The mental health of mothers in and after violent and controlling unions

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Abstract

Studies have shown that intimate partner violence (IPV) is associated with poor mental health. But, does women's, and specifically mother's, mental health improve after leaving a union marked by IPV? We used two waves of the Fragile Families and Child Well-Being Study ($n = 2610$) to examine the association between IPV as measured by controlling and violent behaviors, and maternal mental health and union dissolution. Mothers in unions marked by IPV reported poorer mental health, became more depressed and maintained high levels of anxiety over time regardless of whether or not their union dissolved, compared to mothers who were in non-abusive unions. Mothers in stable non-abusive unions became more depressed over time, but at a lower magnitude than mothers in controlling and violent unions. Mothers in non-abusive unions that dissolved also became more depressed and anxious over time. Overall, we find that women are still at risk for mental health problems even after leaving IPV unions.

Keywords

Intimate partner violence; Depression; Anxiety; Divorce; Union dissolution

1. Introduction

Intimate partner violence continues to be a crucial issue in the United States. A recent study estimated the lifetime prevalence rate for intimate partner violence (IPV), including both physical violence and controlling behaviors, to be 44% for women, with a one-year rate of 7.9% (Thompson et al., 2006). IPV is associated with poor mental and physical health (Bonomi et al., 2006; Coker et al., 2002). Many in society blame the victim in these relationships (Gracia and Herrero, 2006), wondering why she doesn't leave, and believing that most of her problems would be solved if she did. However, no study to date, that we are aware of, has examined whether women's mental health improves after leaving an IPV union.

Most previous research that has examined the relationship between IPV and mental health has used clinical samples (e.g.,Aguilar and Nightingale, 1994; Follingstad et al., 1990), cross sectional data (e.g. Coker et al., 2002), and has defined IPV narrowly, failing to take into

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account the controlling, non-violent behaviors that are also part of IPV (see Golding, 1999 for a review). We use the Fragile Families and Child Well-being data, a dataset nationally representative of low-income urban couples, to examine the association between relationship control and violence and maternal mental health both concurrently and over time. We also examine the association between relationship control and violence and the probability of union dissolution. This project expands upon previous research on IPV, mental health, and union dissolution through: (1) the use of longitudinal data that allows for testing whether mental health of mothers improves upon leaving an IPV union or worsens upon staying in an IPV union, (2) the inclusion of measures of both violence and control as indicators of IPV, and (3) the use of a nationally representative sample of low-income, urban mothers. Research on the association between violent and controlling behaviors, maternal mental health and union dissolution can help guide policy, intervention programs, and clinicians in their work with abused women and their children.

2. Review of the literature

2.1. The measurement of IPV

Most people think of physical abuse (i.e., hitting, pushing) when they think of IPV. However, Johnson (2006), O'Leary (2001), and others have continually called for an expanded definition of IPV. In fact, physical aggression in the relationship context is often preceded by psychological aggression – behaviors that are non-violent but are intended to help the perpetrator increase or maintain control over the victim (Murphy and O'Leary, 1989). In the context of IPV, controlling behaviors may be defined as behaviors intended to manipulate the victim's behavior and well-being and force the victim to conform to the perpetrator's wants and desires. These behaviors include psychological abuse such as insulting and name-calling, restricting the victim's contact with friends and family, and limiting access to finances. Researchers have found that 99% of women who experience physical abuse by a partner also reported psychological abuse (Follingstad et al., 1990; Stets, 1990). Indeed, controlling behavior was the most common form of abuse perpetrated against women (Stets, 1990; Thompson et al., 2006). Following the work of Johnson, O'Leary, and Thompson, we conceptualize IPV to include both behaviors.

2.2. IPV and mental health

Women experiencing IPV face severe health consequences, including poor mental health. For example, women with a history of IPV experience higher rates of depression, poor social functioning, poor physical health, increased substance use, and increased frequency of chronic disease, chronic mental illness, and injury, compared to women without histories of IPV (Bonomi et al., 2006; Coker et al., 2002). A recent study of a multi-national sample found that physical violence, psychological violence, and sexual violence each alone and in combination were positively associated with mental health issues, including depression and anxiety (Ludermir et al., 2008). Thus the association between IPV victimization and mental health has been well documented, specifically for depression and anxiety. The link between IPV and mental health is not surprising given the control tactics used by abusers such as emotional abuse, psychological manipulation, isolation, and economic abuse (Pence and Paymar, 1993).

2.3. IPV and union dissolution

In most cases, a union dissolution, that is, a divorce or the dissolution of a cohabiting union, is considered a negative life event. Spouses experience a mental health decline following divorce (Simon and Marcussen, 1999; Richards et al., 1997). This can occur either from the breakup, or from increased social isolation as a result of the breakup. Spouses often report more social isolation following divorce, which in turn can lead to decreases in well-being (Umberson et al., 1996). For mothers, divorce indicates much more than change in living arrangements; it includes a transition into single-parenthood. Indeed, examining IPV in the non-marital context is important as recent literature has shown alarming rates of violence within cohabiting and dating relationships (Cherlin et al., 2004; Kenney and McLanahan, 2006).

IPV represents a special case in the literature on union dissolution. For women experiencing IPV, the end of the union may represent a positive development for the victim. However, most victims of IPV struggle to leave these abusive relationships (see Anderson and Saunders, 2003 for a review). Women who end abusive unions often experience distressing, conflict-ridden interactions with their ex-partners, especially if involved in shared parenting (Pagelow, 1990; Sev'er, 2002). Even in the absence of children, the initial period post-dissolution is both physically and psychologically dangerous for the victim. Researchers have found more than a third of women who became separated from their abuser experienced continued physical abuse after separation (Fleury et al., 2000; Hotton, 2001) and 95% experienced continued psychological abuse (Hotton, 2001). Research also indicates that intimate partner homicide most often occurs when a partner tries to leave or has just left the relationship and is five times more likely to occur for women who leave compared to those who stay (Wilson and Daly, 1993). Therefore, women whose abusive relationships end may continue to experience physical and psychological abuse that will continue to negatively impact their mental health.

