Article

Integrating models of marital functioning to understand the mental health consequences of the Great Recession

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Abstract

It is well established that negative financial events during macroeconomic crises have a significant impact on individuals' mental health. Much less is known about how and for whom economic crises impact mental health. Using data from the Midlife in the United States study, we examine the mental health impact of the Great Recession in the U.S. Drawing on predictions from the Vulnerability-Stress-Adaptation Model of Marriage and the Family Stress Model, we examined whether increases in marital disagreements mediated the link between recession adversities (e.g., unemployment, increased debt, loss of a home) and mental health following the recession (2013–2014), controlling for prerecession marital disagreements and mental health (2004–2006). We found that those who experienced a greater number of recession adversities showed increased marital disagreements following the Great Recession, which were in turn associated with poorer mental health (negative affect and affective disorder). These associations held after controlling for prerecession levels of gender, age, race, and education. Further-more, those who had lower income before the recession experienced greater increases in negative affect following the recession. These findings highlight the importance of marital processes in how the Great Recession is linked to mental health.

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Macroeconomic crises may adversely affect not only financial but also psychological well-being. Numerous studies, using both individual-level and country-level data, have shown that such economic adversities contribute to poor mental health (see Goldman-Mellor et al., 2010 for a review). Specifically, negative economic transitions including changes in employment status or income level, which are common during macro-economic crises, predict greater anxiety and depression (e.g., Breslin & Mustard, 2003; Goldman-Mellor et al., 2010; Thomas et al., 2005) and increases in stress (e.g., Deaton, 2012). A meta-analysis of 237 cross-sectional and 87 longitudinal studies examining the link between unemployment and mental health found that unemployed (vs. employed) individuals experienced more distress with an average overall effect size of $d = .51$ (Paul & Moser, 2009). Thus, it is well-known that negative financial experiences during macroeconomic crises can have a significant impact on individuals' mental health. Much less is known about the underlying mechanisms by which such crises are linked to mental health and who may be at increased mental health risk. The present research aimed to address this gap by drawing on models of marital processes to understand the psychological consequences of the Great Recession.

The 2008 financial crisis, or the Great Recession in the U.S., was the latest global macroeconomic crisis in history and one of the worst economic downturns since the Great Depression. Starting with the crash of housing prices and then rapidly developing into a global financial crisis, the recession had negative effects on the U.S. population. For example, the number of mass layoff events nearly doubled and the unemployment rate more than doubled from 4.5% in the first quarter of 2007 to 9.9% in the last quarter of 2009 (U.S. Bureau of Labor Statistics, 2017). The average duration of unemployment also rose steadily for several years after the crisis. The slow recovery made the Great Recession one of the longest macroeconomic crises, lasting through at least 2012 (Schneider, 2017). Major stressors experienced during this period such as job loss, steep drops in wealth, increased debt, or loss of a home led to a significant increase in mental health problems (Forbes & Krueger, 2019). After the onset of the crisis, the prevalence of depression, anxiety, and hospital visits for mental health conditions increased in the U.S. (Currie & Tekin, 2015). Similar effects were observed across many countries including Greece, Spain, and Hong Kong during this global economic downturn (Economou et al., 2013; Gili et al., 2012; Lee et al., 2010).

What explains the mental health impact of the Great Recession? A growing literature has identified marital quality as a potential pathway linking economic declines to mental health (Catalano et al., 1987; Dooley et al., 1996), yet precisely how the interplay between economic adversities and marital functioning unfolds remains unclear (Catalano et al., 2011). The close relationships literature may contribute to filling this gap with its long tradition of theorizing on how couples cope with stress, which couples are more susceptible to the effects of stress, and how couple functioning affects health and well-being. In the present article, we used data from a national sample of adults to examine the

relations between financial adversities, marital disagreements, and mental health following the Great Recession. We tested the hypothesis that marital disagreements would mediate the effect of financial adversities on mental health. We further aimed to examine whether these associations were more pronounced for lower-income individuals who might be more vulnerable to unfavorable changes in their relationships and mental health during financial adversities. Identifying how and for whom recession downturns affect health may help develop interventions that prevent or mitigate the mental health impact of economic recessions and crises.

Economic crises, marriage, and mental health

We drew upon two comprehensive models of marital processes to understand the psychological consequences of the Great Recession. According to the *Vulnerability-Stress-Adaptation Model* (Karney & Bradbury, 1995), stressors outside the marriage have the potential to deteriorate couples' relationships over time by decreasing the quality of how partners communicate with and respond to each other and by increasing the probability of experiencing tension and disagreements (Karney & Bradbury, 1995). *The Family Stress Model* (Conger et al., 1990) places particular emphasis on economic crises as outside stressors and their adverse effects on families. This model originated from work investigating how a specific macroeconomic crisis—the 1980s farm crisis—predicted family functioning (Conger & Elder, 1994). Numerous subsequent investigations have shown that economic pressures induced by the crisis were linked to decreases in the quality of marital communication and increases in disagreements and conflicts (see Masarik & Conger, 2017 for a recent review).

