IMPLICATIONS OF VIOLENT AND CONTROLLING UNIONS

FOR MOTHERS' MENTAL HEALTH AND LEAVING

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ABSTRACT

We used two waves of the Fragile Families Study (N = 2639) to examine links between control and violence with maternal mental health and relationship dissolution. Mothers in controlling-only or controlling and violent unions had more symptoms of depression and anxiety and greater odds of dissolution than mothers not experiencing violence or control. Over time, all mothers increased in depressive symptoms, but the magnitude of the increase in depressive symptoms was greatest for mothers in violent and controlling stable unions followed by those in controlling-only stable unions. Mothers dissolving violent and/or controlling unions also experienced increases depressive symptoms over time. Results indicate negative consequences for both mothers who remain in and leave violent and controlling unions.

THE IMPLICATIONS OF VIOLENT AND CONTROLLING UNIONS FOR MOTHERS' MENTAL

HEALTH AND LEAVING IN FRAGILE FAMILIES

Intimate partner violence (IPV) continues to be a crucial issue facing women today. Despite its importance, violence researchers often limit their definitions of domestic violence to physical assaults or fail to assess the intent of violence (Kenney & McLanahan, 2006; Fertig, Garfinkel, & McLanahan, 2007). Michael Johnson (1996; 2005; 2006; Johnson & Ferraro, 2000) has continually called for an expanded definition of intimate partner violence, yet domestic violence researchers have been slow to respond to this demand. For example, he has argued that there are differences in the causes, behaviors, and consequences of typologies of violence, which he distinguished with violent and controlling behaviors (Johnson 1996; 2005; 2006; Johnson & Ferraro, 2000). Following the conceptual model of control and violence from this typology, we use a nationally representative dataset of low-income urban parents to examine the association between control and violence with mental health concurrently and over time, as well as with the probability of union dissolution. Understanding how violent and controlling behaviors impact mothers' mental health and union dissolution is integral as it has the potential to help guide policy, intervention programs, and clinicians in their work with violent families.

Intimate Partner Violence (IPV) and Mental Health

Research indicates severe health consequences for women experiencing intimate partner violence as compared to those without a history of IPV. For example, women with histories of IPV experience higher rates of depression, poor social functioning (Bonomi, Thompson, Anderson, Reid, Carrell, Dimer, & Rivara, 2006; Coker, David, Arias, Desia, Sanderson, Brandt, & Smith, 2002), poor physical health, increased substance use, and increased frequency of chronic disease, chronic mental illness, and injury (Coker, et al., 2002). Not surprisingly, women with a history of or current IPV utilize healthcare at higher rates than do their counterparts with no IPV history. Specifically, they utilize healthcare at rates 20% higher than those with no IPV history even five years after the cessation of IPV, resulting in an estimated $19.3 million in

excess health care costs each year (Rivara, Anderson, Fishman, Bonomi, Reid, Carrell, & Thompson, 2007). A recent study estimated the lifetime prevalence rate for IPV to be 44%, with a one-year rate of 7.9% (Thompson, Bonomi, Anderson, Reid, Dimer, Carrell, & Rivara, 2006).

Each discipline offers a unique lens through which to conceptualize the events of violence (for a review see Wilkinson & Hamerschlag, 2004). In this paper we focus on relational patterns of violence within a couple system. In particular, we consider controlling and physical tactics of violence perpetrated by fathers toward the mothers of their children. We follow the typologies outlined by Michael Johnson (1996; 2005; 2006; Johnson & Ferraro, 2000) to examine the effects of control and violence on mental health and on the likelihood of union dissolution.

Michael Johnson's Typologies of Domestic Violence

Michael Johnson has developed a typology of violence outlined in several papers in the past 12 years as well as a recent book (1995; 2005; 2006; 2008; Johnson & Ferraro, 2000). He began by describing differences between *intimate terrorism*, where one partner is generally victimized by the other partner through violent as well as controlling behaviors, and *situational couple violence*, where both partners engage in low-level, low severity, situational violence that does not escalate, and which occurs in the absence of controlling behavior. According to this typology, intimate terrorism is most often initiated and perpetrated by men against women and has a tendency to escalate over time. Situational couple violence, on the other hand, arises from stress and tension in daily life and is meant to gain control only over a specific situation, not the relationship in general, and does not appear to escalate (M. Johnson, 2008). Activists for the family violence perspective have argued that women are committing acts of violence at rates similar to, and in some studies higher than, men, and these arguments have threatened the integrity of women's shelters and assistance programs (Johnson & Ferraro). However, Michael Johnson's (1995) main argument for these two major distinctions is in the way research is collected, namely, that survey research elicits data from situational couple violence, and shelter

and agency data collects information on intimate terrorism. He has argued that couples

experiencing situational couple violence are less likely to be involved in shelters or agency

settings, since violence in these relationships is low level, situational only, and infrequent.