Mertin and Mohr (2001) found among women residing in shelters, ongoing physical violence was associated with psychological distress, though distress declined at a one-year follow-up. Similarly, other researchers have also found that IPV victims' levels of psychological distress after separation equaled or exceeded those of women who stayed in their violent union (Herbert et al., 1991; Lerner and Kennedy, 2000). Anderson and Saunders (2003) have referred to the relationship between union dissolution and IPV as the "negative spiral", describing the process by which continued violence after separation alongside additional stressors creates a continually worsening mental state for victims of IPV. However, these studies did not compare the same victim's mental health while in and out of the violent union so it is not possible to ascertain whether the women who actually left their unions had even worse mental health prior to the separation.

According to Davies et al. (2009), "the presence of children is a key factor transforming the nature of an intimate relationship before and after leaving" (p. 28). The involvement of children provides a barrier to leaving the relationship as well as a connection to the partner after dissolution. Custody and parenting battles often provide spaces through which victims of IPV and their children are continually abused. Male partners often threaten to harm or take children away if their partners were to leave (Liss and Stahly, 1993; McCloskey, 1996)

and they continue to use children to control and abuse partners after dissolution (Hardesty and Chung, 2006). One-fifth of victims have been found to return to the relationship as a result of their abusers' threats to kidnap or harm the children (Liss and Stahly). For many of those who do not return, mother's co-parenting efforts after dissolution are dominated with combating controlling and abusive tactics and mothers are forced to set clear boundaries and continually monitor their safety as well as the safety of their children (Pagelow, 1990).

2.4. The stress process model of IPV, mental health, and union dissolution

The stress process model of IPV, union dissolution, and mental health was first outlined by Anderson and Saunders (2003) and drew from the work of Pearlin et al. (1981). In this model, the stress experience is not seen as an event, but as a process that unfolds over time. Hence, IPV not only impacts the victim when it occurs, but continues to negatively affect mental health even after a violent or controlling event. We expect that women who experience IPV will report poorer mental health than will women who have not experienced IPV, given the continuing stress that the women will experience as the process of coping with IPV unfolds. Given the process focus of this model, IPV will continue to affect the victim even after an abusive relationship ends. A second tenet of the stress process model of IPV is that environmental factors, or secondary stressors, accompany major stressors such as union dissolution. While a woman may be relieved to have a violent union end, she will also grieve the loss of the relationship without a social support system, particularly if the perpetrator cut her off from friends and families. If children were present in the relationship, she will have a transition to single-motherhood and a continued co-parenting relationship with the perpetrator, which will continue to put her at risk. Further, as part of the transition to single-motherhood, victims will undergo a transition to a sole provider role, and may experience a transition to work. Most will have to manage with less than half of the resources they had prior to the separation. While women who experience a non-abusive union dissolution also experience a transition to single-parenthood, a loss of financial support, and the loss of at least part of their social support system, they do not do this in a context of continuing physical and psychological threat from their ex-partner. Hence, we expect mental health to decline more rapidly for the victims of IPV compared to their non-abusive counterparts after a union dissolution.

A final tenet of the stress process model of IPV is that coping resources that decline in IPV relationships and after union dissolution will also contribute to poor mental health outcomes in IPV unions and after IPV dissolution. Anderson and Saunders (2003) argue that reactions to stressors will differ by the coping resources available to the individual. Coping resources could include religious involvement, material goods and services, and social support or a community of people on whom one can rely. Additionally, as Demaris et al. (2003) point out, families with characteristics of stressful environments such as low-income families or those with a greater number of children are more likely to experience violence. Thus, mothers with these relationship stressors may experience intensification of mental health symptoms during the dissolution process as they begin in a disadvantaged, increased stress position. Women who are victims of IPV may have less access to coping resources if their perpetrator exerts control over their social contacts and freedoms. Further, women who experience union dissolution may also lose access to coping resources such as shared social

contacts with the partner or stigmatism for a failed union in a religious community or among family and friends. The loss of coping resources after a union dissolution for victims of IPV may be even more negative as the victim may have lost contact with family, friends, and community resources while in the violent union.

Following the stress process model of IPV, we test for the potential mediating role of two coping resources – perceived social support and religious involvement. Coker et al. (2003) found that social support mediated the association between IPV and mental and physical health. Those victims with social support had improved coping with IPV, thus we test whether perceived social support mediates any association between IPV and mental health. Further, religious involvement can be a protective factor against stress and mental health (Lee, 2007) and Watlington and Murphy (2006) found higher levels of religious involvement to be associated with lower mental health problems for a group of African American women survivors of IPV. Considering the high minority population of our sample, we also included religious involvement as a potential mediator.

2.5. Present study and hypotheses

Following the stress process model outlined above, we test four hypotheses.

Hypothesis 1. Mothers in controlling and physically violent unions will exhibit higher levels of depression and anxiety than mothers in non-abusive unions.

Hypothesis 2. Mothers in abusive unions will have greater odds of dissolving their unions as compared to mothers not experiencing control or violence.

Hypothesis 3. Mothers remaining in violent and/or controlling unions will experience significant increases in depressive and anxious symptoms over time.

Hypothesis 4. Mothers whose violent and controlling relationships dissolve will maintain or increase in depression and anxiety symptoms over time.

We add to the literature by examining mental health outcomes and different types of intimate violence over time to aid policy workers and mental health professionals in understanding the unique situation that arises when abused mothers experience union dissolution. To our knowledge, this is the first study to examine the mental health of mothers in abusive unions both before and after union dissolution.

3. Method

Data came from the Fragile Families and Child Well-being study of 4898 mothers and fathers (*n* = 3830) who had children (3711 non-marital and 1187 marital) in the US between 1998 and 2000. Mothers and fathers were interviewed in the hospital after their child's birth with follow-up interviews conducted when the child was one (1 year wave), three (3 years wave), and five years old (see Reichman et al., 2001 for a detailed discussion). The response rates at baseline were about 87% for unmarried and 82% for married mothers and 76% for unmarried and 88% for married fathers. Fathers who were in a romantic relationship were more likely to be in the study and those who were not in the study were more likely to be

disadvantaged (Teitler et al., 2003), thus data from fathers was not missing at random. We also conducted our own analysis (results not shown) to examine how the variables we use were associated with which fathers were interviewed at each wave. At year 1, we found only that cohabiting fathers were marginally significantly more likely to be missing (that is, not interviewed) compared to married fathers. We also found that fathers with Black mothers were much more likely to be missing at year 1 compared to fathers with non-Black/non-Hispanic mothers. However, at year 3, several variables, including IPV group membership, predicted which fathers were and were not interviewed. First, mothers who dissolved any union between years 1 and 3 had between 177% and 215% greater odds of the father of their child not being interviewed at year 3 compared to mothers who remained in a non-violent/non-controlling union. Further, mothers who dissolved a controlling and violent union were significantly less likely to have the father of their child interviewed compared to mothers who were in a stable, controlling-only union and mothers in a stable violent and controlling union. Hispanic mothers were less likely than non-black/non-hispanic mothers to have the father of their child interviewed at year 3. Mothers with some college had higher odds of having the father of their child interviewed compared to mothers with only a high school education. Thus, our own results confirm that fathers were not missing at random at each wave, even when limiting the analysis to only mothers in our sample. Thus, rather than introduce bias in our data due to missing fathers, we chose to use only mothers' reports of IPV.