When a couple is affected by a macroeconomic crisis, disagreements very likely involve financial issues. For example, in an early study that influenced the Family Stress Model, Liker and Elder (1983) found that couples who experienced sharp declines in income during the Great Depression were more likely to report financial disagreements in their marriage. Later tests of the model found that although financial disagreements were more problematic and persistent than nonmonetary ones; disagreements in household chores and leisure time were at least as frequent as financial disagreements (Papp et al., 2009). Moreover, outside stressors were found to significantly hamper partners' ability to contribute to household chores (Pittman et al., 2001) and leisure time activities (Crouter et al., 1989). Indeed, a more recent elaboration of the Vulnerability-Stress-Adaptation Model (Karney & Neff, 2013) proposes that time spent on household chores and leisure activities are critical mediators linking outside stressors to marital quality. Thus, one effect of the Great Recession on couples may be augmenting disagreements on the use of money, sharing household tasks, and planning leisure time activities.

Such marital disagreements might in turn predict worse mental health. According to the Family Stress Model, a downstream consequence of marital disagreements due to financial hardships is deterioration in well-being and health. Although this model has traditionally focused on offspring well-being and adjustment (Masarik & Conger, 2017), it also recognizes that increased marital disagreements fueled by financial difficulties have implications for well-being of spouses (Conger & Elder, 1994). The Vulnerability-
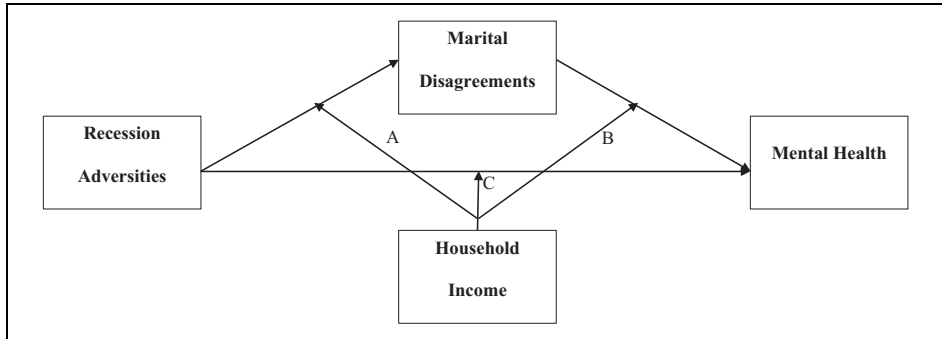
Figure 1. Conceptual moderated mediation model. Paths A, B, and C refer to the different moderation processes examined in the present study.

Stress-Adaptation Model also notes that changes in marital quality may influence mental health (Karney & Bradbury, 1995). Supporting these arguments, a recent study informed by these theories, demonstrated that economic hardship predicted increases in partners' depressive symptoms via negative couple interactions (Wickrama et al., 2018). This finding is also in line with the well-replicated cross-sectional and longitudinal evidence that marital processes are key predictors of health and well-being (Proulx et al., 2007; Selcuk et al., 2016; Slatcher & Selcuk, 2017; Stanton et al., 2019; Tasfiliz et al., 2018). Therefore, based on past theorizing and empirical work on marital relationships, we hypothesized that one mechanism by which the Great Recession is linked to lower mental health is through marital disagreements on issues central to couples' daily lives (including financial decisions, household chores, and leisure time activities).

Which couples are at greater risk for mental health problems following the Great Recession? The Vulnerability-Stress-Adaptation Model recognizes that there is variation in couples' susceptibility to the effects of outside stress (Karney & Bradbury, 1995). The same stressor may affect two couples differently depending on their resources and ability to cope with stress. The model postulates that pre-existing vulnerabilities may interact with stressful events to predict marital interactions. An important finding emerging from this conceptualization is that stressful life events may have a stronger effect on marriages of individuals who are already experiencing chronic stress (Rauer et al., 2008). The Family Stress Model also recognizes that such risk factors can exacerbate the stress process and some couples may be affected more severely by economic adversities (Masarik & Conger, 2017). A major source of chronic stress relevant to macroeconomic crises is having low income prior to the crisis. Therefore, we predicted that low-income individuals would be more vulnerable to the negative effects of recession adversities as compared to their relatively higher-income counterparts. We considered multiple ways in which pre-existing economic vulnerabilities may operate (see Figure 1). Compared to higher-income individuals, low-income individuals may experience greater increases in marital disagreements (path A), marital disagreements may be more disruptive for their mental health (path B), or recession adversities may be more strongly linked to their mental health (path C).

