

This is an Accepted Manuscript of an article published by Taylor & Francis in Journal of Women & Aging on 13 Dec 2020, available online: <http://www.tandfonline.com/10.1080/08952841.2020.1818538>. Access to this work was provided by the University of Maryland, Baltimore County (UMBC) ScholarWorks@UMBC digital repository on the Maryland Shared Open Access (MD-SOAR) platform.

Please provide feedback Please support the ScholarWorks@UMBC repository by emailing scholarworks-group@umbc.edu and telling us what having access to this work means to you and why it's important to you. Thank you.

Marital Quality, Gender, and Later-Life Depressive Symptom Trajectories *

Jennifer Roebuck Bulanda¹

Takashi Yamashita²

J. Scott Brown¹

WORD COUNT: 8,889

¹Department of Sociology and Gerontology
Miami University

²Department of Sociology, Anthropology, and Health Administration and Policy
University of Maryland, Baltimore County

* An earlier version of this paper was presented at the Gerontological Society of America, November 2018. Address correspondence to Jennifer Roebuck Bulanda, Department of Sociology and Gerontology, 375 Upham Hall, Miami University, Oxford, Ohio 45056; (513) 529-5642 (phone); (513) 529-8525 (fax); bulandjr@muohio.edu.

Abstract

We analyze six waves of data (2006-2016) from the Health and Retirement Study (n=4,342) to examine how marital quality is associated with depressive symptom trajectories among a group of continuously-married older adults. Results show gender parity in how own perceptions of positive and negative dimensions of marital quality are related to depressive symptom trajectories. In addition, spousal perceptions of negative marital quality are positively associated with growth in depressive symptomatology regardless of gender. Spousal perceptions of positive marital quality, however, are associated with lower depressive symptoms only for women.

Keywords: marital quality, gender, depressive symptoms

Marital Quality and Later-Life Depressive Symptom Trajectories for Women and Men

There is a well-established link between marital quality and mental health. Higher perceived marital quality is associated with lower levels of depressive symptoms (e.g., Beach, Katz, Kim, & Brody, 2003; Proulx, Helms, & Buehler, 2007; Sandberg & Harper, 2000), and this association may be particularly important for older adults, as research suggests the relationship between marital satisfaction and depressive symptomatology is stronger during later life than earlier time periods (Bookwala & Jacobs, 2004). It is less clear what role gender may play. Though a number of studies find stronger associations between marital quality and mental health for women than men (see Carr & Springer, 2010 for a review), several other studies show inconsistent results during later life (Beach et al., 20003; Kouros, Papp, and Cummings, 2008; Proulx et al., 2007). In addition, previous studies are limited by the use of small or non-representative samples, cross-sectional analyses, and/or measures of only one dimension of marital quality from only one partner, despite a growing body of research suggesting both spouses' ratings of marital quality are consequential for health. In this study, we use age-based growth curve models to examine how multiple dimensions of both own and spousal marital quality are related to trajectories of depressive symptoms among a large sample of continuously-married older adults, and to assess potential gender differences in the relationship.

Background

Theoretical perspectives on Marital Quality and Mental Health

The marital discord model of depression posits that problematic marital relationships have direct, negative effects for mental health, resulting in a higher risk of depressive symptoms (Beach, Sandeen, & O'Leary, 1990; Fincham, Beach, Harold, & Osborne, 1997). A marriage marked by high levels of criticism, low levels of support, and overall dissatisfaction represents a

source of chronic stress, which the stress and coping perspective suggests is particularly detrimental for mental health (Pearlin, 2010). On the other hand, sources of social support and personal resources can buffer the negative impact of stress, thereby protecting health (Pearlin, 2010; Thoits, 2010). Individuals in supportive marriages may therefore see mental health advantages as compared to those in low-quality marriages for two main reasons: First, they lack a source of chronic stress in the form of an unhappy marital relationship. Second, their supportive spouse may protect their mental health from non-marital sources of chronic stress, whereas this source of support is diminished or absent for those in discordant marital relationships.

When integrated with the stress and coping model, the life course perspective can help to further elucidate the meaning of stress and its impact on mental health over time (Aneshensel, 2015; George, 2013; Pearlin, 2010). The life course perspective emphasizes a life-long rather than discrete examination of individuals' experiences, suggesting the effect of stress on mental health is cumulative but also variable over time. Conceptualizing risk as cumulative means negative health consequences compound over time, increasing with duration of negative marital experience. At the same time, supportive marriages may be particularly important during later life. Life course events and transitions such as retirement and loss of peer relationships due to health limitations or death may mean decreased availability of non-marital forms of social support (Pruchno, Wilson-Genderson, & Cartwright, 2009), amplifying the importance of the marital relationship. Indeed, Walker et al.'s (2013) study shows the marital relationship has a much stronger impact than other types of relationships on depressive symptoms. In addition, socioemotional selectivity theory suggests individuals purposely narrow their social networks as they age. Perceiving that time is increasingly limited leads to investing time and energy in one's

closest relationships during later life versus endeavoring to maintain broader, less emotionally intensive networks nurtured in earlier phases (Carstensen, 2003). Marital relationships may therefore be especially important for older adults' mental health as their support networks decrease in size.

However, the effect of marital quality on mental health during later life may depend on gender (Fincham et al., 1997). Older women report more depressive symptoms than men (Townsend, Miller, & Guo, 2001) and lower positive and higher negative relationship quality (Carr, Freedman, Cornman, & Schwarz, 2014; Kaufman & Taniguchi, 2006; Kulik, 2002), though there are variations by the dimension and measure of marital quality examined (Boerner, Jopp, Carr, Sosinsky, & Kim, 2014). One analysis suggests that marital quality may be causally related to depression only among women (Fincham et al., 1997), and a number of other studies suggest that marital quality has a stronger relationship with mental health for women than for men (Carr & Springer, 2010; Proulx, Buehler, & Helms, 2009; Sandberg & Harper, 2000; Tower & Kasl, 1996; Whisman, 2001; Whisman et al., 2015).

The life course perspective's attention to the importance of historical time, and the conceptualization of marriage as a gendered social institution (Bernard, 1972) may help to explain these findings. Today's older adults were raised during a time of stronger emphasis on gendered marital roles, with men traditionally allocated roles as breadwinners and head of household and women assigned as caretakers of familial and marital relationships. The lower power women wielded within their marriages and their constrained choices outside of childrearing and homemaking during their life course may be consequential both for their marital quality and depressive symptomatology. In addition, the perception that wives are responsible for

the emotional tenor of their marriages may mean that husbands' dissatisfaction with the relationship is more consequential for wives' mental health than vice versa.

