# Own and partner pain intensity in older couples: longitudinal effects on depressive symptoms

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## Abstract

Chronic pain has been linked to depression among individuals and their partners. Yet, little is known about long-term mutual influences between pain intensity and depressive symptoms within couples as they age. Using a nationally representative U.S. sample of wives and husbands aged 50 and older (mean = 64.53, SD = 7.86), this study explored the links between own and partner pain intensity and depressive symptoms across an 8-year period. A total of 963 heterosexual married couples drawn from the Health and Retirement Study completed interviews biennially from 2006 to 2014. Dyadic growth curve models examined mutual associations within couples and controlled for sociodemographic characteristics, length of marriage, and marital quality, along with self-rated health, number of chronic health conditions, and functional disability. For wives and husbands, their own greater baseline pain intensity was significantly linked to their own higher levels of depressive symptoms. Unexpectedly, wives with greater baseline pain intensity reported decreases in their depressive symptoms over time. There were also partner effects such that husbands' greater pain intensity at baseline was associated with increases in wives' depressive symptoms over time. Findings highlight the importance of considering both individual and spousal associations between pain intensity and depressive symptoms in later life. Understanding how individual and couple processes unfold may yield critical insights for the development of intervention and prevention efforts to maintain mental health among older chronic pain patients and their spouses.

## Introduction

Chronic pain conditions are highly prevalent in older ages, with bothersome pain reported by more than half of community-dwelling adults ages 65 and older from large, nationally representative samples [53]. Persistent pain has widespread negative repercussions in later life such as reduced engagement in meaningful activities, social isolation, sleep deprivation, and obesity [46]. Consequently, it is critical to consider the long-term effects of chronic pain for older people's health and well-being.

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Pain is consistently associated with elevated depressive symptoms in older adults [25,26]. Although several studies indicate a reciprocal relationship between pain and depression in this population [14,58], pain has been found to predict increases in depressive symptoms over time as well as the onset of major depression [38,40]. Depression in later life is linked to a host of detrimental health effects including greater functional impairment [52,82] and a heightened risk of mortality [10,64]. Strikingly, the co-occurrence of chronic pain and depressive symptoms leads to a worse prognosis than either problem alone [16], resulting in more intense pain [5], higher health care utilization [18,78], and increased physical disability [41].

Beyond the individual-level links between pain intensity and depressive symptoms, there may be spousal associations in later life (i.e., partners' pain may increase individuals' depressive symptoms). Interdependence theory proposes that marital partners affect one another's thoughts, feelings, and behaviors [62]. Spouses in turn shape both their own and their partner's health trajectories, and these influences may become even stronger as couples age [24,43]. Supporting these perspectives, prior work demonstrates within-couple interrelations in depressed mood along with a range of other health indicators including physical activity, functional limitations, and sleep duration [3,11,24,47,54,59,67]. Likewise, spouses' greater pain intensity has been linked to their partner's poorer psychological well-being in cross-sectional [15,36,63,66] and longitudinal [4,56,71] research. Yet existing studies on the links between spousal pain and depressive symptoms largely focus on specific illness populations (e.g., cancer patients), examine individuals rather than marital dyads as the unit of analysis, and do not consider gender differences. Moreover, previous longitudinal studies are limited to a relatively short time frame (e.g., 6 months). Hence, little is known about the long-term mutual influences between pain and depressive symptoms that may occur within older couples in the general population.

Drawing from a nationally representative US sample of heterosexual married couples aged 50 and older, we evaluated how own and partner pain intensity are linked to depressive symptoms across an 8-year period. For wives and husbands, we predicted that greater own and partner reports of pain intensity at baseline would be associated with higher levels of depressive symptoms as well as increases in depressive symptoms over time. In line with research suggesting that women engage more often in pain catastrophizing (i.e., ruminating about or magnifying pain-related experiences) [6] and may have greater awareness and empathy for their partner's pain than men [8,12,19,49], we predicted that these associations would be significantly stronger for wives than for husbands.

## Methods

### Participants and Sample

The US sample included 963 heterosexual married couples drawn from the nationally representative Health and Retirement Study (HRS), one of the largest studies of people aged 50 and older that includes data from both members of the spousal dyad. The HRS has collected data biennially since 1992 with a response rate of over 80% at each wave. In accordance with ongoing HRS procedures, all participants are read a confidentiality statement when first contacted, and give oral or implied consent by agreeing to be

interviewed. Participants are also given a written informed consent document for each interview. Consistent with the University of Michigan's policies, ethical approval for the current study was not required because publicly available secondary data with no individual identifiers were utilized.