The present study

We tested our predictions in a large life span sample of married adults ($N = 1,478$) residing in the U.S. The current research contributes to our understanding of the impact of the Great Recession on mental health in several important ways. First, because mental health difficulties and marital problems may be key pre-existing factors affecting reactions to the recession, we controlled for levels of mental health and marital disagreements before the crisis occurred. Second, to date, the bulk of studies have focused on unemployment during the recession. While macroeconomic crises inevitably lead to greater unemployment, they lead to many other economic stressors which may have implications for mental health (McInerney et al., 2013). To address this issue, we examined a wide range of recession-related experiences such as losing a job, losing a home, missing payments, default on debts, and cutting back on spending. In analyzing the effects of these experiences, we followed a cumulative risk approach (e.g., Appleyard et al., 2005), which posits that accumulation of negative events, regardless of whether certain events occurred or not, would impact mental health. In exploratory analyses, we also took into account the severity of each recession event to see whether the results would remain the same. Third, we examined increases in marital disagreements as a potential mechanism for the recession-mental health link, furthering our understanding of *how* recession experiences affect mental health. Fourth, the large sample size also allowed us to test whether these associations were stronger for individuals with lower household income, contributing to our understanding of *who* experiences poorer mental health with more recession-related adversities. Finally, given prior findings showing that age, gender, education, and ethnicity are all linked to vulnerability to the effects of economic crises (U.S. Census Bureau, 2011; World Health Organization, 2011), we repeated our analyses controlling for these demographic factors.

Method

Sample

The present study used data from the Midlife in the United States (MIDUS) project, a three-wave survey of adults aged 25–74 ($N = 7,108$). The project was commenced in 1994–1995 to examine changes in psychological and physical well-being in relation to aging. We used data from the second wave (2004–2006), which was completed before the recession, and the third wave (2013–2014), which was completed after the recession.

Participants completed phone interviews, followed by self-administered questionnaires in both waves. Of the individuals who initially participated in MIDUS I, 4,963 completed MIDUS II, and 3,294 completed MIDUS III. Among those who completed both waves, 2,210 were married at MIDUS III. Since our hypothesis focused on changes in marital disagreements from prerecession to postrecession, we identified participants who remained within the same marriage across MIDUS II and III using questions from the phone interviews. In line with previous work (Selcuk et al., 2016; Stanton et al., 2019), participants were classified as remaining in the same marriage if the number of marriages reported in MIDUS III was equal to that in MIDUS II, or the date of current marriage was the same in both waves, or the date of current marriage reported in MIDUS

III was before MIDUS II, or the participant reported having only one marriage. This resulted in 2072 (of 2210) participants who remained in the same marriage across the two waves. Among these individuals, 389 did not complete measures assessing their marriage (including marital disagreements) in the self-administered questionnaire and 11 stated these questions did not apply to them (i.e., their marriage may have ended sometime between the phone interview and the self-administered questionnaire). Of the remaining 1,672 respondents, 1,478 had complete data on all measures and constituted the final analytical sample.[1] Of the respondents in the final sample, 49.1% were female and 50.9% male; 94.9% were White and 5.1% from other racial backgrounds; 72.5% had some college education or more and 27.5% had high school education or less. Respondents were aged between 33 and 83 at MIDUS II ($M = 54.34$) and between 42 and 92 at MIDUS III ($M = 63.44$).

Complete data and documentation for the MIDUS project are publicly available at the Inter-University Consortium for Political and Social Research website (icpsr. umich.edu).

Measures

Recession adversities. Participants were asked in MIDUS III whether they experienced recession-related events since 2008. We identified 20 negative financial events (e.g., "lost a job," "threatened with foreclosure or eviction," "declared bankruptcy," "missed a credit card payment," "cut back on your spending") from which a measure of recession adversities was created. Scores on this measure could range from 0 to 20. A higher score indicated that a participant experienced a higher number of these events. Participants experienced 1,896 recession adversities on average ($SD = 2.131$), and 73.7% of participants experienced at least one of these events.

Mental health. In the light of previous findings in the economy-health literature (Goldman-Mellor et al., 2010), we focused on affective disorders (i.e., depression, anhedonia, anxiety) and negative affect as potential mental health outcomes of the recession.