Although the bulk of previous studies, and particularly those using samples of younger adults, suggest stronger links between marital quality and mental health for women, this may not be true for older adults. As Kouros et al. (2008: 674) point out, "gender differences have been inconsistent in the literature," and their own study finds a relationship between marital problems and depressive symptoms for men in longer-term marriages, but not for women. Recent shifts toward less gendered behavior in heterosexual marriage have increased the likelihood that both spouses perform labor in the paid workforce and in the home sphere (Waite & Gallagher, 2000). Today's cohorts of older men, and particularly those in younger birth cohorts such as the mid- to late-Baby Boom generation, may feel more responsibility for the emotional climate of their marriage than was the case for previous cohorts. In addition, research shows that older women have larger, denser social networks than men (Cornwell, Laumann, & Schumm, 2008), whereas older men are more likely than women to name their partner as their closest source of social support (Liao, McMunn, Mejía, & Brunner, 2018). This suggests a smaller social network in which wives are more central, possibly resulting in a stronger connection between marital quality and depression for men. Other research suggests gender parity. In their meta-analysis, Proulx et al. (2007) find that studies using longitudinal rather than cross-sectional data yield mixed results with regard to potential gender differences in the relationship between marital quality and mental health, and conclude that there may be little gender difference when considering the long-term association. Several other studies also show no gender differences in the relationship between marital quality and older adults' depressive symptoms (Beach et al., 2003; Pruchno et al., 2009; Whisman & Uebelacker, 2009).

The life course perspective's emphasis on "linked lives," or the intersection of an individual's experience with those to whom their lives are connected, can also contribute to understanding connections between marital quality, gender, and mental health. Both own perceptions of marital quality and spouse's perceptions of marital quality may influence one's own mental health. Emotional and social contagion theory suggests that emotions are "contagious" within social networks (Christakis & Fowler, 2012; Stokes, 2017). Longitudinal analyses of coresident married couples finds that when one spouse becomes happy, it increases their partner's likelihood of also becoming happy (Fowler & Christakis, 2008), and research on older couples shows contagion in marital quality between spouses over time (Stokes, 2017). Spousal effects may be indirect; for example, a spouse's marital dissatisfaction may increase one's own marital dissatisfaction, which in turn may negatively impact own mental health. There may, however, also be direct effects of spousal marital quality on own mental health. Research suggests that individuals become attuned to their partners' perceptions of the marriage, and knowledge of the partner's perceptions impacts own well-being independent of own perceptions of the relationship (Kiecolt-Glaser & Wilson, 2017). Even if an individual is satisfied with their marriage, for example, suspicion or knowledge that their spouse is unhappy could result in negative consequences for own mental health. Though only a small number of studies have utilized couple-level data to explore spousal influences, a growing number show cross-partner effects of marital quality on mental and physical health (Beach et al., 2003; Carr et al., 2014; Carr, Cornman, & Freedman, 2016; Choi, Yorgason, & Johnson, 2016).

Contributions to the Existing Literature

Few existing studies use couple-level data to examine links between marital quality and mental health in later life. Using cross-sectional data from 361 couples in the Disability and Use

of Time supplement to the PSID, Carr et al. (2014) do not find significant spousal effects of marital quality for own mental health, but do find a moderating effect such that the association between marital quality and life satisfaction for men is strengthened when their wives also report a happy marriage. In a separate examination of negative well-being with the same data, husbands' perceived marital strain is positively related to wives' frustration level, and wives' perceived marital support is positively related to husband's frustration level (Carr et al., 2016). These studies point to the need for incorporating both partners' assessment of marital quality. However, both use cross-sectional data and neither examine depression.

Beach et al. (2003), using couple-level data from 166 married couples who have adolescents in their household, find that husbands' marital satisfaction at baseline is predictive of their wives' depressive symptoms at follow up, and that wives' marital satisfaction at baseline is predictive of their husbands' later depressive symptoms, too. In fact, the effect between spouses was of a similar size to the effect of one's own marital quality on own depressive symptomatology. An analysis of 317 older couples in the 1982-1988 Yale Health and Aging Project finds that spousal ratings of emotional closeness are linked to own depressive symptoms, and that this relationship is stronger for women (Tower and Kasl, 1996). Sandberg and Harper's (2000) cross-sectional study of 535 older couples finds that husbands' perceived marital distress is significantly associated with wives' higher depression, but wives' ratings of marital distress do not predict husband's depression (Sandberg & Harper, 2000). However, these studies do not use nationally-representative data, nor do they examine both negative and positive dimensions of marital quality.

Taken together, these studies suggest that both own and spousal ratings of marital quality have independent influences for an individual's mental health, and that there may be gender

differences in their associations with mental health, though contradictory findings make it difficult to determine the role gender may play. To better understand these relationships, we analyze data from a large sample of older adults, using age-based growth curve models to examine how both spouses' perceptions of positive and negative dimensions of marital quality are related to their depressive symptom trajectories across a ten-year time period.

Other Associated Factors

In addition to the importance of accounting for gender and age, as discussed above, research shows race-ethnic variations in both marital quality and depressive symptomatology, with older Black and Hispanic adults reporting lower marital quality and greater depressive symptoms (Bulanda et al., 2011; Liang, Xu, Quiñones, Bennett, & Ye, 2011). Higher socioeconomic status – including education, income, and assets – is negatively related to depressive symptomatology among older married couples (Townsend et al., 2001). Marital characteristics are also important to account for in analyses. Higher-order marriages are associated with lower marital quality (Kaufman & Taniguchi, 2006) and lower mental health (Barrett, 2000). Marital quality declines over the marital life course (VanLaningham & Amato, 2003), and the health benefits of happy marriages and the negative health consequences of unhappy marriages may accumulate over time, suggesting the importance of accounting for marital duration.

Hypotheses

Based on the theoretical perspectives and research reviewed above, we expect that:

- H1: Respondent's own positive marital quality will be associated with declines in trajectories of depressive symptoms, whereas own negative marital quality will be associated with increases, net of spousal marital quality.

H2: Spouse's perceptions of positive marital quality will be related to declines in own depressive symptom trajectories, whereas spouse's perceptions of negative marital quality will be associated with increases, net of own marital quality

H3: As previous research yields contradictory findings with regard to potential gender differences, we offer three competing hypotheses:

H3a: The relationship between marital quality (both own and spousal) and depressive symptoms during later life is stronger for older women than for men, consistent with previous studies showing marital quality is more consequential for women's mental health (Carr & Springer, 2010).

H3b: The relationship between marital quality (both own and spousal) and depressive symptoms is stronger for older men than for women, consistent with research finding a relationship between marital problems and depressive symptoms for men in longer-term relationships but not for women (Kouros et al., 2008).

H3c: There are no gender differences in the role of own or spousal marital quality for depressive symptom trajectories, consistent with studies showing gender parity when using longitudinal data (Whisman & Uebelacker, 2009).

Method

Data

We use data from six waves (2006, 2008, 2010, 2012, 2014, and 2016) of the Health and Retirement Study (HRS). The HRS is a biennial, nationally-representative survey of American adults over age 50 and their spouses. Beginning in 2006, the HRS instituted a leave-behind psychosocial questionnaire with more extensive measures of marital quality than previous waves. This psychosocial questionnaire is administered to half of the HRS sample every two years. We

pooled data from the half of the HRS sample that received this questionnaire in 2006 with the other half that received the questionnaire in 2008. The pooled data from these 2006/2008 respondents is hereafter referred to as “baseline” or “wave 1.” The outcome variable, depressive symptoms, is measured at baseline and every two years thereafter in respondents’ respective wave of data collection (e.g., the second data point for the baseline 2006/2008 sample is 2008/2010; that is, 2008 for the baseline 2006 sample and 2010 for the baseline 2008 sample).

