	-.129***	-.089**	.009	1.000
10. Education	.006	-.088**	.029	.273***	-.197***	.183***	-.083***	-.161***	-.306***
11. Income	.022	-.170***	-.038	.326***	-.233***	.445***	-.150***	-.266***	-.294***
12. Own home	-.034	-.096**	.021	.164***	-.133***	.326***	-.111***	-.137***	-.153***
13. Work status	.018	-.116***	-.012	.189***	-.038	.163***	-.273	-.183***	-.021
14. Financial strain	.033	.136***	.081*	-.278***	.161***	-.127***	-.043	.059	.106***
15. Years in marital status	.038	-.050	-.008	-.044	.029	.312***	.042	-.082**	-.097**
16. Number of children	.033	-.048	-.022	-.026	.041	.094**	-.110***	.062*	.086**
18. Number of people in home	.022	-.084**	.011	-.047	.037	.273***	-.109***	-.091**	.170***
19. Religious attendance	-.014	-.062*	-.001	.026	.044	-.056	-.044	.141***	.257***
20. Organizational attendance	-.003	-.081**	.043	.082**	-.070*	.034	-.018	-.075*	-.049
21. Volunteering	-.025	-.118***	.003	.116***	.032	.107***	-.076*	-.036	-.052
22. Frequency visiting friends	.066	-.096**	.031	.120***	-.065*	-.081**	-.019	.009	-.224***
23. Frequency speaking on the telephone	.031	-.036	-.069	.057	.013	-.102***	-.031	.195***	.124***
24. Time in neighborhood	-.005	.003	.003	-.032	.071*	.107***	.128***	-.030	-.070*
25. Functional limitations	-.023	.194***	-.007	-.162***	-.001	-.095**	.169***	.014	.035
<i>M</i>	0.012	1.407	-0.043	-2.868	0.000	0.524	74.602	0.508	0.497
<i>SD</i>	0.552	0.571	0.547	0.494	0.428	0.500	6.508	0.500	0.500

FUNDING

A National Institute on Aging grant award AG 17461 (Leonard I. Pearlin, principal investigator) supports this work.

ACKNOWLEDGMENTS

Special thanks to Sara Raley, Rose Anne Medeiros, and Elena M. Fazio for their comments on a previous draft of the manuscript. An earlier version of this article won the graduate student paper competition award from the Family Division of the Society for the Study of Social Problems.

CORRESPONDENCE

Address correspondence to Alex Bierman, PhD, Department of Sociology, California State University, Northridge, 336 Santa Susana Hall, 18111 Nordhoff Street, Northridge, CA 91330-8318. Email: alex.bierman@csun.edu

REFERENCES

- Abeles, R. P. (2003). Commentary: Some thoughts on aging, social structures and sense of control. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie (Eds.), *Personal control in social and life course contexts* (pp. 23–32). New York: Springer.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Ajrouch, K. J., Antonucci, T. C., & Janevic, M. R. (2001). Social networks among Blacks and Whites: The interaction between race and age. *Journals of Gerontology: Social Sciences*, 56, S112–S118.
- Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology*, 112, 545–557.
- Andresen, E. M., Malmstrom, T. K., Miller, D. K., & Wolinsky, F. D. (2006). Reliability and validity of observer ratings of neighborhoods. *Journal of Aging and Health*, 18, 28–36.
- Avison, W. R., & Cairney, J. (2003). Personal control and the stress process in midlife. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie (Eds.), *Personal control in social and life course contexts* (pp. 127–164). New York: Springer.
- Bierman, A., Fazio, E. M., & Milkie, M. A. (2006). A multifaceted approach to the mental health advantage of the married: Assessing how explanations vary by outcome measure and unmarried group. *Journal of Family Issues*, 27, 554–582.
- Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective*. Hoboken, NJ: Wiley.
- Brooks, J. D., Kahana, E., Nauta, A., & Kahana, B. (2007). Exploring health disparities affected by stressful life events: Are older African Americans at greater risk? *Sociation Today*, 5. Retrieved February 9, 2009, from <http://www.ncsociety.org/sociationtoday/v51/brooks.htm>.
- Cantor, M. H. (1975). Life space and the social support systems of the inner-city elderly of New York City. *Gerontologist*, 15, 23–27.
- Collins, L. M., Schafer, J. L., & Kam, C.-M. (2001). A comparison of inclusive and restrictive strategies in modern missing data procedures. *Psychological Methods*, 6, 330–351.
- Cotten, S. R. (1999). Marital status and mental health revisited: Examining the importance of risk factors and resources. *Family Relations*, 48, 225–233.
- Derogatis, L. R., Lipman, R., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Behavioural Science*, 19, 1–15.
- Downey, L., & Van Willigen, M. (2005). Environmental stressors: The mental health impacts of living near industrial activity. *Journal of Health and Social Behavior*, 3, 289–305.
- Due, P., Holstein, B., Lund, R., Modvig, J., & Avlund, K. (1999). Social relations: Network, support and relational strain. *Social Science and Medicine*, 48, 661–673.
- Enders, C. K. (2006). Analyzing structural equation models with missing data. In G. R. Hancock & R. O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 225–254). Greenwich, CT: Information Age.