Affective disorder. Participants reported their anxiety, depression, and anhedonia symptoms within the past 12 months on the Composite International Diagnostic Interview-Short Form (CIDI-SF; Kessler et al., 1998). They rated a total of 13 symptoms for depression and anhedonia, and 10 symptoms for anxiety. In line with previous work (Charles et al., 2013), scores were dichotomized based on the *American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition* (DSMIII-R). Participants who met the criteria for depression and anhedonia experienced at least 2 weeks of either depression or anhedonia most of the day on most days in addition to at least four other symptoms. Those who met the criteria for anxiety experienced at least three symptoms on most days. Participants who met the criteria for either of these disorders were scored as 1 and others were scored as 0. Approximately 7% of the participants met the criteria for affective disorders ($N_{\text{MIDUS II}} = 108$, $N_{\text{MIDUS III}} = 102$). The CIDI-SF has shown strong psychometric properties and good agreement with

both the full CIDI and the Structured Clinical Interview for DSMIII-R (Kessler et al., 1998).

Negative affect. Participants were presented with 11 negative affect adjectives (e.g., "jittery" and "upset") and asked to rate the extent to which they experienced those feelings in the past month on a 5-point scale (1 = *all of the time*, 5 = *none of the time*). Ratings were reverse-coded and then averaged such that higher scores indicated greater negative affect. The α was .88 in MIDUS II and .89 in MIDUS III.

Marital disagreements. Participants were presented with 3 items measuring how much they disagreed with their spouse on (1) money matters, (2) household tasks, and (3) leisure time activities (1 = *a lot*, 4 = *not at all*; Grzywacz & Marks, 2000). Items were reverse-coded so that higher scores reflected greater disagreement. The scale was constructed by calculating the sum of the values of the items. The α was .71 in MIDUS II and .73 in MIDUS III.

Household income. Participants reported income across different sources (e.g., earned income, pension income, social security income) and different household members (e.g., personal, spousal) at the MIDUS II phone interview. Total household income was calculated by summing all income across all sources and household members. To reduce the effect of outliers, respondents with more than US$300,000 of annual household income were capped at US$300,000. Annual household income ranged from US$0 to US$300,000 (M = US$89,069.86, SD = 63,280.62).

Demographic covariates. Participants reported their age, gender (0 = female, 1 = male), education level (0 = high school or less, 1 = some college or more), and race (0 = White, 1 = non-White) at the MIDUS II phone interview.

Analytical strategy

We first performed a mediation model (Model 1) testing whether recession adversities were associated with declines in MIDUS III mental health through increased MIDUS III marital disagreements, after controlling for initial (MIDUS II) levels of mental health and marital disagreements. Next, we performed a moderated mediation model (Model 2) examining whether any of the associations in the mediation model depended on MIDUS II household income (see Figure 1). We also repeated all analyses controlling for demographic covariates (i.e., age, gender, education, and race). We ran the analyses separately for negative affect and affective disorder. OLS regression was used in analyses with marital disagreements and negative affect as the outcome and logistic regression was used in analyses with affective disorder as the outcome. Confidence intervals for indirect associations (IAs) were estimated using bootstrapping (5,000 bootstrap samples; Preacher & Hayes, 2008). All continuous variables were standardized in the full MIDUS sample prior to the analyses. Zero-order and partial correlations (controlling for demographic covariates) among study variables are presented in Table 1. We performed all models using the PROCESS macro (Hayes, 2018) in SPSS Version 26.

Table 1. Correlations between study variables.

	1	2	3	4	5	6	7	8
1. Recession adversities	—	.098***	.119***	.136***	.189***	.134***	.160***	−.096***
2. Affective disorder M2	.116***	—	.207***	.358***	.237***	.064*	.027	−.031
3. Affective disorder M3	.136***	.221***	—	.235***	.312***	.018	.075**	−.052*
4. Negative affect M2	.176***	.368***	.248***	—	.557***	.205***	.193***	−.035
5. Negative affect M3	.211***	.245***	.317***	.567***	—	.141***	.223***	−.072**
6. Marital disagreements M2	.157***	.066*	.020	.217***	.149***	—	.475***	.013
7. Marital disagreements M3	.182***	.029	.076**	.205***	.228***	.488***	—	−.023
8. Household income M2	−.050	−.030	−.044	−.018	−.063**	.050	.017	—

Note. M2 = MIDUS II; M3 = MIDUS III; MIDUS = Midlife in the United States Zero-order correlations are under the diagonal and partial correlations are above the diagonal. Age, gender, race, and education are controlled in partial correlations.
*p < .05; **p < .01; ***p < .001.