We used only mother reports of both her and the fathers behavior from mothers who were cohabiting or married to the father of their child at 1 year ($n = 2610$). About 8% were lost to attrition at 3 years ($n = 2398$ at 3 years). An attrition analysis revealed that mothers reporting no violence or control were more likely to attrit between years 1 and 3 compared to mothers that reported only controlling behaviors. Further, mothers who were cohabiting and mothers who were receiving welfare benefits were more likely to attrit, while mothers who were Hispanic were less likely to attrit between years 1 and 3 than non-black/non-hispanic mothers. Overall, however, there were few differences between individuals who remained in our sample and those who were lost between years 1 and 3.

3.1. Independent variables

We coded violent behaviors using a scale measuring how often the father behaved in three ways: (1) "he slapped or kicked you", (2) "He hit you with his fist or an object that could hurt you", and (3) "he tried to make you have sex or do sexual things". Response options were: often, sometimes, or never. We also used a fourth question that had response options of yes or no: (4) "Couples sometimes get into fights. Were you ever cut, bruised, or seriously hurt in a fight with [father]?" If mothers endorsed often or sometimes on items 1, 2, or 3, or if they endorsed yes on item 4, the mother was coded as being in a violent relationship. That is, if she reported that any of violent events had ever occurred, she received a 1 on this item, and a 0 if she reported none had ever occurred. The alpha for this scale was 0.95 at 1 year and 0.99 at 3 years.

We coded controlling behaviors using a scale measuring how often the father behaved in four ways: (1) "he insults or criticizes you or your ideas", (2) "he tries to keep you from

seeing or talking with your friends or family", (3) "he tries to prevent you from going to work or school", and (4) "he withholds money, makes you ask for money, or takes your money". Response options were: often, sometimes, or never. If mothers endorsed often or sometimes on any item, the mother was coded as being in a controlling relationship. That is, if she reported that the father engaged in any controlling behavior at least sometimes, she received a 1 on this item, and a 0 if she reported none had ever occurred. The alpha of the control scale was 0.99 at 1 year and 0.99 at 3 years.

We created three distinct IPV groups: non-violent and non-controlling ($n = 1448$), controlling-only ($n = 1023$), and controlling and violent unions ($n = 127$). We did have violent-only unions, however, the sample size ($n = 26$) was too small to appropriately conduct analyses; these observations were dropped. The small number of violent-only unions indicates the high percentage of physically violent unions that also exhibit controlling behaviors (83% in this data).

A relationship was coded as dissolved if (1) mothers reported being married to the father of their child at 1 year but not at 3 years, and (2) mothers stated they no longer lived with the father *all/most of the time* by 3 years. To examine change in violent and controlling status between waves, we constructed a multinomial variable where (0) indicated mothers who remained in non-abusive unions over time, (1) mothers who remained in controlling-only unions, (2) mothers who stayed in violent and controlling unions, (3) mothers whose violent and/or controlling union dissolved, and (4) mothers whose non-abusive union dissolved.

3.2. Dependent variables

Continuous measures of depression and anxiety were used to measure mental health. Both depressive and anxious symptoms were coded at years one and three using diagnostic criteria from the Composite International Diagnostic Interview – Short Form (CITI-SF; Kessler et al., 1998). Scoring of the CITI-SF follows the Diagnostic and Statistical Manual of Disorders, Fourth Edition diagnostic criteria for major depressive episode and generalized anxiety disorder (American Psychiatric Association, 2000). For depressive symptoms, respondents were first asked whether they had (1) feelings of depression, or (2) an inability to enjoy things that give them pleasure in the past year for at least two weeks. If they endorsed either, they were asked more specific questions about whether they had other symptoms during that time including: feeling tired, change in weight, trouble sleeping, trouble concentrating, feeling worthless, and thinking about death. Participants received a score of 1 for each of the following: the feeling of depression for two weeks, the loss of interest for two weeks, and each of the other six symptoms reported during that time. The sum of these 8 items constituted the depressive symptoms score. The scale had an alpha of 0.95 both at years one and three for fathers, and of 0.88 at year one and 0.90 at year three for mothers.

For anxious symptoms, respondents first endorsed whether or not they had a period lasting one month or longer in the past 12 months in which they felt "worried, tense, or anxious" or whether they had a time in the past 12 months when they "worried a lot more than most people would in your situation?". If answering in the affirmative to either, respondents were asked more specific symptoms, including whether they were either restless or on edge, were

easily tired, had trouble concentrating, were irritable, had aching muscles, or had trouble falling asleep. A score of 1 was recorded for reporting a period of time of feeling worried or a time where they worried more than others. An additional symptom was recorded for each of the specific symptoms endorsed. The scale ranged from 0 to 7 and the alpha for fathers was 0.96 and 0.97 at years one and three, respectively, and 0.94 and 0.93 for mothers.