Since 2006, data have been collected concerning social relationships, life circumstances, well-being, and biological measures. This portion of the HRS interview is referred to as the enhanced face-to-face interview, which is conducted biennially from 50% of the panel participants. The enhanced face-to-face interview includes a self-administered psychosocial questionnaire (SAQ) with questions about the marital relationship [69]. Participants were asked to complete and mail the SAQ back to the main field office at the University of Michigan.

In the present study, we used data from five waves of the HRS between 2006 and 2014. In 2006, HRS participants were contacted by telephone and asked to complete an interview. After gaining consent, telephone interviews were conducted with 18,469 participants, of whom 11,273 (61%) were married. Of the 11,273 married participants in 2006, 11,027 (98%) had spouses who also completed an interview. In total, 5,686 individual respondents (2,843 heterosexual couples) from unique households were consistently married to the same spouse from 2006 to 2014 and participated in each of the five waves. We were interested in examining the effects of own and partner pain intensity on depressive symptoms in later life, and so we selected 2,610 couples in which both spouses were aged 50 or older at baseline (2006).

Of the 2,610 couples who were aged 50 or older in 2006, we removed 1,495 couples in which one or both spouses did not complete the self-administered psychosocial questionnaire in 2006. Of the remaining 1,115 couples, we removed 152 who had missing data on one or more study variables. Hence, our analytic sample included a total of 963 wives (mean = 63.04 years, $SD$ = 7.67, range = 50–85) and their husbands (mean = 66.02 years, $SD$ = 57.78, range = 50–89) who were consistently married to one another and had complete data across the five waves. Compared with the 152 couples who were removed, the 963 couples in this study were younger ($t(2228)$ = −3.62, $p < .001$), had more years of education ($t(2225)$ = 7.08, $p < .001$), reported better self-rated health ($t(2227)$ = 4.16, $p < .001$), and were less likely to be racial or ethnic minorities ($\chi^2(1, N = 2230)$ = 12.14, $p < .001$). There were no significant differences in their baseline pain intensity or depressive symptoms. On average, couples had been married for 36.42 years ($SD$ = 13.45, range = 0.50–65.20) at baseline. The majority of wives (73.3%) and husbands (71.9%) were in their first marriage. Table 1 shows background characteristics for the 963 couples, along with baseline scores for key variables.

### Measures

**Depressive symptoms**—Depressive symptoms were measured at each wave with the 8-item version of the Center for Epidemiologic Studies Depression Scale (CES-D) [57], which has demonstrated high reliability and validity in older adult populations [29]. Participants reported whether they experienced the following symptoms much of the time over the past week (1 = yes, 0 = no): felt depressed, felt lonely, felt sad, felt everything was an effort, had

restless sleep, could not get going, was happy, and enjoyed life. Ratings for the two positive mood items were reverse coded. Items were summed to create a total score, with higher scores indicating greater symptoms (wives: mean $\alpha = 0.77$, husbands: mean $\alpha = 0.73$). We also considered the presence of clinically significant depressive symptoms, which were indicated by total scores of 4 or higher [70].

**Pain intensity**—Pain intensity was assessed from two items. Participants were first asked whether they were often troubled with pain (yes or no). Participants who reported having trouble with pain were then asked to rate how bad their pain was most of the time: mild, moderate, or severe. We combined these items such that participants who were not troubled with pain received a score of 0 (little or no pain) and those who were troubled with pain received a score reflecting their pain intensity (1 = mild pain, 2 = moderate pain, 3 = severe pain). On the basis of research showing that moderate to higher levels of pain intensity are linked to functional impairment or pain-related activity interference [81], we also considered the presence of clinically significant pain (1 = moderate or severe pain, −1 = no or mild pain) at baseline. To evaluate whether pain was an ongoing problem, we examined whether participants had trouble with pain across the five study waves (1 = reported pain at all five waves, −1 = did not report pain at all five waves).

**Covariates**—We controlled for baseline sociodemographic characteristics: age, education in years, and minority status (1 = racial/ethnic minority, −1 = non-Hispanic White). We also controlled for two marital characteristics related to health: marital duration in years and negative marital quality [32,76]. Four brief but commonly used and validated items were used to assess negative marital quality [65,80]. Participants reported how often their spouse (a) makes too many demands on them; (b) criticizes them; (c) lets them down when counted upon; and (d) gets on their nerves. Responses ranged from 1 (a lot) to 4 (not at all). Items were reverse coded and averaged so that higher scores represented higher negative marital quality (wives: $\alpha = .78$, husbands: $\alpha = .76$).