Results

Model 1: Direct and indirect associations of recession experiences with mental health

Controlling for mental health, marital disagreements, and household income prior to the recession, we found that experiencing a greater number of recession adversities was associated with higher odds of reporting an affective disorder after the recession (B = .401, standard error [SE] = .104, 95% confidence interval [CI] [.198, .605], OR = 1.493, p < .001) and greater negative affect (B = .106, SE = .023, 95% CI [.061, .152], p < .001). Greater number of recession adversities was also associated with more marital disagreements in both the affective disorder (B = .129, SE = .027, 95% CI [.076, .182], p < .001) and the negative affect (B = .112, SE = .027, 95% CI [.059, .165], p < .001) models. Marital disagreements, in turn, were associated with higher odds of having affective disorder (B = .302, SE = .118, 95% CI [.070, .533], OR = 1.353, p = .011) and greater negative affect (B = .110, SE = .022, 95% CI [.066, .153], p < .001). Notably, IAs were found via marital disagreements between recession adversities and both indicators of mental health (IA = .039, 95% CI [.006, .081] for affective disorder and IA = .012, 95% CI [.006, .023] for negative affect).

When we controlled for demographic covariates in the model, the pattern of findings remained the same: Recession adversities were associated with higher odds of reporting

Table 2. Moderated mediation model (Model 2) for affective disorder without covariates

	B	SE	OR	95% CI (B)
Step 1—Outcome: Marital disagreements (M3)				
Affective disorder (M2)	−0.057	.085		[−0.224, 0.109]
Recession adversities	0.136***	.029		[0.079, 0.192]
Marital disagreements (M2)	0.499***	.024		[0.452, 0.547]
Income (M2)	−0.006	.085		[−0.224, 0.109]
Recession Adversities × Income (M2)	−0.017	.024		[−0.063, 0.029]
Step 2—Outcome: Affect disorder (M3)				
Affective disorder (M2)	1.773***	.257	5.888	[1.270, 2.276]
Recession adversities	0.414***	.108	1.513	[0.203, 0.625]
Marital disagreements (M2)	−0.201	.133	0.818	[−0.462, 0.060]
Marital disagreements (M3)	0.307**	.119	1.359	[0.074, 0.540]
Income (M2)	−0.147	.117	0.863	[−0.377, 0.083]
Marital Disagreements (M3) × Income (M2)	−0.036	.114	0.965	[−0.261, 0.188]
Recession Adversities × Income (M2)	−0.036	.102	0.965	[−0.236, 0.163]

Note. M2 = MIDUS II; M3 = MIDUS III; MIDUS = Midlife in the United States; CI = confidence interval; SE = standard error. All continuous variables were standardized. Higher scores in continuous variables reflect higher standing on the variable. Results of the model with covariates is in Online Supplemental Table S1.
*$p < .05$; **$p < .01$; ***$p < .001$.

an affective disorder ($B = .352$, $SE = .109$, 95% CI [.139, .565], OR = 1.422, $p = .001$) and greater negative affect ($B = .109$, $SE = .024$, 95% CI [.062, .155], $p < .001$). Moreover, recession adversities were also indirectly linked with mental health through marital disagreements (IA = .036, 95% CI [.007, .077] for affective disorder and IA = .012, 95% CI [.005, .022] for negative affect). Thus, those who experienced a greater number of recession adversities had increased marital disagreements, which in turn predicted poorer mental health than before the recession.[2]

Model 2: Moderating role of household income

Next, using a moderated mediation model (Figure 1), we examined whether the associations found in Model 1 were stronger for individuals who had lower household income before the recession. Having lower income did not significantly change the direct association of recession adversities with affective disorder in either unadjusted (Table 2) or adjusted models (see Online Supplemental Table S1). However, the direct association between recession adversities and negative affect was moderated by household income in both the unadjusted (Table 3) and adjusted models (see Online Supplemental Table S2). As shown in Table 4, recession adversities were more strongly associated with greater negative affect for individuals who had lower prerecession household income (1 *SD* below mean) compared to their prerecession high-income (1 *SD* above mean) counterparts (for the adjusted results, see Online Supplemental Table S3). We also probed this interaction effect with a Johnson–Neyman analysis, which identifies the cutoff value(s) for the moderator where the association between the predictor and the outcome becomes significant (Preacher et al., 2007). This analysis showed that

Table 3. Moderated mediation model (Model 2) for negative affect without covariates

	B	SE	95% CI (B)
Step 1—Outcome: Marital disagreements (M3)			
Negative affect (M2)	.105***	.027	[.052, .158]
Recession adversities	.118***	.029	[.062, .174]
Marital disagreements (M2)	.480***	.025	[.431, .528]
Income (M2)	−.004	.022	[−.047, .039]
Recession Adversities × Income (M2)	−.016	.023	[−.062, .030]
Step 2—Outcome: Negative affect (M3)			
Negative affect (M2)	.565***	.023	[.519, .610]
Recession adversities	.123***	.025	[.075, .171]
Marital disagreements (M2)	−.037	.023	[−.083, .009]
Marital disagreements (M3)	.105***	.023	[.060, .149]
Income (M2)	−.052**	.019	[−.088, −.016]
Marital Disagreements (M3) × Income (M2)	.017	.019	[−.020, .053]
Recession Adversities × Income (M2)	−.044*	.020	[−.083, −.009]

Note. M2 = MIDUS II; M3 = MIDUS III; MIDUS = Midlife in the United States; CI = confidence interval; SE = standard error. All continuous variables were standardized. Higher scores in continuous variables reflect higher standing on the variable. Results of the model with covariates are in Online Supplemental Table S2.
*p < .05; **p < .01; ***p < .001.