Of the 9,212 participants who completed the psychosocial questionnaire in either 2006 or 2008 and were also married, we exclude respondents not aged 51-85 ($n=546$) due to very small sample sizes within each age group that result in stability problems for age-based growth curve modeling. We also exclude those with missing data on the dependent variable at baseline ($n=187$), those not followed up in at least one subsequent wave post-baseline ($n=105$), those not currently living with their spouse ($n=273$), and those in same-sex marriages ($n=4$). Finally, some individuals who were married at baseline experience divorce/separation or widowhood over the observation period. Previous research findings show differences in marital quality trajectories for those who experience eventual divorce (Kanter, Proulx, & Monk, 2019), likely reflecting differences in the way pre-loss marital quality may affect depression trajectories post-loss. Based on our own supplemental analysis that demonstrated that the underlying growth trajectories in depressive symptoms differ for those who remain married over the observation period versus those who experience marital loss in our sample (results available upon request from authors), we limit our analyses to those who are continuously married between 2006 and 2016. This results in a final sample size of 4,342 respondents. Although we link spouses’ reports of marital quality onto respondents’ records for analysis, our analytic sample is not composed solely of couples. The HRS is representative only of individuals over age 50, but spouses of age-eligible

individuals are also interviewed by the HRS regardless age. Thus, in the case of a 65-year-old respondent with a 35-year-old spouse, we link the 35-year-old's rating of marital quality to the 65-year-old's record, enabling us to model the association of both partners' perceptions of marital quality with the respondent's mental health trajectory, but include only the 65-year-old in our analytic sample.

Measures

Our dependent variable, *depressive symptomatology*, uses the HRS's eight-item version of the CES-D scale. Respondents are asked whether much of the time over the past week they felt depressed, lonely, sad, everything they did was an effort, had restless sleep, could not get going, enjoyed life, and were happy, with dichotomous yes/no response categories. Responses to each item were coded (1) for yes and (0) for no. The last two items were reverse coded and scores were added to produce a scale ($\alpha = 0.77$ at baseline) ranging from zero (0) to eight (8) symptoms. This measure strategy is consistent with numerous previous studies (e.g., Sasson & Umberson, 2014; Thomeer, Umberson, & Pudrovska, 2013; Choi et al., 2016), and previous analyses of this eight-item CES-D scale in the HRS find it has good construct validity and internal consistency (e.g., Steffick, 2000).

We utilize two measures of marital quality as the primary independent variables, reflecting the two distinct dimensions of marital quality established in previous research (e.g., Fincham & Linfield, 1997). Respondents are asked a series of questions about their relationship, with responses ranging from "not at all" (1) to "a lot" (4). *Positive marital quality* is a three-item scale ($\alpha=0.80$) measuring respondents' perceptions of how much their spouse understands the way they feel, can be relied on, and how much they can open up to their spouse to talk about their feelings. *Negative marital quality* is a four-item scale ($\alpha=0.78$) indicating respondents'

perceptions of how much their spouse criticizes them, makes too many demands of them, lets them down when counted on, and gets on their nerves. Scores are averaged within each dimension to produce the final positive and negative marital quality scales (ranging 1-4), consistent with HRS documentation recommendations for scaling of these variables (Smith, Ryan, Fisher, Sonnega, & Weir, 2017) and with previous research using these measures in the HRS (e.g., Choi et al., 2016; Whisman, Li, Sbarra, & Raison, 2014). The baseline values for these variables are used in the model. We assessed the feasibility of incorporating a time-varying version of marital quality in the growth curve models at two post-baseline time points. However, supplemental analyses showed low variation in marital quality between waves (i.e., measures at the three different time points were strongly correlated; paired t-tests showed no significant differences in positive marital quality between the three time points and only small and inconsistent differences in negative marital quality between time points) among our analytic sample of continuously-married older adults. In addition, whereas the outcome variable is measured in two-year increments, marital quality is measured every four years. Taken together, these resulted in problems when attempting to include the time-varying measure of marital quality in the latent curve models. Thus, only the baseline measure of marital quality is used.

Age is a continuous variable indicating chronological age and is used as the time scale in the models (see below). All independent variables are measured at baseline. Sociodemographic controls include gender (*female*, a dichotomous variable coded (1) for women and (0) otherwise), race-ethnicity (*non-Hispanic White*, *non-Hispanic Black*, and *other race-ethnicity*, as sizes of other race-ethnic groups were too small to further disaggregate for the age-based growth curve models), and *any resident children* (coded (1) if children are in the household and (0) otherwise). Socioeconomic measures include *education* (number of years), *currently employed* (coded (1) if

currently working for pay and (0) otherwise), and *household income* and *assets*. Both of the latter two measures are logged for use in multivariate analysis (to address values of zero, the value of income and to the absolute value of assets prior to logging; for those with negative assets, we log the absolute value and then return the negative sign). We also include two measures of health status: *subjective health* (ranging from (1) poor to (5) excellent) and *activities of daily living (ADL) limitations*, a count of the total number of six activities with which the respondent has difficulty, ranging from zero to six. Controls for union characteristics include *marital duration* (number of years of current marriage) and *higher-order marriage* (a dichotomous variable indicating the respondent is in a remarriage at baseline) in the models.

The HRS employs bracketing techniques to minimize non-response on income and assets. RAND then uses this bracketed information with a progressive-step imputation process to produce imputed versions of income and wealth (Pantoja et al., 2018). We utilize these versions in our analyses. Less than two percent of the sample has missing data on any of the independent variables at baseline, with the exception of the spousal marital quality variables, on which 8.7% are missing responses. One of the advantages of using HRS data is the low panel attrition over time. Less than 2% of our analytic sample are non-respondents at each of the five post-baseline waves. For any missing data at baseline or followup, we use full information maximum likelihood (FIML) to utilize partial information in the model estimation (Arbuckle, 1996).

Plan of analysis

We used the latent curve model (LCM; Bollen & Curran, 2006) to examine the longitudinal relationship between marital quality and depression symptomatology. LCM is an application of structural equation modeling with latent growth factors including the intercept (i.e., baseline level) and the slope (i.e., rate of growth) factors (Kline, 2016), and can model

inconsistent observation times, time-invariant, and time-varying covariates (Curran, Obeidat, & Losardo, 2010). Although our outcome variable – depressive symptomatology – is skewed, it is not necessary to use a transformed (e.g., logged) version, as LCM examines within-person variation over time (trajectories) rather than depressive symptoms at finite points. LCM is usually specified for all survey respondents observed at the same time periods (e.g., year 1, year 2, year 3, etc.). However, the choice of the time metric for growth curves should be driven by the conceptual aspects of the subject of study. The assumption of a life course trajectory approach is that, at the individual level, trajectories unfold across age, and a preponderance of socio-behavioral work on depression and/or depressive symptoms note very clear life course patterns across age (Adkins, Wang, & Elder, 2009; Lynch & Taylor, 2016). As such, we employ age-based LCM in this study, with age as the time unit in our analysis (e.g., age 50, age 51, etc.)