To account for other physical health indicators, we controlled for self-rated health, total number of chronic health conditions, and disability status. Self-rated health was measured with a single item rating perceptions of overall physical health from 1 (excellent) to 5 (poor). Scores were reverse coded such that higher scores reflected better health. This measure is often used in survey research and is strongly associated with objective physical health status [28]. Participants reported whether they had been diagnosed with seven chronic health conditions (arthritis, cancer, diabetes, heart disease, hypertension, lung disease, and stroke; 1 = has condition, 0 = does not have condition). Total summed scores were created, with higher scores indicating a greater number of health conditions. We measured disability status from self-reported difficulty with one or more activities of daily living (ADLs): bathing, dressing, eating, getting in/out of bed, using the toilet, and walking (1 = has difficulty with one or more ADLs, −1 = does not have difficulty with ADLs). Finally, we considered own and partner pain-related activity interference. Wives and husbands who reported pain at baseline were asked whether their pain makes it difficult for them to do their usual activities including household chores or work (1 = yes, 0 = no). Participants in the current analysis who did not report baseline pain received a score of 0. We then created a dichotomous

variable from this item (1 = has pain-related activity interference, −1 = does not have pain-related activity interference).

### Statistical Analysis

We estimated dyadic growth curve models using the MIXED procedure in SPSS Version 22. This dyadic multilevel approach is a version of the actor-partner interdependence model (APIM) that enables the simultaneous modeling of own and partner influence within couples over time [31]. Models included the recommended two levels for longitudinal dyadic data, in which the lower level represents variability due to within person repeated measures for wives and husbands and the upper level represents between couple variability across wives and husbands [31]. The intercept and slope of time were permitted to vary between and within couples. The model also allowed for correlated errors between wives and husbands within a given wave using a heterogeneous compound symmetry error structure (CSH). In this study, actor effects represent the influence of wives' and husbands' own pain intensity on their own depressive symptoms (e.g., wives' pain intensity predicting their own depressive symptoms). Partner effects represent the influence of each spouse's pain intensity on his or her partner's depressive symptoms (e.g., wives' pain intensity predicting husbands' depressive symptoms). We determined the links between baseline pain intensity and levels of depressive symptoms, as well as the effects of baseline pain intensity on change in depressive symptoms across time. Waves represented time, which was centered at baseline. There were two years in between each wave. Predictors included pain intensity (of the actor and partner), time, and two interaction terms (Actor Pain Intensity X Time; Partner Intensity X Time) which were included to test whether own and partner baseline pain intensity were linked to increases in depressive symptoms across waves. Covariates included age, education, minority status, marital duration, negative marital quality, self-rated health, total number of chronic health conditions, and disability status.

To evaluate actor and partner effects for each spouse in the couple, we estimated separate intercepts and slopes for wives and husbands using spouse gender (1 = wife, −1 = husband) as a distinguishing variable [31]. Continuous predictors and covariates were grand mean centered and binary variables were effect coded (i.e., 1, −1) so that parameter estimates represent the deviation of each level of the variable from the grand mean of depressive symptom scores [31]. We assessed whether there was a significant difference between the fit of the full model (with predictors and covariates) relative to a covariate-only model by subtracting the −2 log likelihood estimations of these models and examining differences on a chi-square distribution with degrees of freedom equaling the change in number of model parameters [68].

## Results

We performed paired $t$ tests in preliminary analyses to examine differences between wives and husbands in major variables at baseline. Wives reported higher pain intensity ($t(962)$ = 3.42, $p < .001$) and greater depressive symptoms ($t(962)$ = 3.78, $p < .001$) relative to their husbands. Spouses' reports were positively correlated for pain intensity ($r = .11$, $p = .001$)

and depressive symptoms ($r = .13$, $p < .001$). A total of 132 wives (13.7%) and 112 husbands (11.6%) reported being bothered by pain at all five waves.