3.3. Control variables

Several demographic characteristics could also be associated with being in a violent or controlling union and mental health, such as race. To account for competing sources of variation that were observed and might explain our associations, we controlled for a variety of variables that were associated with IPV and/or mental health, including marital status, age, race, and education and social class/economic indicators. The control variables were measured at 1 year and if used in the longitudinal analyses, were measured identically at both years 1 and 3. Across all control and mediating variables, more than 97% of cases had complete data on all variables. Cohabitation status was coded as a dichotomous variable where 1 = mother reported she and the child's father were *romantically involved* (rather than *married*) and lived together *all or most of the time*, and 0 = mother reported she was married to the father of her child. Mother's age was measured in years. Race was coded by a series of dummy variables for each racial category: non-black/non-hispanic (0 = black or hispanic, 1 = non-black/non-hispanic), black (0 = non-black, 1 = black), and hispanic (0 = non-hispanic, 1 = hispanic). Education was also coded by a series of dummy variables: less than high school (0 = more than high school education, 1 = less than high school education), high school diploma or equivalent (0 = less than high school education or at least some college, 1 = high school education), and at least some college education (0 = high school education or less, 1 = some college). Mothers' enrollment in school was coded as 0 = mother not enrolled in school or training program and 1 = mother enrolled in school or training program. At year 3 only, mothers' completing school was coded as 0 = mother did not complete a training or education program between years 1 and 3, and 1 = mother completed a training or education program between years 1 and 3. Mothers' employment status was coded as 0 = no work for pay the week before the interview date and 1 = mother participated in regular work for pay in the week before her interview date. Fathers' work/school status was coded from the mothers as 0 = fathers is currently unemployed or in jail/prison and 1 = father is currently working, in school, or both in school and working. Welfare use in the past year was coded as 0 = mother has not received welfare or TANF in the last 12 months, and 1 = mother received welfare or TANF in the last 12 months. The number of children residing in the household was measured using the sum of persons under the age of 18 reported in the household roster. The household roster was collected in response to the question: "Not including yourself, how many people are currently living with you? Please include people who sleep in this home most nights."

3.4. Mediating variables

We tested for mediation in our associations using mothers' perception of available social support. The variable included 6 items that included the stem "If you needed help during the next year, could you count on someone to": (1) loan you $200?, (2) loan you $1000, (3) provide you with a place to live, (4) help you with emergency childcare, (5) co-sign for a

bank loan with you for $1000, and (6) co-sign for a bank loan with you for $5000. The response options were yes or No. Each yes was counted as a source of available support, and all yes's were summed into a scale of perceived social support (alpha was 0.96 at 1 year and 0.99 at 3 years).

Religious involvement was coded in response to the question "how often do you go to religious services?" Responses were coded as 5 = more than once a week, 4 = about once a week, 3 = a few times a month, 2 = a few times a year, 1 = less often than that, and 0 = never.

3.5. Analytic plan

Three different sets of models examined the association between mental health and IPV. We used negative binomial regression to examine the association between IPV group and the count variables number of depressive symptoms and number of anxious symptoms at 1 year. The outcome variables were skewed and had over-dispersion (the variance of the variables was greater than their mean; variance = 1.84; mean = 0.61 for anxiety; variance = 3.59; mean = 0.92 for depression at 1 year). Rather than using OLS regression, as is standard with continuous variables that are normally distributed, we used a negative binomial regression. Following Fomby and Cherlin (2007), the interpretation of the negative binomial regression is slightly different from an OLS regression such that for any continuous covariate x_k in the model, such as perceived social support, a unit change in x_k changes the expected count of the outcome, Y, such as depressive symptoms, by a factor of e^β, holding all other variables constant. We discuss the exponentiated β or odds ratios in the text (see Fomby and Cherlin, 2007, for an application to family data and Long and Freese, 2006, for a technical discussion).

Logistic regression predicted union dissolution from IPV group membership between years 1 and 3. The change in mental health between years 1 and 3 by type and stability of violent union were examined in fixed effect regression models. The general equations for fixed effects models with two waves of data are as follows (Allison, 2009):

$$y_{i1} = \mu_1 + \beta x_{i1} + \gamma z_i + \alpha_i + \varepsilon_{i1}$$
$$y_{i2} = \mu_2 + \beta x_{i2} + \gamma z_i + \alpha_i + \varepsilon_{i2}$$

Change between times 1 and 2 can be calculated by subtracting the first equation from the second:

$$y_{i2} - y_{i1} = (\mu_2 - \mu_1) + \beta (x_{i2} - x)\,i1) + (\varepsilon_{i2} - \varepsilon_{i1}), \text{ which can be re-written as:}$$
$$y_{it} = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i + \varepsilon_{it}$$

In the above equation, y_{it} is the mental health outcome for each individual measured at two time points, μ_t is the intercept for each point in time, β represents the vector of coefficients for the predictor variables (x_{it}) that vary over time, γ represents the vector of coefficients for the predictor variables (z_i) that do not vary over time, α_i and ε_{it} are both error terms, and α_i represents all unobserved variation that effects y that is constant over time. Conversely, ε_{it}

represents any random variation for each individual at each time point. The coefficients and error terms that do not vary over time, γz_i and a_i, are differenced out. Thus, only observed time-varying covariates were examined because variation that is due to stable observed and unobserved characteristics of the respondents are differenced out. Time-varying covariates included: mothers' and fathers' employment status, educational status, having completed education, total number of children, perceived social support, and religious involvement. Time-stable variables – such as IPV group membership, are examined through dummy variables that are coded 0 at the initial wave and 1 for members of that group at the next wave. Thus, the coefficient represents that groups change in the outcome across time.

3.5.1. Stepwise models—For each of the three outcomes: depressive and anxious symptoms at year 1, union dissolution, and the change in depressive and anxious symptoms, we ran stepwise models. First, we ran the models with only the IPV groups (Model 1 for each outcome). Next, we added, for the outcomes depressive and anxious symptoms at year 1 and the outcome union dissolution, the demographic and economic control variables measured at year 1, and for the outcomes change in depressive and anxious symptoms, the time-varying covariates (Model 2 for each outcome).

3.5.2. Mediation models—Finally, we did the meditational analyses, adding the mediating variables in the models at year 1 or as time-varying variables depending on the outcome (Model 3 in each table). For the meditational models, following Baron and Kenny (1986), first we test the direct effect; that is we test for a significant association between violent and controlling behaviors and our outcomes, depressive and anxious symptoms at year 1, union dissolution, and change in depressive and anxious symptoms. This step is carried out for each outcome in the stepwise Models 1 and 2 above. Next, we test for a significant association between our independent variable, IPV group, and the mediating variables, perceived social support and religious involvement. If these associations are significant, then we move to the final step. We re-run Model 2 for each outcome (reported in the tables as Model 3) entering both mediating variables. This allows us to test for the two final paths of the meditation model. We test for a significant association between perceived social support and religious involvement and each outcome (depressive and anxious symptoms at year 1, union dissolution, and change in depressive and anxious symptoms). We also examine the coefficients for the association between controlling and violent behaviors and the outcomes following the addition of the mediating variables. If the controlling and violent behavior categories are no longer significantly associated with the outcomes (depressive and anxious symptoms at year 1, union dissolution, and change in depressive and anxious symptoms) following the addition of perceived social support and religious involvement, we would have evidence of mediation. If the association between controlling and violent behavior categories and the outcomes remain significant even after the addition of the mediating variables, we would have evidence of partial mediation if the size of the coefficient decreased, or no evidence of mediation of the coefficient remained essentially unchanged.