10	11	12	13	14	15	16	18	19	20	21	22	23	24	25
1.000														
.536***	1.000													
.272***	.376***	1.000												
.191***	.338***	.106***	1.000											
-.190***	-.324***	-.277***	-.019	1.000										
.047	.031	-.039	.009	-.003	1.000									
-.201***	-.094**	.023	-.053	.049	-.103***	1.000								
-.169***	.150***	.065*	.026	-.010	.039	.220***	1.000							
-.103***	-.152***	-.006	-.038	-.022	-.055	.160***	.084**	1.000						
.213***	.179***	.108***	.061*	-.083**	-.022	-.077*	-.101**	.159***	1.000					
.105***	.107**	.089**	.038	-.090**	.037	-.042	-.050	.256***	.326***	1.000				
.151***	.092**	.009	-.008	-.074*	.025	-.084**	-.208***	.078*	.296***	.260***	1.000			
-.041	-.102**	-.039	-.050	-.007	-.022	.094**	-.062*	.180***	.147***	.106***	.242***	1.000		
-.030	.005	.396***	-.061*	-.103***	.078	-.018	-.025	.027	.024	.014	-.023	.049	1.000	
-.048	-.116***	-.135***	-.087**	.156***	.026	-.052	-.027	-.137***	-.099**	-.133***	-.134***	-.110***	-.045	1.000
4.401	6.026	0.786	0.221	1.104	36.928	2.881	2.027	3.074	1.983	2.123	3.370	4.948	24.865	1.076
1.719	3.297	0.410	0.415	0.264	20.777	2.155	1.220	1.395	1.124	1.428	1.459	1.277	14.813	0.319

Ferraro, K. F., & Farmer, M. M. (1996). Double jeopardy, aging as leveler, or persistent health inequality? A longitudinal analysis of White and Black Americans. *Journals of Gerontology: Social Sciences, 51*, S319–S328.

Fukukawa, Y., Nakashima, C., Tsuboi, S., Niino, N., Ando, F., Kosugi, S., & Shimokata, H. (2004). The impact of health problems on depression and activities in middle-aged and older adults: Age and social interactions as moderators. *Journals of Gerontology: Social Sciences, 59*, P19–P26.

Glass, T. A., & Balfour, J. L. (2003). Neighborhoods, aging, and functional limitations. In I. Kawachi & L. F. Berkman (Eds.), *Neighborhoods and health* (pp. 303–334). Oxford, England: Oxford University Press.

Hill, T. D., & Angel, R. J. (2005). Neighborhood disorder, psychological distress, and heavy drinking. *Social Science and Medicine, 61*, 965–975.

Hill, T. D., Ross, C. E., & Angel, R. J. (2005). Neighborhood disorder, psychophysiological distress, and health. *Journal of Health and Social Behavior, 46*, 170–186.

Latkin, C. A., & Curry, A. D. (2003). Stressful neighborhoods and depression: A prospective study of the impact of neighborhood disorder. *Journal of Health and Social Behavior, 44*, 34–44.

Marks, N. F., & Lambert, J. D. (1998). Marital status continuity and change among young and midlife adults: Longitudinal effects on psychological well-being. *Journal of Family Issues, 19*, 652–686.

Milkie, M. A., Bierman, A., & Schieman, S. (2008). How adult children influence older parents' mental health: Integrating stress-process and life-course perspectives. *Social Psychology Quarterly, 71*, 86–105.