Clinically significant pain was common in the sample. A total of 218 wives (22.6%) and 166 (17.2%) husbands reported clinically significant pain at baseline, and a total of 486 wives (50.5%) and 390 husbands (40.5%) reported clinically significant pain at least once across the waves. Clinically significant depressive symptoms were also relatively prevalent, with such symptoms reported by 83 wives (8.6%) and 52 husbands (5.4%) at baseline and by 218 wives (22.6%) and 149 husbands (15.5%) in at least one study wave.

### Effects of Own and Partner Pain Intensity on Wives' and Husbands' Depressive Symptoms

Table 2 shows that the fit of the full model was significantly better than the covariate-only model ($\chi^2$ (4) = 62.47, $p < .001$), demonstrating that own and partner reports of pain intensity accounted for a significantly greater amount of variance in depressive symptoms relative to the covariates. Unstandardized coefficients and standardized betas are presented from the full model.

**Wives' depressive symptoms**—As shown in Table 2, wives' greater baseline pain intensity was significantly associated with their own higher levels of depressive symptoms ($B = .26$, $\beta = .19$, $p < .001$). Husbands' pain intensity at baseline, however, was unrelated to the level of wives' depressive symptoms.

As presented in Figure 1, wives with greater baseline pain intensity showed decreases in depressive symptoms over time ($B = -.02$, $\beta = -.01$, $p = .03$). By contrast, Figure 2 shows that when husbands reported greater pain intensity at baseline, wives demonstrated increased depressive symptoms across waves ($B = .02$, $\beta = .01$, $p = .01$).

**Husbands' depressive symptoms**—Table 2 shows that husbands' greater pain intensity at baseline was significantly linked to their own higher levels of depressive symptoms ($B = .23$, $\beta = .17$, $p < .001$). Wives' greater baseline pain intensity, however, was not linked to husbands' level of depressive symptoms. Likewise, neither wives' nor husbands' reports of greater baseline pain intensity were linked to husbands' changes in depressive symptoms over time.

### Post Hoc Tests

To further test the distinct effects of baseline pain intensity on depressive symptoms across waves, we estimated a separate model controlling for own and partner pain-related activity interference at baseline and whether or not each spouse consistently reported pain at each wave. The pattern of findings from the main analysis did not change, confirming their stability.

We then tested whether the associations between wives' and husbands' own pain intensity at baseline and depressive symptoms varied by their partner's pain intensity at baseline. We estimated a model that included two actor-partner interaction terms (Actor Pain Intensity X Partner Pain Intensity; Actor Pain Intensity X Partner Pain Intensity X Time). Neither of these interaction effects was significant for wives or husbands, suggesting that individual

associations between pain intensity and depressive symptoms did not vary by partner reports of pain intensity.

To consider bidirectional associations between pain intensity and depressive symptoms within couples, we estimated models with own and partner baseline depressive symptoms predicting pain intensity across waves. For wives and husbands, their own greater depressive symptoms ($B = .10$, $\beta = .21$, $p < .001$ and $B = .06$, $\beta = .17$, $p < .001$, respectively) at baseline were significantly associated with their own higher levels of pain intensity. Partners' baseline depressive symptoms were not associated with levels of pain intensity for wives or husbands. Similarly, among wives and husbands, neither own nor partner reports of depressive symptoms at baseline were associated with changes in pain intensity over time.

## Discussion

This study provides evidence that bothersome pain has significant implications for the psychological well-being of older married couples. We build upon prior research by examining dyadic associations between pain intensity and depressive symptoms over an 8-year period in a population-based sample of wives and husbands aged 50 and older. The present findings demonstrate that pain intensity has robust associations with depressive symptoms in aging couples, independent of the variance explained by marital quality and multiple health indictors. Remarkably, these links remained even after controlling for own and partner reports of pain-related activity interference and whether bothersome pain occurred across all five waves, suggesting that pain intensity has a unique and enduring impact on symptoms of depression in older couples. Moreover, whereas own and partner reports of pain intensity were linked to changes in wives' depressive symptoms, depressive symptoms within the couple did not predict changes in pain intensity. This implies that pain intensity may have greater effects on depressive symptoms than vice versa. As a whole, the findings are in line with interdependence theory [62] and prior studies highlighting strong mutual health-related influences in later life marriages [3,11,24,47,54,59,67].

For both wives and husbands, their own greater baseline pain intensity was significantly associated with their own higher levels of depressive symptoms. These findings are consistent with research showing that pain and depression frequently co-occur in later life [25,26]. Post hoc tests revealed that these associations did not vary by partner reports of pain intensity. Thus, contrary to prior work suggesting that partners' shared experience of pain may mitigate the negative impact of pain intensity on their psychological well-being [17,27], the current findings indicate that associations between one's own greater pain intensity and elevated depressive symptoms persists despite the level of pain experienced by one's partner.