4. Results

The mean, standard deviation, alpha, and range of each variable are presented in Table 1. Overall, mean levels of depressive and anxious symptoms in our sample were low. Just under half of our sample reported controlling behaviors, while only 5% reported violence in their union. A majority of the sample was Black or Hispanic, and mothers had a mean age of 26 with 2 children. Over half of the sample had no college education, more than three-quarters of fathers were employed or in school at 1 year, and half of mothers were employed and 17% were enrolled in school. About 15% of mothers had used welfare in the past year. Reported levels of perceived social support were relatively high, while religious involvement was around the midpoint of the scale.

4.1. Results from models predicting depression and anxiety at year 1

We first examine the negative binomial regression models predicting mental health symptoms from IPV group presented in Table 2. IPV had negative implications for mental health. Net of all control variables, mothers in controlling unions had 87% greater odds of reporting an additional depressive symptom and mothers in controlling and violent unions had 288% greater odds of reporting an additional depressive symptom compared to mothers who did not report abuse. Mothers in controlling unions had 62% greater odds of reporting an additional anxious symptom while mothers in controlling and violent unions had 256% greater odds of reporting an additional anxious symptom compared to mothers not experiencing any IPV. The addition of controls for demographic and economic factors did little to change the coefficients.

Turning to our control variables, Hispanic mothers reported fewer depressive and anxious symptoms than did non-black/non-hispanic mothers, and black mothers had fewer anxious symptoms than did non-black/non-hispanic mothers. Mothers with post high school education were less likely than those with a high school education only to have anxious symptoms. Mothers with employed partners were less likely to have an additional depressive or anxious symptom than those mothers whose partners were unemployed.

4.1.1. Mediation model—As shown above, the direct effect in the mediation models was significant, that is, IPV group membership was associated with depressive and anxious symptoms. To test the next pathway in the mediation models, in results not shown, we ran ordinary least squares regression predicting perceived social support and religious involvement from IPV group membership. Mothers in controlling or violent and controlling unions both reported significantly less perceived social support and religious involvement than mothers in non-controlling, non-violent unions. In testing the association between each mediating variable and depressive and anxious symptoms at year 1 (Models 3 in Table 2), we found that for each additional unit of perceived social support, the odds of having an additional depressive symptom significantly decreased by 12%, and the odds of having an additional anxious symptom significantly decreased by 14%. Religious involvement was not associated with depressive and anxious symptoms. Yet, we found little evidence that perceived social support or religious involvement mediated the association between IPV and depressive and anxious symptoms. The controlling only and violent and controlling groups

continued to be at risk for greater depressive and anxious symptoms, and the size of the coefficients decreased very little. Overall, we found support for our first hypothesis that victims of IPV, including those in unions marked by controlling behaviors or both controlling and violent behaviors, reported poorer mental health than those in non-abusive unions.

4.2. Results from models predicting union dissolution

To test our second hypothesis we ran a series of logistic regression models, reported in Table 3, predicting union dissolution from years 1 to 3. Mothers in controlling unions were no more likely to dissolve their union than mothers in non-abusive unions. However, mothers in unions marked by violence and control had 86% greater odds of dissolving their unions than those in non-abusive unions. The addition of the economic and demographic control variables to the model did little to change the significant association between union dissolution and violent and controlling behaviors. These findings partially support our second hypothesis whereby only mothers experiencing physical IPV had greater odds of dissolution than those not experiencing abuse.

Marital status was also a powerful predictor of dissolution. Consistent with previous research, mothers in cohabiting unions had 158% greater odds of dissolving their union compared to mothers in marital unions. The odds of dissolution decreased by 7% for each additional year in age. Further, black mothers had 61% greater odds of dissolution than did non-black/non-hispanic mothers, while Hispanic mothers had 32% lower odds of dissolution. Employed mothers and those on welfare were each more likely to experience a union dissolution.

4.2.1. Mediation models—Similar to results for anxious and depressive symptoms at year 1, the direct effect in the mediation model for union dissolution was significant; IPV was associated with the likelihood of union dissolution. As stated previously, perceived social support and religious involvement were significantly associated with violent and controlling behavior categories. In Model 3 in Table 3, we found that for each additional level of perceived social support, mothers had 9% lower odds of union dissolution. Surprisingly, religious involvement was not associated with union dissolution. Again, we found little evidence that perceived social support or religious involvement mediated the association between IPV and the odds of union dissolution. Mothers in violent and controlling unions still had greater odds of dissolving their union by year 3 compared to mothers in non-violent/non-controlling unions, and though the addition of the mediating variables did reduce this coefficient slightly, the association was still highly significant.

4.3. Results from models examining change in depression and anxiety over time

The fixed effects regression models indicated that in this low-income sample, all mothers became more depressed over time. The magnitude of the difference differed by IPV and union status. The magnitude was greatest for mothers who (1) remained in violent and controlling unions, followed by mothers who, (2) dissolved violent and/or controlling unions, (3) dissolved non-abusive unions, (4) remained in non-abusive unions, and 5) remained in controlling-only unions. These coefficients were diminished slightly after time-

varying economic controls were added to the model. We also tested for significant differences between groups. Mothers in stable controlling and violent unions and mothers in violent and/or controlling unions that dissolved increased significantly more in depressive symptoms than mothers in stable controlling or non-abusive unions. Noticeably, mothers in stable controlling-only unions did not increase in depressive symptoms at a significantly greater rate than those remaining in non-controlling/non-violent unions.