The order of model building was baseline LCM and LCM with covariates. The unconditional LCM (Model 1) is specified as follows:

$$y_{it} = \eta_{0i} + \eta_{1i}\lambda_t + \varepsilon_{ti} \text{ (Equation 1)}$$

$$\eta_{0i} = \eta_0 + \varsigma_{0i} \text{ (Equation 2)}$$

$$\eta_{1i} = \eta_1 + \varsigma_{1i} \text{ (Equation 3)}$$

where y is depressive symptoms for person i at time t (see Equation 1). In our analytic sample, respondents' depressive symptoms are observed at six time points: 2006, 2008, 2010, 2012, 2014 and 2016. In Equation 2 and 3, η_0 and η_1 are the latent intercept and slope for person i , and λ_t is the time score, which is the individual's age at time t in the study. Also, ς_{0i} and ς_{1i} are the error terms, which indicate the between-person variability in depressive symptom trajectories. Once the baseline LCM is constructed, a series of time invariant covariates are added to Model 2 (Equation 1, 2b and 3b).

$$\eta_{0i} = \eta_0 + \sum_k \gamma_{0k} x_{ki} + \zeta_{0i} (\text{Equation 2b})$$

$$\eta_{1i} = \eta_1 + \sum_k \gamma_{1k} x_{ki} + \zeta_{1i} (\text{Equation 3b})$$

Here, γ is the coefficient of the k -th time invariant covariate (x) on the intercept and slope. Moreover, the slope (η_1) was also modeled as a function of the intercept (η_0) to account for the possible floor- and ceiling-effects. For example, the respondent who had the near-lowest CESD score at the first observation is unlikely to lower the score in the subsequent observation given the possible lowest score is bounded to zero. The simplified diagram of the fully conditional model (Model 2) (Equation 1b, 2b and 3b) is displayed in Figure 1. In a separate analysis to examine possible gender differences, we fit multi-group models (Wang & Wang, 2012) and conduct significance tests to compare the coefficients for the marital quality measures between women and men.

Mplus version 8 (Muthén and Muthén, 1998-2017) is used for the analysis. The models are estimated using full information maximum likelihood (FIML) with the MLR (robust maximum likelihood) command. FIML incorporates the cases with missing values using partially available information into the estimation (Arbuckle, 1996). FIML is known to be less biased than traditional approaches to missing data (e.g., listwise deletion, mean imputation) (Wang and Wang, 2012). To adjust for the complex sampling design of the study, the HRS psychosocial questionnaire weight (using the value that corresponds to the 2006 or 2008 wave in which the respondent initially completed the questionnaire), stratification, and cluster weights are applied in all models using the TYPE = COMPLEX command in Mplus.

Several model-building decisions and sensitivity analyses results should be noted. First, although a non-linear LCM with a quadratic growth factor is evaluated (Kline, 2016), the model

did not converge and the results were inconsistent with several minor model modifications. Thus, we employed a more stable, linear LCM instead. The model identification was assessed with the ratio of the number of off-diagonal elements ($n=253$) of variance/covariance matrix and the number of estimated free parameters ($n=176$) (Wang & Wang, 2012). In addition, no warning messages indicated possible under-identification in Mplus Version 8. Based on these assessments, we believe that our models are identified.

The model fit was evaluated based on the log likelihood statistic, the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC). These fit indices are used to compare the relative improvement in the fully conditional model compared to the unconditional model. Given the Mplus MLR command and age-based specification of growth factors (a.k.a., type III data), conventional SEM fit indices such as the comparative fit index (CFI) and root mean squared error of approximation (RMSEA) could not be used as the model fit indices in the LCM (Wu, West, & Taylor, 2009). By the same token, the minimum sample size estimation with the age-based LCM limited the use of existing approaches such as the method by MacCallum, Browne, and Sugawara (1996). As such, we referred to the N/q rule where N is the sample size and q is the number of parameters to be estimated (Kline, 2016). In our study, because the N is over 4,000 and q is 176, the recommended ratio of 20 to 1 is met.

Results

Table 1 presents weighted descriptive statistics by gender. Women report significantly higher depressive symptoms, higher negative marital quality, and lower positive marital quality than do men. Women are significantly younger, have lower levels of education, and are in longer-duration marriages, on average, than men. A significantly lower proportion of women than men have children in their household (26% versus 32%) or are employed (52% versus

62%). Although mean marital quality is fairly similar for respondents and their spouses, we further explored this concordance in supplemental analyses (results not shown). Results show only moderate correlations between own and spousal positive marital quality ($r = 0.33$) and between own and spousal negative marital quality ($r = 0.37$).

Tables 2 presents the estimated coefficients from the baseline and fully conditional/final models. The final model was determined after comparing slightly modified models (e.g., without some of the statistically non-significant covariates) and evaluating the AIC and BIC. Although the interpretation requires caution and consideration of context, a general rule suggests that a decrease in the AIC and BIC by greater than 10 indicates a significant improvement in the model (e.g., Fabozzi, Focardi, Rachev, & Arshanapalli, 2014). The mean latent intercepts and latent slopes were 1.256 ($p < 0.05$) and -0.005 ($p < 0.05$) in the baseline model. The variances for the latent intercepts and latent slopes were 20.865 ($p < 0.05$) and 0.004 ($p < 0.005$). In other words, the baseline and rate of growth (i.e., intercept and slope) of depressive symptoms trajectory were statistically significant.

To assess our first hypothesis, we examine whether own ratings of marital quality are associated with own depressive symptoms, net of spousal reports of marital quality. Results support this hypothesis; one's own negative and positive ratings of marital quality are associated with own depressive symptom trajectories for both women and men. As expected, positive marital quality has a protective association ($\gamma = -0.003$, $p < 0.05$) with depressive symptom trajectories, whereas negative marital quality is associated increased depressive symptoms ($\gamma = 0.002$, $p < 0.05$).

To assess our second hypothesis, we examine whether spouses' ratings of marital quality are associated with respondents' depressive symptom trajectories. We find partial support for

this expectation. Spouse's negative marital quality is associated with greater own depressive symptoms at baseline ($\gamma = 0.679, p < 0.05$) and own increased depressive symptoms over time ($\gamma = 0.003, p < 0.05$). However, spouse's ratings of positive marital quality are not significantly associated with own depressive symptoms at baseline or over time.

To assess our third hypothesis, we examine the multi-group models by gender. Table 3 shows tests for the difference in coefficients between men and women. With regard to the relationship between own marital quality and own depressive symptoms, results offer support for the gender parity hypothesis (hypothesis 3c). As shown in Table 2, own positive marital quality has a protective association with depressive symptom trajectories whereas own negative marital quality is associated with greater growth in depressive symptoms over time, and results of the multi-group analysis (Table 3) suggest these relationships do not vary by gender. We also find partial support for Hypothesis 3c with regard to the relationship between negative spousal marital quality and own depressive symptom trajectories. As shown in Table 2, spousal ratings of negative marital quality are positively associated with growth in depressive symptomatology, and results of the multi-group models (Table 3) suggest there are no gender differences in this relationship. However, when examining the role of positive spousal marital quality, we find partial support for our hypothesis that spousal perceptions of marital quality are more strongly associated with women's depressive symptom trajectories than men's (hypothesis 3a). Table 3 shows significant gender differences in the coefficients of spousal positive marital quality both for baseline (i.e., intercept) and growth (i.e., slope) of depressive symptom trajectories. There is a significant gender difference in the association between spouse's positive marital quality and own baseline depressive symptoms ($\Delta\gamma = -2.166, p < 0.05$) such that spouse's marital quality has a protective association with baseline depressive symptoms only among women. However, the

adverse association of spouse's positive marital quality with the rate of depressive symptom growth over time is weaker for women than men ($\Delta\gamma = 0.004, p < 0.05$). This is likely due to the very different starting points between men and women at baseline, with spousal positive marital quality predictive of much lower depressive symptoms at baseline for women, resulting in less room for subsequent decline.