Counter to previous research [4,61], wives and husbands with higher baseline pain intensity did not show increased depressive symptoms over time. Most work, however, has focused on specific illness populations or patients with severe chronic pain [61]. Furthermore, prior longitudinal studies have examined the links between pain intensity and depressive symptoms across a relatively short period (e.g., 3 or 6 months) [4]. One's own greater pain intensity, therefore, may only be linked to increasing depressive symptoms in clinical samples and over a shorter time frame.

Unexpectedly, wives reporting higher pain intensity at baseline showed decreases in depressive symptoms across waves. One possible explanation is that more intense pain may predispose the development of greater resilience among older married women that restores their mental health over time [72]. Prior work has found that women are generally more resilient than men in later life [20,50], which may be partly attributed to their stronger ability to maintain social connections and community involvement [33,35]. This pattern of findings was not observed for husbands, raising the possibility that married men who report high pain intensity in later life may tend to experience sustained levels of elevated depressive symptoms as they age.

Over and above the effects of their own pain intensity, wives reported increases in depressive symptoms when their husband had more intense pain at baseline. By contrast, this cross-partner effect was not observed for husbands. There are at least three plausible reasons for these findings. First, partners' pain may elicit greater psychological distress for wives than for husbands because wives express higher levels of empathy and emotional contagion in response to their partner's suffering [19,49]. Second, compared with husbands, wives may be more aware of their spouse's pain and related functional impairment. Supporting this possibility, research suggests that women may be more accurate than men regarding perceptions of their partner's pain and physical disability [8,12]. Third, wives tend to be more involved with providing caregiving support to their ill or disabled partners [48,74]. Husbands who have greater pain intensity are likely to show worsening health over time. This may coincide with wives' increased caregiving, which can ultimately erode their well-being. Indeed, relative to caregiving husbands, caregiving wives typically provide more hours of spousal care, engage in a greater number of direct care tasks (e.g., bathing, dressing), receive less care-related support from family members, and report higher levels of depressive symptoms [55]. Taken together, this study indicates that partners' pain may have harmful consequences for wives' long-term mental health.

It is important to acknowledge several limitations of this work as well as key directions for subsequent research. First, in line with other population-based studies [79], wives and husbands reported low levels of pain intensity on average. This limits generalizability to couples in which one or both partners has severe chronic pain or a specific pain condition (e.g., knee osteoarthritis). Second, although our available measure of pain intensity is commonly used in survey research [21,22], it is a single item scale with a limited response range. Third, we focused on a sample of consistently married heterosexual couples. Consequently, the findings may not generalize to other types of couples, such as same-sex spouses, cohabiting partners, or those who eventually divorce. Finally, most couples in this study were non-Hispanic White and middle class. Future studies should attempt to replicate and extend the present findings in samples of more sociodemographically diverse couples, which would further elucidate understanding of the long-term associations between pain intensity and depressive symptoms in the broader population.

Future work should also investigate more proximal mechanisms that may partly explain the present findings. Husbands' deteriorating health and functioning due to severe pain, for example, may restrict the couple's shared engagement in valued social events, physical activity and exercise, and other leisure activities [9]. This change in marital routines may

reduce sources of positive reinforcement for wives and increase caregiver burden, thereby contributing to greater depressive symptoms [47,51]. Additionally, husbands' pain could lead to marital problems that heighten wives' psychological distress. Pain behaviors are reciprocally related to aversive spousal interactions, which can result in marital conflict, diminished emotional closeness and intimacy, and the eventual erosion of partner support [37,60]. People with severe pain also commonly withdraw from their marriage and other important social ties in ways that may strain these relationships and amplify the emotional consequences of pain [73]. This may be especially likely for older married men with chronic pain because husbands tend to engage in withdrawal behaviors (e.g., disengaging from discussions with one's spouse) more often than their wives into the later years of marriage [23]. The consideration of such short-term marital processes would be valuable in the development of targeted interventions for older individuals and couples managing chronic pain.