We found significant increases in anxious symptoms for mothers who dissolved non-abusive unions between years 1 and 3. Mothers who remained in controlling unions also increased significantly in anxious symptoms, but this coefficient dropped from significance following the addition of time-varying demographic and economic control variables. Mothers in violent/controlling unions maintained their elevated symptoms of anxiety regardless of whether or not their union dissolved. They did not increase if they remained in their union, nor did they increase or decrease in anxious symptoms when their controlling/violent union dissolved. Thus, we did not find that IPV was associated with differential increases or decreases in anxious symptoms.

4.3.1. Mediation model—Again, the direct effect in the mediation model for the change in depressive and anxious symptoms was significant; IPV was associated with the change in depressive symptoms. However, IPV was not associated with a significantly greater change in anxious symptoms after demographic and economic controls were accounted for. We do not interpret results for anxious symptoms as it did not satisfy the requirements for a test of mediation (Baron and Kenny, 1986). In fixed effects regression models not shown, we found that mothers in stable controlling and violent unions and mothers in non-controlling/non-violent unions that dissolved each reported significant decreases in perceived social support. Further, all mothers significantly increased their religious involvement between years 1 and 3, regardless of controlling/violent behavior category. Interestingly, the largest increases in religious attendance were from mothers in stable controlling and violent unions, and mothers in non-controlling/non-violent unions, the same mothers whose perceived social support dropped significantly over time. Perhaps religious involvement was a strategy used by these mothers to attempt to increase their perceived sources of social support.

In Model 3 of Table 4, we found that increases in perceived social support were associated with a significant decrease in depressive symptoms between years 1 and 3. Further, changes in religious involvement were not associated with change in either depressive or anxious symptoms. The addition of the mediating variables did not change the magnitude of the associations between the IPV groups and the change in depressive symptoms, thus we found no evidence of mediation. Overall, we found partial support for Hypothesis 3; mothers remaining in abusive unions experienced a significant increase in depressive symptoms over time, and maintained their elevated levels of anxious symptoms. We found support for our final hypothesis such that mothers whose abusive unions dissolved increased in depressive symptoms and maintained high level of anxious symptoms.

5. Discussion

This study examined the associations between physical and controlling victimization, union dissolution, and mental health of mothers using longitudinal data from the Fragile Families and Child Well-being study. Mothers in unions marked by IPV reported more depressive and anxious symptoms at year 1, became more depressed between years 1 and 3, and maintained high levels of anxiety between years 1 and 3 compared to mothers in non-abusive unions, regardless of whether or not their violent union dissolved. Mothers in unions marked by physical violent and controlling behaviors were more likely to experience union dissolution, but mothers in unions marked by controlling behaviors only were no more likely to dissolve their union compared to mothers in non-abusive unions.

Overall, our findings support the stress process model of IPV, union dissolution, and mental health (Anderson and Saunders, 2003). For victims of IPV, the mental health problems associated with living in an IPV union persisted over time and after dissolution. IPV was not a discrete event or experience, but was a process. All mothers who were in either controlling-only or controlling and violent unions increased in depressive symptoms over time, even when their abusive union dissolved. In or after an IPV union, psychological abuse, threats, and physical violence are likely to cause stress, anxiety, and depression. Specifically in the case of union dissolution, besides mourning the end of the relationship, mothers who experienced union dissolution had to co-parent with a controlling and/or violent ex-partner. These mothers and their children continued to be at risk of physical and emotional harm from the ex-partners. More than a third of women continue to experience physical abuse and 95% continue to experience emotional abuse following dissolution, while intimate partner homicide is five times more likely to occur to women who have left their partner (Fleury et al., 2000; Hotton, 2001; Wilson and Daly, 1993).

The stress process model of IPV outlined the concept of the "negative spiral" of union dissolution and IPV; that, IPV would have continuing negative impacts on mental health over time (Anderson and Saunders, 2003). Anderson and Saunders (2003) suggested that continued violence from the perpetrators after dissolution as well as the additional stress of single-parenthood both contribute to a decline in mental health after IPV union dissolution. Unfortunately, mothers who were separated from the father of their child were not asked in our data at year 3 about any continued controlling or violent behaviors. Mothers were asked about the behaviors of any new partners however. Just over a third of mothers who dissolved controlling or violent unions had a new partner, and of those, only one reported being in a violent union (using identical criteria to the measure of violence used here), but 31% reported being in another controlling union (using identical criteria to the measure of control used here). Thus, about 10% of mothers who left unions were in another controlling relationship, which may have contributed to their continued poor mental health.

Of special note about our sample is that it was comprised entirely of mothers who share a child with the perpetrator. Not only do children provide a barrier to leaving an IPV union, but shared children also mean a continued connection to the partner after dissolution. Men who have been controlling or violent with their partner may use children as a way to control and terrorize their partners through threatening to harm or take the children, and 20% of

mothers may return to a relationship marked by IPV as the result of these threats (Liss and Stahly, 1993). Thus, the mothers in our data were not only at risk of continued victimization after a dissolving their IPV union, but their ex-partners had rights to access to their most precious possession – their shared child. Of those mothers who were in an IPV union that dissolved, about half talked to or saw the father once a week, and only 25% were in contact with him a few times a year or less. Thus, the continued contact between mothers and their ex-partners who were engaging in controlling or violent behaviors and the continuing decline in mothers' mental health after dissolution supports the claim that ex-partners of victims of IPV continue the victimization even after a union dissolution.

A unique characteristic of this sample is that it was predominately minority and low-income. Mothers in the sample, regardless of the IPV status of their union, became more depressed over time. Those mothers in non-IPV unions that dissolved also became more anxious over time. Financial hardship was experienced by many of these mothers, and even though some mothers were in non-violent/non-controlling unions, they were not buffered from the negative associations of being in a family marked by financial hardship. For those mothers that did dissolve a union, their environmental stress likely intensified after the union dissolution. We found that mothers who dissolved a non-violent/non-controlling union declined in mental health as well. In support of the role of environmental stressors in these associations, we found that economic factors were associated with mothers' mental health and change in mental health. Over time, mothers and fathers who gained employment (or enrolled in school for fathers) experienced decreases in anxious symptoms, and mothers that were aided financially by welfare use decreased in anxious symptoms. In contrast, mothers who added more children under the age of 18 to their household increased in depressive symptoms. Thus, environmental stressors certainly were associated with mothers' abilities to maintain their mental health over time.