A few findings with regard to the covariates are notable. Women evidence greater growth in depressive symptoms over time ($\gamma = 0.003, p < 0.05$). Education and ADL limitations were associated with increased depressive symptoms over time, whereas self-rated health had a negative relationship with depressive symptom growth. Non-Hispanic Black individuals had, on average, lower levels of depression at baseline, but there were no race differences in growth of depressive symptoms over time. Similarly, marital duration was negatively associated with depressive symptoms at baseline but not significantly related to the slope of depressive symptom trajectories post-baseline.

Discussion

Previous research shows that marital quality is consequential for older adults' mental health outcomes (e.g. Beach et al., 2003; Whisman & Uebelacker, 2009), but offers contradictory findings with regard to gender. In addition, previous studies are limited by use of small samples, cross-sectional data, limited measures of marital quality, and data from only one spouse. We extend this literature by using data from six waves the Health and Retirement Study to prospectively examine whether negative and positive dimensions of both own and spousal marital quality are related to continuously-married older adults' depressive symptom trajectories, and to assess potential gender differences in the relationship.

We draw from both the life course perspective and the stress and coping perspective to understand how marital quality is related to depressive symptomatology. The stress and coping perspective suggests that chronic stress, such as a marriage characterized by high levels of criticism and dissatisfaction, is detrimental to mental health (Pearlin, 2010). Consistent with this suggestion and with the marital discord model, we find that own perception of greater negative marital quality is associated with higher baseline depressive symptoms and greater slope of depressive symptom trajectories over the ten-year observation period. The stress and coping perspective also suggests that positive sources of social support can buffer the negative effects of stress on health, protecting mental health (Thoits, 2010). A supportive, satisfying marriage may thus protect older adults' mental health from the negative impact of social stress. Consistent with this idea, we find that positive marital quality is negatively associated with the slope of depressive symptom trajectories for older adults. Notably, although some previous research suggests that that negative dimensions of marital quality may have stronger effects for depressive symptomatology than positive marital quality, our results show that both own negative and own positive marital quality are associated with depressive symptom trajectories among continuously-married older adults.

The life course perspective's emphasis on an individual's place in the social system and historical time suggests gender may play an important role in the relationship. Gender norms in the U.S. have dictated greater responsibility for the emotional management of relationships to women, suggesting women may be particularly attuned to and affected by evaluations of marital quality. Indeed, a number of studies find stronger effects of marital quality for women's depressive symptoms than men's (e.g., Proulx et al., 2009; Sandberg & Harper, 2000; Tower & Kasl, 1996; Whisman, 2001; Whisman et al., 2015), resulting in the commonly-accepted notion

that own perceptions of marital quality are more important for women's mental health than men's. Our results challenge this, instead showing that own ratings of positive and negative dimensions of marital quality are related to depressive symptom trajectories in similar ways for older, continuously-married men and women. This is consistent with some previous work suggesting similar effects of marital quality for depressive symptoms regardless of gender (Beach et al., 2003; Whisman & Uebelacker, 2009). Carr et al. (2016), in their analysis of the association of own marital quality with both life satisfaction and subjective well-being, also find gender parity. They speculate that perhaps later-life crossover in gendered behaviors, such as declining importance of childrearing for women and labor force participation for men, may mean more gendered convergence in the relationship of marital quality to mental health in older adulthood. Our results suggest this may also be the case for depressive symptoms.

Our study further contributes to the literature by incorporating spousal data. Drawing from the life course perspective's concept of linked lives, we consider how spousal ratings of marital quality may be related to own depressive symptoms. A growing body of research suggest that, in accordance with emotional and social contagion theory, individuals are aware of and affected by their spouse's marital satisfaction. Consistent with previous studies suggesting stronger effects of husbands' marital quality for wives' mental health during the later life course (Sandberg & Harper, 2000; Tower & Kasl, 1996), husbands' ratings of positive marital quality are associated with wives' depressive symptoms.

There are several limitations of the current study. First, we have modeled the relationship between marital quality and depressive symptoms as unidirectional, but some existing studies suggest that the relationship may be reciprocal (Kouros et al., 2008; Pruchno et al., 2009; Proulx et al., 2007; Whisman & Uebelacker, 2009). Second, we examine only continuously-married

individuals. Our supplemental analyses (available upon request) suggest underlying trajectories of depression differ for those who are continuously married versus those whose marriages end. Establishing and analyzing the different trajectories in depression over the transition to divorce/separation and widowhood is beyond the scope of this paper, but future research should assess how trajectories of depression over divorce and widowhood may vary based on pre-loss marital quality. Third, our sample utilizes spousal data on perceived marital quality, but we do not have a sample composed solely of couples due to age-eligibility restrictions in the HRS. Fourth, we are not able to explicitly test for potential cohort differences in our age-based growth curve models; subsequent studies should explore whether such differences may exist among samples of older adults. Fifth, we consider only heterosexual marital unions. Future research should consider whether the association between relationship quality and depressive symptoms is similar for same-sex couples and those in cohabiting unions. Finally, it is important to note that we focus only on depressive symptoms in this study, and not on clinical diagnoses of depression.

In sum, results of this study contribute to the growing literature on the health consequences of later-life relationships in three main ways. First, results suggest that, among continuously-married older adults, gender may not be as salient in the link between *own* marital quality and depressive symptoms as some research on the earlier life course has suggested. Our results show that own perceptions of positive and negative marital quality have similar relationships with later-life depressive symptoms for both men and women. Second, our results contribute to the literature by underscoring the necessity of examining multiple dimensions of marital quality. We find both positive and negative dimensions of own marital quality are related to depressive symptom trajectories for men and women. Third, results point to the importance of including spousal perceptions of marital quality when examining marriage and health. Spousal

perceptions of negative marital quality are related to older adults' own depressive symptom trajectories similarly for both men and women. We do, however, find a notable gender difference in the relationship between *spousal* positive marital quality and own depressive symptom trajectories. Husbands' ratings of positive marital quality are associated with lower depressive symptomatology for older women. Taken together, these findings suggest the importance of examining both spouses' reports of multiple dimensions of marital quality when examining later-life depressive symptoms, and that although spousal ratings of negative marital quality matter for both men's and women's trajectories of depressive symptoms, spousal rating of positive marital quality may be predictive of depressive symptoms only among women.

This study therefore has important implications for older women's mental health, as the findings suggests older women are may be uniquely affected by their spouses' perceptions of positive marital quality. Given that marital relationships have stronger links with depressive symptoms than other relationships (Walker et al., 2013) and that older adults may winnow their social networks during later life (Carstensen, 2003), the marital relationship may figure particularly prominently in later life wellbeing. That both own and spousal ratings of positive and negative dimensions of marital quality are linked with depressive symptoms during later life, and that spousal effects may be particularly important among women, poses an important area of attention for health care providers, mental health professionals, and marital counselors who provide services to older individuals.