Table 4. Conditional direct and indirect associations of recession with mental health at different levels of income in the covariate-free model.

	Income level	Affective disorder (M3)			Negative affect (M3)		
		B	SE	95% CI (B)	B	SE	95% CI (B)
Conditional direct associations of recession adversities	Low	.382	.154	[.080, .684]	.156	.033	[.092, .220]
	Middle	.353	.110	[.138, .605]	.110	.023	[.065, .156]
	High	.325	.164	[.003, .646]	.065	.030	[.005, .124]
Conditional IAs through marital disagreements	Low	.045	.026	[.003, .108]	.012	.006	[.003, .028]
	Middle	.036	.018	[.007, .078]	.012	.004	[.006, .023]
	High	.028	.023	[−.005, .088]	.012	.006	[.003, .026]

Note. M3 = MIDUS III; MIDUS = Midlife in the United States; CI = confidence interval; SE = standard error. All continuous variables were standardized. Low-, middle-, and high-income levels correspond to one standard deviation below mean, mean, and one standard deviation above mean, respectively. Only the direct association between recession adversities and negative affect was moderated by household income. Results of the model with covariates are in Online Supplemental Table S3.

individuals who had a total annual household income more than US$178,719.51 before the recession did not experience changes in negative affect as a result of recession adversities (US$178,922.01, for the adjusted model).

Looking at the pathways making up the IAs, however, neither the link between recession adversities and marital disagreements (path A in Figure 1) nor that between marital disagreements and mental health (path B) were moderated by household income. Conditional IAs of recession adversities with mental health through marital

disagreements are provided in Table 4 (for the adjusted results, see Online Supplemental Table S3).

Exploratory analyses addressing severity of recession adversities

According to the cumulative risk approach that guided our main analyses, the burden of stressors on the individual increases in a linear fashion with each additional risk factor. One may argue that this assumption is not warranted because not all risk factors are equally impactful. For example, having increased credit card debt during a financially difficult time may not be as severe as losing one's home. To address this issue, we supplemented our main analyses with those incorporating event severity.

Unfortunately, The MIDUS survey did not include questions assessing severity of recession-related experiences. Therefore, to explore the potential role of severity, we asked 200 respondents through Prolific.co, a crowdsourcing platform, to rate how severe they perceive each recession adversity on a 5-point scale (1 = *not at all severe*, 5 = *extremely severe*). We prescreened participants such that they resided in the U.S. and were within the age range of the MIDUS sample. Ten participants who reported demographics that were inconsistent with their prescreened information were removed from the sample. Mean age of the remaining sample was 53.705 (range: 42–81). Data on severity ratings have been uploaded to the Open Science Framework.[3]

We computed a consensual severity score for each recession event by averaging severity ratings across participants. Using these consensual severity ratings, we computed a weighted total of recession adversities for each participant in the MIDUS sample. This approach allowed us to place more weight on more severely perceived adversities.

Next, we repeated all analyses using the weighted recession adversities variable. The patterns of findings remained unchanged: Respondents with a higher weighted recession adversities score had higher odds of having an affective disorder after the recession ($B = .388$, $SE = .101$, 95% CI [.191, .585], OR = 1.474, $p < .001$) and reported greater negative affect ($B = .107$, $SE = .023$, 95% CI [.061, .153], $p < .001$) in unadjusted models. Greater number of weighted recession adversities was also associated with greater marital disagreements in both the affective disorder ($B = .118$, $SE = .028$, 95% CI [.064, .172], $p < .001$) and the negative affect models ($B = .101$, $SE = .028$, 95% CI [.047, .155], $p < .001$). Marital disagreements were, in turn, associated with higher odds of having an affective disorder ($B = .309$, $SE = .118$, 95% CI [.079, .539], OR = 1.309, $p = .009$) and greater negative affect ($B = .111$, $SE = .022$, 95% CI [.068, .154], $p < .001$). We observed IAs of recession adversities with both affective disorder, IA = .036, 95% CI [.008, .080], and negative affect, IA = .011, 95% CI [.005, .022], through marital disagreements.