Given that most older adults in the US are married and living with their spouses [77], this study has critical implications for policymakers and clinicians working with people who may vulnerable to poor mental health linked to their own or their partner's pain. Primary care patients with comorbid pain and depression frequently report only somatic complaints [2]. As a consequence, depression may be underdiagnosed with the presence of pain in routine practice [42]. The current study indicates that regular screenings for depressive symptoms in the long-term care of older chronic pain patients may be warranted, with the awareness that pain is often more strongly linked to somatic symptoms than cognitive symptoms of depression [34,75]. Nearly one-quarter of wives reported clinically significant depressive symptoms at one or more waves, and so providing regular depression screenings to wives of aging men with chronic pain may be particularly beneficial. Along with preserving their own well-being, proactive attention to maintaining the mental health of these wives may support their ability to provide quality caregiving as their partner's functioning declines.

Lastly, the present findings underscore the importance of spousal involvement in the ongoing treatment and management of chronic pain, which may benefit patients and their partners. Recent work suggests that brief motivational therapeutic assessment and tailored feedback of the couple's relationship and coping may lower patients' pain intensity and improve their own and their spouse's mood and perceptions of marital quality [44,45]. Likewise, couple-based interventions have shown considerable promise in improving patients' pain along with the psychological well-being and marital satisfaction of patients and spouses [7,13,39]. Spouse-assisted training in pain coping skills, for example, may reduce patients' fear of movement and rumination about pain [1] as well as improve their physical fitness and strength [30]. Spouses report elevated depressive symptoms when patients are physically inactive because of pain or related symptoms [47], and so such improvements could contribute to lasting benefits for the couple. In addition to these advantages, including spouses in the treatment of chronic pain in later life could help in sustaining independence and quality of life for both older adults.

To summarize, this study demonstrates that higher pain intensity may place aging adults and their partners at risk of elevated depressive symptoms. The findings suggest that older

women may be highly susceptible to the negative mental health consequences of their spouse's chronic pain. Additional work is needed to determine comprehensive healthcare policies and treatment strategies that more fully address the complex long-term needs of couples coping with pain in middle and later life.

## Acknowledgments

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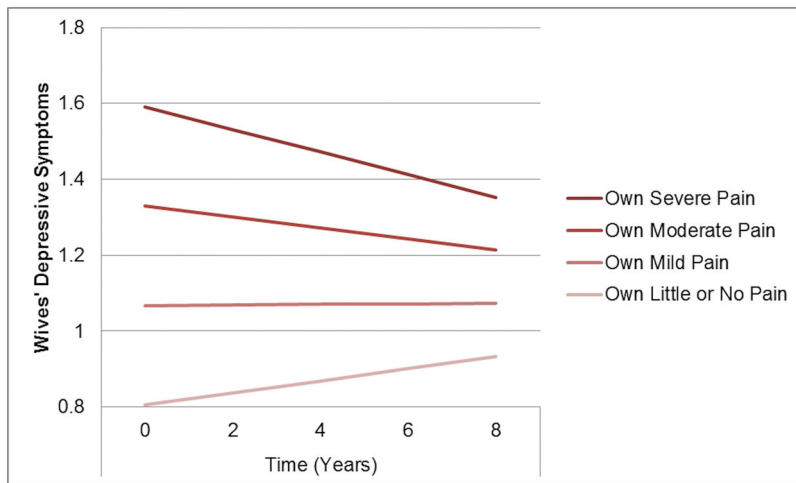
**Fig. 1.**
The significant effect of wives' own pain intensity on their own depressive symptoms over time. Growth trajectories of depressive symptoms (possible range = 0 – 8) were plotted using estimated marginal means for wives with little or no pain, mild pain, moderate pain, and severe pain at baseline (controlling for partner pain intensity and all covariates).
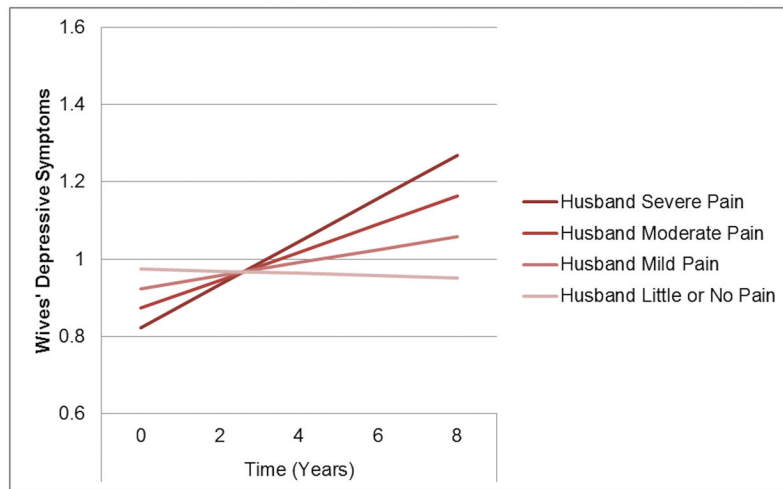
**Fig. 2.**
The significant effect of husbands' pain intensity on wives' depressive symptoms over time. Growth trajectories of depressive symptoms (possible range = 0 – 8) were plotted using estimated marginal means for wives of husbands with little or no pain, mild pain, moderate pain, and severe pain at baseline (controlling for own pain intensity and all covariates).