References

- Adkins, D. E., Wang, V., & Elder, G. H. (2009). Structure and stress: Trajectories of depressive symptoms across adolescence and young adulthood. *Social Forces*, 88(1), 31-60.
doi:10.1353/sof.0.0238

- Aneshensel, C. S. (2015). Sociological inquiry into mental health: The legacy of Leonard I. Pearlin. *Journal of Health and Social Behavior*, 52(2), 166-178.
doi:10.1177/0022146515583992
- Arbuckle, J. L. (1996). Full information estimation in the presence of incomplete data. In G. A. Marcoulides & R. E. Schumacker (Eds.), *Advanced structural equation modeling: Issues and techniques*. Mahwah, NJ: Erlbaum.
- Barrett, A. E. (2000). Marital trajectories and mental health. *Journal of Health and Social Behavior*, 41, 451–464. doi:10.2307/2676297
- Beach, S. R. H., Katz, J., Kim, S., & Brody, G. H. (2003). Prospective effects of marital satisfaction in established marriages: A dyadic model. *Journal of Social and Personal Relationships*, 20(3), 355-371. doi:10.1177/0265407503020003005
- Beach, S. R. H., Sandeen, E. E., & O’Leary, K. D. (1990). *Depression in marriage: A model for etiology and treatment*. New York: Guilford Press.
- Bernard, J. (1972). *The future of marriage*. New York: World.
- Boerner, K., Jopp, D. S., Carr, D., Sosinsky, L., & Kim, S. (2014). ‘His’ and ‘her’ marriage? The role of positive and negative marital characteristics in global marital satisfaction among older adults. *Journal of Gerontology: Social Sciences*, 69, 579-589.
doi:10.1093/geronb/gbu032
- Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective*. Hoboken, NJ: John Wiley & Sons.
- Bookwala, J., & Jacobs, J. (2004). Age, marital processes, and depressed affect. *The Gerontologist*, 44(3), 328-338. doi: 10.1093/geront/44.3.328

- Bulanda, J. R. (2011). Gender, marital power, and marital quality in later life. *Journal of Women & Aging, 23*, 3-22. doi:10.1080/08952841.2011.540481
- Carr, D., Freedman, V. A., Cornman, J. C., & Schwarz, N. (2014). Happy marriage, happy life? Marital quality and subjective well-being in later life. *Journal of Marriage & Family, 76*, 930-948. doi:10.1111/jomf.12133
- Carr, D., Cornman, J. C., & Freedman, V. A. (2016). Marital quality and negative experienced well-being: An assessment of actor and partner effects among older married persons. *Journals of Gerontology: Social Sciences, 71*, 177-187. doi:10.1093/geronb/gbv073
- Carr, D., & Springer, K. W. (2010). Advances in families and health research in the 21st Century. *Journal of Marriage and Family, 72*, 743-761. doi:10.1111/j.1741-3737.2010.00728.x
- Carstensen, L. L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion, 27*, 103-123.
- Choi, H., Yorgason, J. B., Johnson, D. R. (2016). Marital quality and health in middle and later adulthood: Dyadic associations. *Journals of Gerontology: Social Sciences, 71*, 154-164. doi:10.1093/geronb/gbu222
- Christakis, N. A., & Fowler, J. H. (2012). Social contagion theory: Examining dynamic social networks and human behavior. *Statistics in Medicine, 32*, 556-577. doi:10.1002/sim.5408
- Cornwell, B., Laumann, E. O., & Schumm, L. P. (2008). The social connectedness of older adults: A national profile. *American Sociological Review, 73*, 185-203.
- Curran, P. J., Obeidat, K., & Losardo, D. (2010). Twelve frequently asked questions about growth curve modeling. *Journal of Cognition and Development, 11*(2), 121-136. doi:10.1080/15248371003699969

- Fabozzi, F. J., Focardi, S. M., Rachev, S. T., & Arshanapalli, B. G. (2014). *The basics of financial econometrics*. Hoboken, New Jersey: John Wiley & Sons.
- Fincham, F. D., & Linfield, K. J. (1997). A new look at marital quality: Can spouses feel positive and negative about their marriage? *Journal of Family Psychology, 11*, 489–502.
doi:10.1037//0893-3200.11.4.489-502
- Fincham, F. D., Beach, S. R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science, 8*(5), 351-356. doi:10.1111/j.1467-9280.1997.tb00424.x
- Fowler, J. H., & Christakis, N. A. (2008). Dynamic spread of happiness in a large social network: Longitudinal analysis over 20 years in the Framingham Heart Study. *BMJ, 337*, a2338. doi: 10.1136/bmj.a2338.
- George, L. K. (2013). Life-course perspectives on mental health. In C. S. Aneshensel, J.C. Phelan, & A. Bierman (Eds.), *Handbook of the Sociology of Mental Health, 2nd Edition*. (pp. 585–602). Dordrecht, The Netherlands: Springer.
- Kaufman, G., & Taniguchi, H. (2006). Gender and marital happiness in later life. *Journal of Family Issues, 27*(6), 735-757. doi:10.1177/0192513X05285293
- Kiecolt-Glaser, J. K., & Wilson, S. J. (2017). Lovesick: How couples' relationships influence health. *Annual Review of Clinical Psychology, 13*, 421-443. doi:10.1146/annurev-clinpsy-032816-045111
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th Ed.). New York: Guilford Press.

- Kouros, C. D., Papp, L. M., & Cummings, E. M. (2008). Interrelations and moderators of longitudinal links between marital satisfaction and depressive symptoms among couples in established relationships. *Journal of Family Psychology, 22*(5), 667-677.
- Kulik, L. 2002. Marital equality and the quality of long-term marriage in later life. *Ageing & Society, 22*: 459–481.
- Liang, J., Xu, X., Quinones, A.R., Bennett, J.M., & Ye, W. (2011). Multiple trajectories of depressive symptoms in middle and late life: Racial/ethnic variations. *Psychology and Aging, 26*(4), 761-777. doi:10.1037/a0023945
- Liao, J., McMunn, A., Mejía, S. T., & Brunner, E. J. (2018). Gendered trajectories of support from close relationships from middle to late life. *Ageing & Society, 38*, 746-765.
- Lynch, S. M., & Taylor, M. G. (2016). Trajectory models for aging research. In L. K. George & K. F. Ferraro (Eds.), *Handbook of Aging and the Social Sciences*, 8th edition (pp. 23-51). Boston, MA: Elsevier.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods, 1*(2), 130. doi: 10.1037/1082-989X.1.2.130
- Mirowsky, J., & Ross, C. E. (1992). Age and depression. *Journal of Health and Social Behavior, 33*(3), 187-205. doi:10.2307/2137349
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus Statistical Analysis With Latent Variables User's Guide*. Los Angeles: Muthén & Muthén.
- Pantoja, P., Bugliari, D., Campbell, N., Chan, C., Hayden, O., Hayes, J., ... St. Clair, P. (2018). *RAND HRS Detailed Imputations File 2014 (V2) Documentation*. RAND Center for the Study of Aging. Available at:

www.rand.org/content/dam/rand/www/external/labor/aging/dataproducts/randhrsimp1992_2016v1.pdf.

Pearlin, L. I. (2010). The life course and the stress process: Some conceptual comparisons.