We had argued that victims of IPV were likely to benefit by having a strong social support network throughout and after dissolution process. Our results support this final tenant of the stress process model of IPV (Anderson and Saunders, 2003), such that mothers dissolving unions marked by IPV were more likely to experience a decrease in depressive symptoms for each level of additional social support they perceived. Yet, we found little evidence that religious involvement played much of a buffering role. Further, neither of these variables mediated, or accounted for, any associations between IPV and mental health. Thus, even though high perceived social support did have a positive association with mental health, it did not protect mothers from the multitude of stressors they endured as victims of IPV. Future research should examine perceived social support before the union begins, during a union marked by IPV, and after dissolution of such unions to more comprehensively measure the extent that perceived social support changes throughout the entire process.

5.1. Limitations

Our research was bound by the limitations of the Fragile Families and Child Well-being study. We did not address the severity of the violence or control. Data on the use of threats as a controlling behavior, such as threatening physical abuse, to take children away or to hurt them, or to leave, was unavailable, although other research has shown this to be

prevalent among groups of abused women (Thompson et al., 2006). We had some missing data and attrition. We had no information on union dissolution that would suggest which partner initiated union dissolution; we were unable to ascertain whether the findings would vary by whose decision it was. We also had missing data from fathers, and further, were unable to know if fathers' violent behaviors were in response to a violent act from the mother. In addition, continued IPV from the fathers was not measured after the union dissolved. The level of post-union coercion and violence would likely have been an important predictor of adjustment. Finally, with more longitudinal data we may have found that mental health problems following the dissolution of an abusive union decreased given a longer time horizon.

Nonetheless, this research contributes to the field of family violence as one of the first studies to examine mental health before and after the dissolution of an IPV union. Given our findings, clinical research should continue to develop interventions for victims of IPV both while the victim is in the abusive union and following its dissolution. That a victim who is no longer in the IPV union does not improve in psychological well-being suggests that families need help navigating the complexities of co-parenting in the context of abuse. Interventions for these mothers, in addition to mental health counseling, could include increasing the availability of social support and other resources when mothers are exiting abusive relationships. Interventions could also target the batterers, and should focus not only on safety when the batterer is in a relationship, but after a relationship ends as well. Future research should replicate these findings, and examine the resiliency of mothers and the situational determinants that serve as risk or protective factors for mental health after dissolution from abusive unions.

Acknowledgments

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Table 1

Sample descriptive statistics.[a]

	M	**SD**	**Range**	α
Depressive symptoms	0.75	1.73	0–8	0.88
Anxious symptoms	0.54	1.27	0–7	0.94
Cohabiting union[d]	0.52		0–1	
Dissolved by 3 years[d]	0.17		0–1	
Controlling behaviors[b, d]	0.44		0–1	0.99
Violent behaviors[c, d]	0.05		0–1	0.95
Mothers' race				
Non-black/non-hispanic[d]	0.32		0–1	
Black[d]	0.38		0–1	
Hispanic[d]	0.30		0–1	
Mothers' education				
Less than high school[d]	0.29		0–1	
High school[d]	0.29		0–1	
Some college[d]	0.42		0–1	
Mothers' age (in years)	26.12	6.13	14–44	
Mothers' employment status[d]	0.53		0–1	
Fathers' work/school status[d]	0.88		0–1	
Mother currently in school[d]	0.17		0–1	
Total number of children	2.06	1.16	0–10	
Welfare use [d]	0.15		0–1	
Perceived social support	4.36	1.77	0–6	0.96
Religious involvement	2.57	1.53	0–5	
N	2610			

[a]Means, standard deviations, and alphas reported at 1 year except where noted.

[b]Four items were used to construct the dichotomous indicator of control.

[c]Four items were used to construct the dichotomous indicator of violence.

[d]The coding of the dichotomous variables were as follows: cohabiting union (0 = married, 1 = cohabiting), dissolved by 3 years (0 = in-tact at year 3, 1 = dissolved at year 3), controlling behaviors (0 = no controlling behaviors reported, 1 = reported controlling behaviors), violent behaviors (0 = no violent behaviors reported, 1 = violent behavior ever reported), non-black/non-hispanic (0 = black or hispanic, 1 = non-black/non-hispanic), black (0 = non-black, 1 = black), hispanic (0 = non-hispanic, 1 = hispanic), less than high school (0 = more than high school education, 1 = less than high school education), high school diploma or equivalent (0 = less than high school education or at least some college, 1 = high school education), some college education (0 = high school education or less, 1 = some college), mothers currently in school (0 = mother not enrolled in school, 1 = mother enrolled in school), mothers' employment status (0 = no work for pay the week before the interview date, 1 = mother participated in regular work for pay in the week before her interview date), fathers' work/school status (0 = fathers is currently unemployed or in jail/prison, 1 = father is currently working, in school, or both in school and working), welfare use (0 = mother has not received welfare or TANF in the last 12 months, 1 = mother received welfare or TANF in the last 12 months).

Table 2

Negative binomial regression results for symptoms of depression and anxiety at year 1 from interpersonal violence (IPV) groups and demographic, economic, and mediating variables.

	Depressive symptoms						Anxious symptoms					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	β	e^β	β	e^β	β	e^β	β	e^β	β	e^β	β	e^β
IPV groups												
No violence or control (omitted)	–	–	–	–	–	–	–	–	–	–	–	–
Controlling only	0.63 ***	1.87 ***	0.63 ***	1.88 ***	0.56 ***	1.75 ***	0.48 ***	1.62 ***	0.46 ***	1.59 ***	0.37 ***	1.45 ***
Violent and controlling	1.36 ***	3.88 ***	1.33 ***	3.80 ***	1.23 ***	3.41 ***	1.27 ***	3.56 ***	1.21 ***	3.35 ***	1.04 ***	2.83 ***
Demographic and economic variables												
Cohabiting union			0.07	1.07	0.02	1.02			0.07	1.08	−0.01	0.99
Mothers' age			−0.01	0.99	−0.01	0.99			0.01	1.01	0.01	1.01
Mothers' race												
Non-black/non-hispanic (omitted)			–	–	–	–			–	–	–	–
Black			0.07	1.06	0.02	1.02			−0.22 *	0.80 *	−0.26 *	0.77 *
Hispanic			−0.28 +	0.75 +	−0.36 *	0.70 *			−0.27 *	0.76 *	−0.32 **	0.72 **
Mothers' education												
Less than high school			0.26 +	1.30 +	0.23	1.26			0.03	1.03	−0.02	0.98
High school (omitted)			–	–	–	–			–	–	–	–
Some college			0.04	1.04	0.10	1.11			−0.29 **	0.74 **	−0.23 *	0.79 *
Mothers' employment status			−0.11	0.89	−0.09	0.91			−0.12	0.89	−0.11	0.90
Fathers' work/school status			−0.39 *	0.68 *	−0.31 +	0.74 +			−0.39 **	0.67 **	−0.32 **	0.72 **
Welfare use			0.17	1.18	0.16	1.18			−0.02	0.98	−0.07	0.93
Mother currently in school			0.12	1.13	0.12	1.12			0.09	1.10	0.11	1.12
Number of children			0.02	1.02	0.00	1			0.06 +	1.07 +	0.04	1.04
Support variables												