**Table 1**

Baseline Characteristics and Key Variables for Wives and Husbands

| Characteristic | Wives | | Husbands | |
|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* |
| Age | 63.04 | 7.67 | 66.02 | 7.78 |
| Education in years | 13.30 | 2.53 | 13.48 | 2.87 |
| Pain intensity | 0.61 | 0.92 | 0.48 | 0.83 |
| Self-rated health | 3.57 | 0.96 | 3.51 | 0.97 |
| Total health conditions | 1.62 | 1.15 | 1.70 | 1.23 |
| Depressive symptoms | 1.02 | 1.63 | 0.78 | 1.36 |
| Negative marital quality | 1.96 | 0.63 | 1.88 | 0.59 |
| Number of living children | 3.16 | 1.90 | 3.16 | 1.90 |
| | Proportions | | | |
| Minority status[a] | .09 | | .09 | |
| Works for pay | .45 | | .50 | |
| Disability status[b] | .07 | | .07 | |
| Pain-related activity interference[c] | .19 | | .14 | |
| Clinically significant pain[d] | .23 | | .17 | |
| Clinically significant depressive symptoms[e] | .09 | | .05 | |

*Note.*

[a] 1 = racial/ethnic minority, −1 = non-Hispanic White.

[b] 1 = has difficulty with one or more activities of daily living (ADLs), −1 = does not have difficulty with ADLs.

[c] 1 = has pain-related activity interference, −1 = does not have pain-related activity interference.

[d] 1 = moderate or severe pain, −1 = no or mild pain.

[e] 1 = reported clinically significant depressive symptoms, −1 = did not report clinically significant depressive symptoms.

*N* = 963 married couples.

**Table 2**

Dyadic Growth Curve Models Estimating the Effects of Pain Intensity on Depressive Symptoms for Wives and Husbands

| Parameter | Wives' Depressive Symptoms | | | Husbands' Depressive Symptoms | | |
|---|---|---|---|---|---|---|
| | B | SE | β | B | SE | β |
| Intercept | 1.18 *** | .10 | | 1.10 *** | .07 | .07 |
| Time | .01 | .01 | .01 | .01 | .01 | .01 |
| Actor Pain intensity | .26 *** | .05 | .19 | .23 *** | .05 | .17 |
| Partner Pain intensity | −.05 | .05 | −.04 | .07 | .04 | .05 |
| Actor Pain intensity X Time | −.02 * | .01 | −.01 | −.01 | .01 | −.01 |
| Partner Pain intensity X Time | .02 ** | .01 | .01 | −.001 | .01 | −.001 |
| −2 Log Likelihood | | 62.47 *** | | | | |
| Covariates | | | | | | |
| Age | −.01 * | .01 | −.01 | −.01 | .01 | −.01 |
| Minority status | −.03 | .06 | −.02 | .01 | .05 | .01 |
| Education in years | −.06 *** | .02 | −.04 | −.05 *** | .01 | −.04 |
| Self-rated health | −.38 *** | .05 | −.27 | −.24 *** | .04 | −.17 |
| Total health conditions | −.003 | .04 | −.002 | .09 ** | .03 | .07 |
| Disability status | .30 *** | .08 | .22 | .34 *** | .06 | .25 |
| Marital duration in years | −.01 | .003 | −.01 | −.01 * | .003 | −.01 |
| Negative marital quality | .38 *** | .06 | .27 | .31 *** | .05 | .22 |

*Note.* Change in −2 log likelihood for the full model (31,106.83) is based on comparison with a covariate-only model (31,169.30). Estimates are presented from the full model.

$N$ = 963 married couples.

*
$p$ .05.

**
$p$ .01.

***
$p$ .001.