When we controlled for demographic covariates in the model, the pattern of findings remained the same: Weighted recession adversities were associated with higher odds of reporting an affective disorder ($B = .313$, $SE = .118$, 95% CI [.083, .544], OR = 1.368, $p = .008$) and greater negative affect ($B = .108$, $SE = .024$, 95% CI [.061, .155], $p < .001$). Moreover, weighted recession adversities were also indirectly linked with mental health through marital disagreements, IA = .033, 95% CI [.007, .073 for affective disorder and IA = .010, 95% CI [.004, .021] for negative affect.

When testing the moderating role of household income, we again found that the direct association between weighted recession adversities and negative affect was moderated by household income in both the unadjusted ($B = -.046$, $SE = .020$, 95% CI [$-.086$, $-.007$], $p = .021$) and adjusted models ($B = -.048$, $SE = .020$, 95% CI [$-.088$, $-.009$], $p = .017$). Weighted recession adversities were associated with greater negative affect for individuals who had lower household income (1 SD below mean) than their high-income (1 SD above mean) counterparts in both the unadjusted (see Online Supplemental Table S4) and the adjusted models (see Online Supplemental Table S5). In sum, results for weighted recession adversities replicated all findings observed using cumulative recession adversities.

Discussion

The Great Recession had important effects on mental health in the U.S. and worldwide (Currie & Tekin, 2015; Economou et al., 2013; Forbes & Krueger, 2019; Gili et al., 2012; Lee et al., 2010). To the best of our knowledge, this is the first study within the context of the Great Recession to examine marital processes as a mechanism linking recession adversities and mental health. Our analyses were informed by the Vulnerability-Stress-Adaptation and Family Stress models, both of which theorize that outside stressors may lead to deterioration in marital communication. Even after controlling for prerecession levels of marital disagreements and mental health, recession adversities were associated with greater marital disagreements, which were in turn associated with poorer mental health. Marital disagreements accounted for 10.2% and 11% of the variability in increases in affective disorder and negative affect (estimated as the ratio of the IA to total association), respectively, from prerecession to postrecession.

An important contribution of the Vulnerability-Stress-Adaptation Model is the recognition that stressful life events may more adversely affect couples who are already experiencing chronic stress. Examining this hypothesis requires testing for interactions between chronic stress and life events. Given that the interaction effects are typically small and call for large samples, there has been only few investigations to date testing this prediction (e.g., Rauer et al., 2008). The current sample size ($N = 1,478$) provided us with a power of 97% to detect as small an increase in R^2 as .01, allowing to test whether individuals who already had lower income before the crisis occurred were affected more negatively by the recession. Indeed, we found that low-income individuals evinced a stronger association between recession-related adversities and negative affect. This finding is in line with previous research showing that adverse effects of recession are moderated by education level, which is another marker of socioeconomic status (Kirsch & Ryff, 2016). However, despite the large sample size, we did not find support for a moderated mediation model: There was no evidence that the size of the IA from recession experiences to mental health via marital disagreements differed across levels of prerecession household income. Although the size of the IA was similar across income levels, the stronger direct association for lower income individuals suggests that there may be social and/or psychological mechanisms other than marital disagreements that make low-income individuals more vulnerable to the effects of macroeconomic crises.

Future work will benefit from exploring through which mechanisms lower income may be a vulnerability factor for poor mental health during major financial stressors.

Of the existing studies investigating effects of financial crises, very few controlled for prerecession marital relationship and mental health (e.g., McInerney et al., 2013). Thus, an important strength of the current study was that we were able to examine mental health and marital disagreements using data from both before and after the financial crisis. This allowed us to rule out the possibility that the observed associations were due to prerecession levels of marital disagreements or mental health. Similarly, using pre-recession income in our analyses ensured that the chronic stress measure (i.e., low income) was not confounded with the acute stress measure (i.e., recession adversities). These features of the study design increase confidence in the pattern of findings observed in the present investigation.

The current study may have implications for interventions and policy. First, our findings indicate that marital relations play a vital role in individuals' mental health during macroeconomic crises. It may be especially important to target marital processes in times of such major stressors. Practitioners may help individuals manage marital disagreements more effectively when couples are facing economic stressors. Second, our findings indicate that lower income is a vulnerability factor for worsened mental health during macroeconomic crises. This may imply that, in line with previous suggestions, antipoverty programs aimed at alleviating financial strain for lower income households may have positive effects for families (Karney et al., 2018). Future work may investigate whether families receiving benefits from such programs experienced the Great Recession differently.