	Depressive symptoms						Anxious symptoms					
	Model 1		**Model 2**		**Model 3**		**Model 1**		**Model 2**		**Model 3**	
	β	e^{β}	β	e^{β}	β	e^{β}	β	e^{β}	β	e^{β}	β	e^{β}
Perceived social support					−0.13***	0.88***					−0.15***	0.86***
Religious involvement					−0.06	0.94					−0.05+	0.95+
Constant	−0.69***	0.50***	−0.28	0.76	0.43	1.53	−0.94***	0.39***	−0.75***	0.47**	0.08	1.09
N	2610		2557		2551		2610		2557		2551	
Chi-square	50.72***		77.32***		97.30***		77.73***		116.20***		159.40***	

e^{β} = exponentiated β.

+
p < 0.10.

*
p < 0.05.

**
p < 0.01.

***
p < 0.001.

Table 3

Logistic regression results predicting union dissolution from interpersonal violence (IPV) groups and demographic, economic, and mediating variables.

	Model 1		Model 2		Model 3	
	β	e^β	β	e^β	β	e^β
IPV groups						
No violence or control (omitted)	–	–	–	–	–	–
Controlling only	0.11	1.12	0.14	1.14	0.10	1.11
Violent and controlling	0.62 ***	1.86 ***	0.62 ***	1.86 ***	0.57 ***	1.76 ***
Demographic and economic variables						
Cohabiting union			0.95 ***	2.58 ***	0.95 ***	2.60 ***
Mothers' age			−0.07 ***	0.93 ***	−0.07 ***	0.93 ***
Mothers' race						
Non-black/non-hispanic (omitted)		–	–	–	–	–
Black			0.48 **	1.61 **	0.41 **	1.50 **
Hispanic			−0.38 *	0.68 *	−0.44 *	0.64 *
Mothers' education						
Less than high school			−0.02	0.98	−0.03	0.97
High school (omitted)			–	–	–	–
Some college			−0.25 +	0.77 +	−0.23	0.80
Mothers' employment status			0.26 *	1.30 *	0.27 *	1.32 *
Fathers' school/work status			−0.18	0.83	−0.13	0.88
Welfare use			0.43 **	1.53 **	0.40 **	1.49 **
Mother currently in school			0.11	1.12	0.12	1.12
Number of children			0.05	1.05	0.03	1.04
Support variables						
Perceived social support					−0.09 **	0.91 **
Religious involvement					0.04	1.04
Constant	−1.45 ***	0.24 ***	−0.58	0.56	−0.23	0.80
N	2398		2353		2348	

	Model 1		Model 2		Model 3	
	β	e^β	β	e^β	β	e^β
Chi-square	8.06*		304.05***		311.76***	

e^β = exponentiated β.

+ $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Table 4

Fixed effects regression results for the change in depressive and anxious symptoms by interpersonal violence (IPV) groups and demographic, economic, and mediating variables.

	Depressive symptoms						Anxious symptoms					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	β	SE(β)	β	SE(β)	β	SE(β)	β	SE(β)	β	SE(β)	β	SE(β)
IPV groups												
No violence or control, stable	0.22**	0.07	0.17*	0.08	0.17*	0.08	0.04	0.05	0.00	0.06	0.00	0.06
Controlling-only, stable	0.21**	0.07	0.16*	0.07	0.16*	0.07	0.10*	0.05	0.07	0.05	0.06	0.05
Violent and controlling, stable	1.08***	0.24	0.96***	0.24	0.94***	0.25	0.24	0.18	0.20	0.18	0.17	0.18
Violent/controlling, dissolved[a]	0.58***	0.13	0.46**	0.15	0.45**	0.15	0.07	0.10	−0.02	0.11	−0.02	0.11
No violence or control, dissolved	0.48***	0.13	0.44**	0.14	0.43**	0.14	0.30**	0.10	0.25*	0.10	0.24*	0.10
Demographic and economic variables												
Mothers employment			−0.11	0.08	−0.10	0.08			−0.19**	0.06	−0.19**	0.06
Fathers work/school status			−0.17	0.11	−0.16	0.11			−0.27***	0.08	−0.27***	0.08
Mother in school			−0.18+	0.10	−0.18+	0.10			−0.10	0.07	−0.10	0.07
Mother completed education			0.17	0.12	0.17	0.12			0.14	0.09	0.14	0.09
Number of children			0.16*	0.07	0.16*	0.07			0.06	0.06	0.06	0.06
Welfare use in past year			0.08	0.12	0.07	0.12			−0.19*	0.09	−0.20*	0.09
Support variables												
Perceived social support					−0.07*	0.03					−0.03	0.02
Religious involvement					0.00	0.03					0.03	0.02
Constant	0.71***	0.03	0.62***	0.19	0.94***	0.24	0.53***	0.02	0.80***	0.14	0.86***	0.18
N	2355		2351		2351		2355		2351		2351	
R^2 within	0.03		0.03		0.04		0.01		0.02		0.02	
R^2 between	0.04		0.02		0.04		0.01		0.00		0.01	
F-statistic	14.52***		7.17***		6.52***		3.32***		4.11***		3.73***	

[a] Mothers in this group could be violent, controlling, or violent and controlling but did not dissolve at either wave.

+
$p < 0.10$.

*
$p < 0.05$.

**
$p < 0.01$.

***
$p < 0.001$.