Mirowsky, J. (1995). Age and the sense of control. *Social Psychology Quarterly, 58*, 31–43.

Mirowsky, J., & Ross, C. E. (1990). Control or defense? Depression and the sense of control over good and bad outcomes. *Journal of Health and Social Behavior, 31*, 17–86.

Mirowsky, J., & Ross, C. E. (2001). Age and the effect of economic hardship on depression. *Journal of Health and Social Behavior, 42*, 132–150.

Mirowsky, J., & Ross, C. E. (2003). *Social causes of psychological distress*. Hawthorne, CA: Aldine de Gruyter.

Morgan, D. A. (1988). Age differences in social network participation. *Journals of Gerontology: Social Sciences, 43*, S129–S137.

Oh, J.-H. (2003). Assessing the social bonds of elderly neighbors: The roles of length of residence, crime victimization, and perceived disorder. *Sociological Inquiry, 73*, 490–510.

Pearlin, L. I. (1999). The stress process revisited: Reflections on concepts and their interrelationships. In C. S. Aneshensel & J. C. Phelan (Eds.), *Handbook of the sociology of mental health* (pp. 395–415). New York: Plenum.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2–21.

Pearlin, L. I., & Skaff, M. M. (1995). Stressors and adaptation in late life. In M. Gatz (Ed.), *Emerging issues in mental health and aging* (pp. 97–123). Washington, DC: APA Books.

Perkins, D. D., & Taylor, R. B. (1996). Ecological assessments of community disorder: Their relationships to fear of crime and theoretical implications. *American Journal of Community Psychology, 24*, 63–107.

Robert, S. A., & Li, L. W. (2001). Age variation in the relationship between community socioeconomic status and adult health. *Research on Aging, 23*, 233–258.

Rodeheaver, D., & Datan, N. (1988). The challenge of double jeopardy: Toward a mental health agenda for aging women. *American Psychologist, 43*, 648–654.

Ross, C. E. (1991). Marriage and the sense of control. *Journal of Marriage and Family, 53*, 831–838.

Ross, C. E., & Mirowsky, J. (1999). Disorder and decay: The concept and measurement of perceived neighborhood disorder. *Urban Affairs Review, 34*, 412–432.

Ross, C. E., & Mirowsky, J. (2006). Sex differences in the effect of education on depression: Resource multiplication or resource substitution? *Social Science and Medicine, 63*, 1400–1413.

- Ross, C. E., Mirowsky, J., & Pribesh, S. (2001). Powerlessness and the amplification of threat: Neighborhood disadvantage, disorder, and mistrust. *American Sociological Review*, *66*, 568–591.
- Schieman, S., & Meersman, S. C. (2004). Neighborhood problems and health among older adults: Received and donated social support and the sense of mastery as effect modifiers. *Journals of Gerontology: Social Sciences*, *59*, S89–S97.
- Schieman, S., & Plickert, G. (2007). Functional limitations and changes in levels of depression among older adults: A multiple-hierarchy stratification perspective. *Journals of Gerontology: Social Sciences*, *62*, S36–S42.
- Schieman, S., & Taylor, J. (2001). Statuses, roles, and the sense of mattering. *Sociological Perspectives*, *44*, 469–484.
- Simon, R. W. (2002). Revisiting the relationships among gender, marital status, and mental health. *American Journal of Sociology*, *107*, 1065–1096.
- Umberson, D., & Williams, K. (1999). Family status and mental health. In C. S. Aneshensel & J. C. Phelan (Eds.), *Handbook of the sociology of mental health* (pp. 225–254). New York: Kluwer.
- Williams, K. (2003). Has the future of marriage arrived? A contemporary examination of gender, marriage, and psychological well-being. *Journal of Health and Social Behavior*, *44*, 470–487.
- Wothke, W. (2000). Longitudinal and multigroup modeling with missing data. In T. D. Little, K. U. Schnabel & J. Baumert (Eds.), *Modeling longitudinal and multilevel data: Practical issues, applied approaches and specific examples* (pp. 219–240). Mahwah, NJ: Erlbaum.

Received March 18, 2008

Accepted December 30, 2008

Decision Editor: Kenneth F. Ferraro, PhD