Journal of Gerontology: Social Sciences, 65B(2), 207-215. doi:10.1093/geronb/gbp106

Proulx, C. M., Buehler, C., & Helms, H. (2009). Moderators of the link between marital hostility and change in spouses' depressive symptoms. *Journal of Family Psychology, 23*(4), 540-550. doi:10.1037/a0015448

Proulx, C. M., Ermer, A. E., & Kanter, J. B. (2017). Group-based trajectory modeling of marital quality: A critical review. *Journal of Family Theory and Review, 9*, 307-327. doi:10.1111/jftr.12201

Proulx, C. M., Helms, H. M., & Buehler, C. (2007). Marital quality and personal well-being: A meta-analysis. *Journal of Marriage and Family, 69*, 576-593. doi:10.1111/j.1741-3737.2007.00393.x

Pruchno, R., Wilson-Genderson, M., & Cartwright, F. P. (2009). Depressive symptoms and marital satisfaction in the context of chronic disease: A longitudinal dyadic analysis. *Journal of Family Psychology, 23*, 573-584. doi:10.1037/a0015878

Sasson, I., & Umberson, D. J. (2014). Widowhood and depression: New light on gender differences, selection, and psychological adjustment. *Journals of Gerontology: Social Sciences, 69B*(1), 135-145. doi: 10.1093/geronb/gbt058

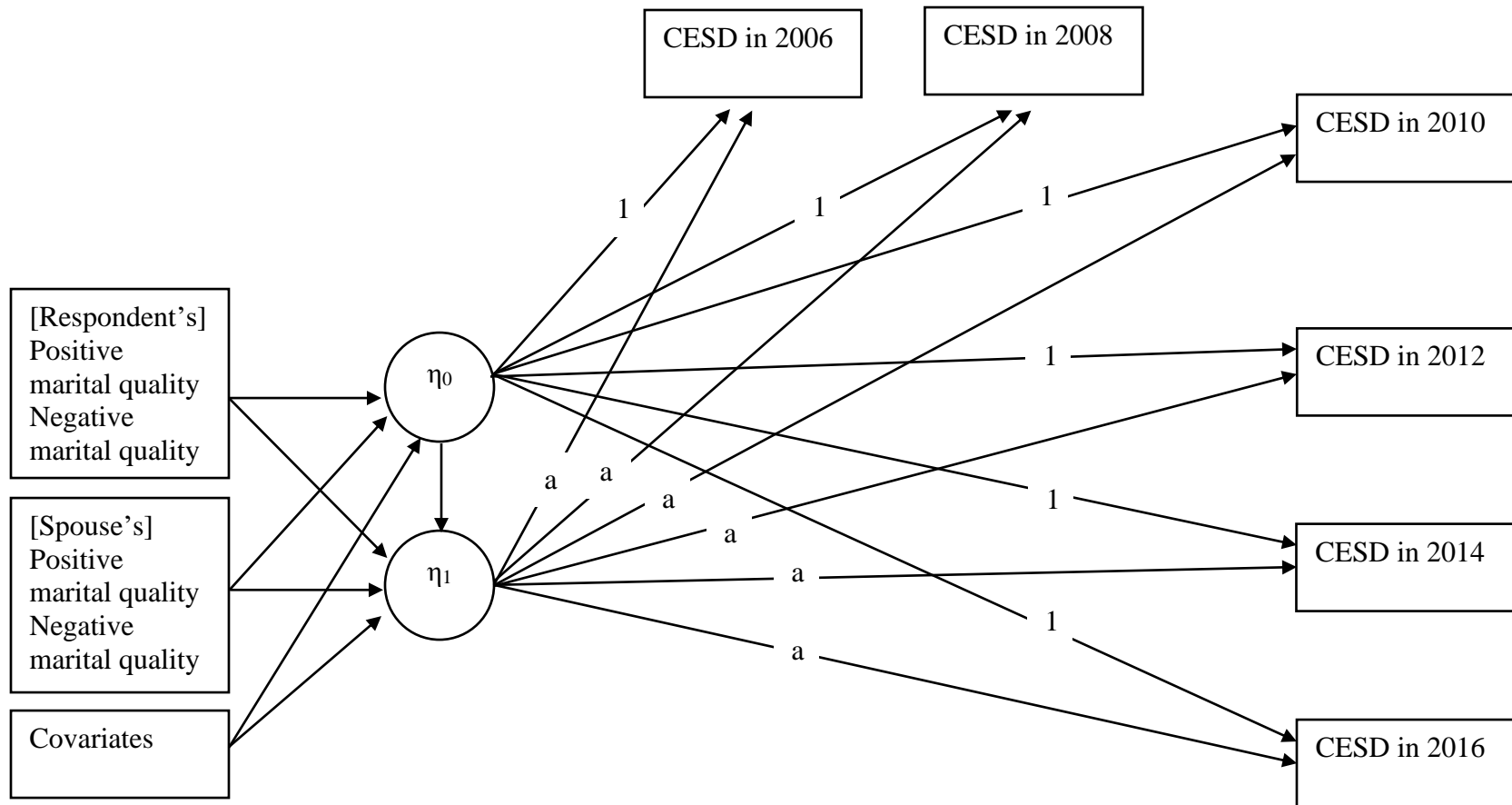
Sandberg, J. G., & Harper, J. M. (2000). In search of a marital distress model of depression in older marriages. *Aging & Mental Health, 4*(3), 210-222. doi:10.1080/713649929

Smith, J., Ryan, L., Fisher, G. G., Sonnega, A., & Weir, D. (2017). *Psychosocial and lifestyle questionnaire 2006-2016*. Ann Arbor, MI: Institute for Social Research, University of Michigan.

- Michigan. Available at https://hrs.isr.umich.edu/sites/default/files/biblio/HRS%202006-2016%20SAQ%20Documentation_07.06.17_0.pdf.
- Steffick, D. E. (2000). *Documentation of Affective Functioning Measures in the Health and Retirement Study*. Ann Arbor, MI: Survey Research Center, University of Michigan. Available at <http://hrsonline.isr.umich.edu/sitedocs/userg/dr-005.pdf>
- Stokes, J. E. (2017). Do 'his' and 'her' marriages influence one another? Contagion in personal assessments of marital quality among older spouses over a four-year span. *Social Psychology Quarterly*, 80(2), 204-215.
- Sutin, A. R., Terracciano, A., & Milaneschi, Y. (2013). The trajectory of depressive symptoms across the adult life span. *JAMA Psychiatry*, 70(8), 803-811. doi:10.1001/jamapsychiatry.2013.193
- Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, 51(S), S41-S53. doi:10.1177/0022146510383499
- Thomeer, M. B., Umberson, D., & Pudrovska, T. (2013). Marital processes around depression: A gendered and relational perspective. *Society and Mental Health*, 3, 151-169.
- Tower, R. B., & Kasl, S. V. (1996). Gender, marital closeness, and depressive symptoms in elderly couples. *Journal of Gerontology: Psychological Sciences*, 51B(3), P115-129. doi:10.1093/geronb/51B.3.P115
- Townsend, A. L., Miller, B., & Guo, S. (2001). Depressive symptomatology in middle-aged and older married couples: A dyadic analysis. *Journal of Gerontology: Social Sciences*, 56B, 352-364. doi:10.1093/geronb/56.6.S352
- Waite, L. J., & Gallagher, M. (2000). *The case for marriage: Why married people are happier, healthier, and better off financially*. New York, NY: Broadway Books.