The results of this study are subject to several important limitations. A foremost limitation was that the postrecession data were collected in 2013–2014, 1 to 2 years after macroeconomic recovery (Schneider, 2017). If data were collected in the midst of the crisis, we may have observed stronger associations among recession experiences, marital disagreements, and mental health. Nevertheless, the fact that the associations were evident even after recovery from the crisis shows strong support for the predictions of the Vulnerability-Stress-Adaptation and Family Stress models. Another limitation was that, as we reported in the demographics section, the MIDUS sample is not racially diverse. Therefore, we may not be able to generalize the current findings to non-White individuals. Replication of the current findings using a more racially representative sample will provide stronger evidence for the generalizability of the reported associations. A further limitation was that approximately 19% of participants who were identified to have stayed in the same marriage across MIDUS II and III did not complete questions in MIDUS III assessing their marriage. One possible reason for nonresponse could be experiencing difficulties in marriage. A comparison of these participants with those who were included in our analytical sample showed that this was not the case during the MIDUS II assessment; in fact, respondents in our analytical sample reported on average greater marital disagreements than those who were excluded, $t(1807) = -3.126, p = .002$. Of course, things may have changed across the two assessments such that nonresponses to marriage-related questions in MIDUS III stemmed from marital problems. Similarly, participants who did not complete the MIDUS III self-administered questionnaire at all or who did but decided to not respond to recession items could have

been experiencing greater financial difficulties than those who were involved in our analytical sample. It is impossible to rule these alternative explanations with the data we analyzed.

There were also limitations regarding measurement. Specifically, the marital disagreements measure used in the current study did not distinguish between destructive versus constructive ways of communicating about disagreements. Constructive conflict behaviors involve discussing issues calmly by paying attention to the partner who contribute to more positive emotional reactions (Goeke-Morey et al., 2003) and more stable relationships (Birditt et al., 2010) than to destructive conflict behaviors. When individuals resolve marital disagreements in a more constructive than a destructive manner, their mental health may possibly be less adversely affected from recession experiences. Future studies should test this possibility by assessing both positive and negative conflict management strategies that individuals use to resolve marital disagreements.

In sum, the current study demonstrated the role that marital disagreements and household income play in the mental health outcomes of U.S. adults following the Great Recession. One pathway through which recession adversities were associated with poor mental health was through increases in marital disagreements from prerecession to postrecession. Moreover, individuals who had lower income before the recession showed a stronger association between recession adversities and negative affect. These findings contribute to the literature by advancing our understanding of how macroeconomic crises are linked to marital functioning and mental health.

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Open research statement

As part of IARR's encouragement of open research practices, the authors have provided the following information: This research was not pre-registered. The data used in the research, as well as questionnaires and codebooks, are available online. The data can be obtained at: https://www.icpsr.umich.edu/icpsrweb/ICPSR/series/203. The additional data based on which we computed consensual severity scores are also accessible at this anonymized link: https://osf.io/g94fb/?view_only=8ee55369bc96495cba291e8f1ae3f857. The syntax used in the research are available upon request. They can be obtained by emailing aesra@umich.edu.

Supplemental material

Supplemental material for this article is available online.

Notes

1. Examining the patterns of missingness within 1,672 respondents revealed that the variable with the most missing values was household income (with 143 of 194 cases), and the most frequent missing variable combination was missingness on household income, negative affect, and marital disagreements in MIDUS II (with 102 cases). Little's MCAR test (Little, 1988) showed that the data were not missing at random (χ^2 (48) = 92.001, p < .001), failing to meet a central requirement of imputation approaches. Therefore, we used listwise deletion rather than imputing missing values.

2. The Midlife in the United States (MIDUS) survey also had 2 items assessing marital risk, one asking participants the extent to which they thought their relationship was in trouble (1 = *never*, 5 = *all the time*), and the other asking the chances of their marriage ending in separation (1 = *very likely*, 4 = *not likely at all*). In an earlier test of the Family Stress Model, perceived marital risk was conceptualized as a downstream consequence of marital disagreements. Supporting this argument, marital disagreements and marital risk scales were correlated with r = .419 at both MIDUS II and MIDUS III. We ran supplemental analyses by rescaling the two marital risk items so that they were each weighed equally, then reverse-scored and averaged so that higher scores indicated greater marital risk, and finally repeated the Model 1 analyses (i.e., direct association and indirect association (IA) of recession experiences with mental health) by replacing the marital disagreements scale with the marital risk scale. The pattern of IAs remained similar although they did not reach conventional levels of significance in the adjusted model for negative affect (in the unadjusted model, IA = .012, 95% CI [.003, .025] for negative affect and IA = .044, 95% CI [.014, .089] for affective disorder; in the adjusted model, IA = .008, 95% CI [−.001, .021] for negative affect and IA = .028, 95% CI [.002, .069] for affective disorder).

3. Data used to compute consensual severity scores can be accessed at https://osf.io/g94fb/?view_only=8ee55369bc96495cba291e8f1ae3f857

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