- Walker, R., Isherwood, L., Burton, C., Kitwe-Magambo, K., & Luszcz, M. (2013). Marital satisfaction among older couples: The role of satisfaction with social networks and psychological well-being. *Journal of International Aging and Human Development*, 76(2), 123-139. doi:10.2190/AG.76.2.b
- Wang, J., & Wang, X. (2012). *Structural equation modeling: Applications using Mplus*. West Sussex, United Kingdom: John Wiley & Sons.
- Whisman, M. A. (2001). The association between depression and marital dissatisfaction. In S. R. H. Beach (Ed.), *Marital and Family Processes in Depression: A Scientific Foundation for Clinical Practice* (pp. 3-24). Washington, D.C.: American Psychological Association.
- Whisman, M. A., Li, A., Sbarra, D. A., & Raison, C. L. (2014). Marital quality and diabetes: Results from the Health and Retirement Study. *Health Psychology*, 33, 832-840.
- Whisman, M. A., Robustelli, B. L., Beach, S. R. H., Snyder, D. K., & Harper, J. M. (2015). Marital discord and depression in middle-aged and older couples: Is taxon status associated with depression? *Journal of Social and Personal Relationships*, 32(7), 967-973. doi:10.1177/0265407514554519
- Whisman, M. A., & Uebelacker, L. A. (2009). Prospective associations between marital discord and depressive symptoms in middle-aged and older adults. *Psychology and Aging*, 24, 184–189. doi:10.1037/a0014759
- Wu, W., West, S. G., & Taylor, A. B. (2009). Evaluating model fit for growth curve models: Integration of fit indices from SEM and MLM frameworks. *Psychological Methods*, 14(3), 183-201. doi:10.1037/a0015858

Figure 1: Simplified Path Diagram of the Age-based Growth Curve Model



Notes: a = age in the corresponding year; latent growth factors (η_0 = latent intercept; η_1 = latent slope); CESD = Center for Epidemiological studies Depression scale; the arrows indicate regression paths and covariances; Covariates = age, race, resident child/ren, education, income, asset, employment status, self-rated health, ADL (activities of daily living) limitation, marital duration in the baseline year (2006)

Table 1. Weighted Descriptive Summary of All Variables for the Analytic Sample

Variables	Women n = 2,176		Men n = 2,166	
	Mean (SE) or Percentage		Mean (SE) or Percentage	
Time 1 CESD (0-8)	1.05 *	(0.044)	0.92	(0.044)
Time 2 CESD (0-8)	1.03 ***	(0.051)	0.82	(0.035)
Time 3 CESD (0-8)	1.06 ***	(0.054)	0.85	(0.032)
Time 4 CESD (0-8)	1.05 ***	(0.047)	0.85	(0.038)
Time 5 CESD (0-8)	1.14 ***	(0.047)	0.83	(0.033)
Time 6 CESD (0-8)	1.11 *	(0.075)	0.89	(0.046)
Positive marital quality (1-4)	3.46 ***	(0.014)	3.62	(0.015)
Negative marital quality (1-4)	2.01 ***	(0.018)	1.91	(0.015)
Spouse's positive marital quality (1-4)	3.63 ***	(0.013)	3.46	(0.015)
Spouse's negative marital quality (1-4)	1.89 ***	(0.018)	1.99	(0.015)
Age	61.53 ***	(0.175)	62.54	(0.210)
Non-Hispanic Black	5.23%		5.39%	
Other race-ethnicity	10.29%		10.94%	
Non-Hispanic White ^a	84.49%		83.67%	
Any resident child	26.46% ***		32.35%	
Education	13.35 ***	(0.092)	13.65	(0.109)
Household income	101,197.00	(4,100)	102,165.00	(3,499)
Assets	689,154.00	(35,559)	675,182.00	(31,400)
Employed	52.36% ***		62.44%	
Self-rated health (1-5)	3.54	(0.026)	3.49	(0.025)
ADL limitations (0-6)	0.14	(0.014)	0.14	(0.016)
Marital duration	34.23 ***	(0.309)	32.04	(0.340)
Higher-order marriage at baseline	30.53%		32.92%	

Significant gender difference: *p<.05, **p<.01, ***p<.001

^a Used as the reference category in multivariate analysis.

Table 2. *Estimated Coefficients and Standard Errors from the Latent Curve Models*

$\eta_0 \rightarrow \eta_1$	Model 1				Model 2			
	η_0	p-value	η_1	p-value	η_0	p-value	η_1	p-value
	-0.014 (0.001)		p-value 0.001		-0.014 (0.001)		p-value 0.001	
Positive marital quality →	-0.486 (0.418)	0.245	-0.005 (0.001)	0.001	-0.333 (0.402)	0.408	-0.003 (0.001)	0.001
Negative marital quality →	0.798 (0.350)	0.023	0.002 (0.001)	0.010	0.679 (0.317)	0.032	0.002 (0.001)	0.001
Spouse's positive marital quality →	-0.796 (0.439)	0.070	0.001 (0.001)	0.415	-0.431 (0.317)	0.301	0.001 (0.001)	0.548
Spouse's negative marital quality →	-0.343 (0.360)	0.341	0.003 (0.001)	0.001	-0.302 (0.295)	0.305	0.003 (0.001)	0.001
Female →					-0.353 (0.298)	0.236	0.003 (0.001)	0.001
Non-Hispanic Black →					-1.211 (0.433)	0.005	0.001 (0.001)	0.286
Other race-ethnicity →					-0.409 (0.469)	0.393	0.001 (0.001)	0.426
Co-resident child →					0.188 (0.394)	0.633	-0.001 (0.001)	0.314
Education →					-0.053 (0.067)	0.434	0.001 (0.001)	0.005
Income (log) →					-0.141 (0.160)	0.378	0.001 (0.001)	0.335
Asset (log) →					-0.067 (0.058)	0.247	0.001 (0.001)	0.635
Employed →					0.097 (0.363)	0.789	-0.001 (0.001)	0.051
Self-rated health →					-0.512 (0.194)	0.008	-0.005 (0.001)	0.001
ADL limitations →					1.887 (0.403)	0.001	0.003 (0.001)	0.009
Remarriage →					-0.758 (0.497)	0.127	0.001 (0.001)	0.517
Marital duration →					-0.052 (0.016)	0.001	0.001 (0.001)	0.116
Model fit indices								
Loglikelihood		-52581.749				-116913.742		
AIC		105229.499				234217.484		
BIC		105439.910				235460.821		

Note: $\eta_0 = \text{Intercept}$; $\eta_1 = \text{Slope}$

All covariates were measured at the baseline year (either 2006 or 2008)

Table 3. Selected Results from the Significance Tests of the Regression Coefficients on Depressive Symptoms for Women and Men

	Model 2 ^a			
	η_0		η_1	
	$\Delta\gamma$ (SE)	p-value	$\Delta\gamma$ (SE)	p-value
Positive marital quality →	1.014 (0.923)	0.272	0.001 (0.002)	0.627
Negative marital quality →	0.461 (0.737)	0.532	0.002 (0.001)	0.121
Spouse's positive marital quality →	-2.116 (0.673)	0.002	0.004 (0.002)	0.043
Spouse's negative marital quality →	-0.617 (0.739)	0.404	0.001 (0.001)	0.887

Note: $\eta_0 = \text{Intercept}$; $\eta_1 = \text{Slope}$; $\Delta\gamma$ (gamma) = difference in the coefficient between women and men; SE = standard error; significance test and p-value is based on the multi-group model (see Methods section)

n (women) = 2,176; n (men) = 2,166

^a See the model specification in the Methods section and Table 2 (Model 2 without the female variable)