Conversely, survey data systematically biases against intimate terrorism as women may have

fear of punishment from husbands for disclosing their abuse. His analysis of a late 1970's study

using data from both survey and agency found that the majority of intimate terrorism in the study

came from shelters and courts while situational couple violence dominated the survey portion of

the study (M. Johnson, 2006). The types of violence elicited in these two different methodologies

do not represent polar ends of a spectrum, but rather two different and distinct phenomena (M.

Johnson, 1995; Johnson & Ferraro, 2000). Two supplementary types of violence were later

added, which were referred to as *violent resistant* and *mutual violent control* (M. Johnson, 2006).

The defining nature between these types of violence is the issue of control. His four typologies,

based on violent and controlling behaviors, are summarized below:

> *Intimate Terrorism* – one is controlling and violent and their partner is neither; severe
> forms of violence, initiated and perpetrated most often by men, escalates over time.

> *Violent Resistance* – one is violent and non-controlling, but their partner is violent and
> controlling; violence by the individual is a means to combat the controlling/violent nature
> of the partner.

> *Mutual Violent Control* – both individual and their partner are violent and controlling.

> *Situation Couple Violence* – one is violent but non-controlling with a partner who is
> either violent and non-controlling or neither violent or controlling; situational, infrequent
> violence is initiated and perpetrated equally by men and women; does not escalate over
> time (M. Johnson, 2006).

His research estimates that 97% of intimate terrorism is perpetrated by husbands, 96% of violent

resistance is engaged in by wives, and that husbands and wives are represented fairly equally in

both situational couple violence and mutual violent control (M. Johnson, 2006). Many current

studies unfortunately ignore the controlling aspect of violence (Kenney & McLanahan, 2006;

Fertig, Garfinkel, & McLanahan, 2007). We chose to research Michael Johnson's typologies

over others (for a review, see Capaldi & Kim, 2007) for the focus on control as a mechanism that

works hand in hand with violence. Therefore, we will not be testing each of his different typologies against each other, but comparing the mental health impacts of control and violence with which Johnson builds his typology.

Controlling Behavior

Recent research lends support to Johnson's incorporation of controlling behavior in his definitions. Thompson, Bonomi, Anderson, Reid, Dimer, Carrell, & Rivara (2006) found that 11.9% of all women surveyed reported at least one form of physical IPV, and more than three quarters of these also experienced controlling behaviors. Controlling behavior was the most common form of abuse perpetrated against women, according to their study (2006). Additionally, Coker and colleagues (2002) found women experiencing abuse of their power and control to be more likely to have depressive symptoms when compared to those who experienced only verbal abuse.

Controlling behavior is hypothesized to result from feelings of insecurity or losing power on the part of the perpetrator. Using the Fragile Families and Child Well-Being data, the data which this study draws from, Fertig, Garfinkel, & McLanahan (2007) found that for non-coresident dating couples, the mother's probability of experiencing violence is higher in cities with stricter child support enforcement. Therefore, perpetrators of violence may be reacting to their lack of control in the larger structural and societal systems through the use of controlling and/or violent tactics in their romantic relationships.

Turning to our hypotheses, we expect mothers in more severe violent relationships (distinguished by no violence, controlling-only unions, and violent *and* controlling unions) to exhibit higher levels of depression and anxiety concurrently and over time.

> *Hypothesis 1*: We expect to find greater odds of depressive and anxious symptoms for mothers in the controlling-only and violent *and* controlling unions as compared to mothers experiencing no violence or control, consistent with prior research (Thompson et al., 2006; Coker et al., 2002).

> *Hypothesis 2*: Mothers in these more severe groups will have greater odds of dissolving their unions as compared to mothers not experiencing control or violence.

Hypothesis 3: We expect mothers remaining in violent and/or controlling unions will experience a significant increase in depressive and anxious symptoms over time.

Hypothesis 4: We predict that mothers who dissolve their controlling or violent unions will experience a reduction in depression and anxiety symptoms over time.

Overall, we add to the field of existing literature by examining mental health outcomes and different types of intimate violence in hopes of aiding policy workers and mental health professionals to properly diagnose and treat violently different individuals, couples, and families. Recent literature has called on scholars to conduct research on the underlying etiology of typologies (Gottman et al., 1995; Holtzworth-Monroe & Stuart, 1994; Gondolf, 1988) and also to develop appropriate policy, intervention, and treatment evaluation (M. Johnson, 2008; Cavanaugh & Gelles, 2005; Greene & Bogo, 2002; Stith, Rosen, McCollum, & Thomsen, 2004).

We also contribute to the literature by examining both cohabiting and married partners. Research on intimate partner violence has historically been conducted with married partners. However, recent literature has shown alarming rates of violence within cohabiting and dating relationships as well; in fact, some studies find cohabiting relationships to be more violent than marriage (Brownridge, 2004; Cherlin, Burton, Pert, & Purvin, 2004; Kenney & McLanahan, 2006; Shackelford, 2001). Other research further suggests differences in mental health by relationship status whereby cohabiters reported higher rates of mental health problems (Deklyen, Brooks-Gunn, McLanahan, & Knab, 2006) and lower indices of relationship quality (Carlson, 2007; Marcussen, 2005) than did their married counterparts. Therefore, we examined both cohabiting and married couples and take into account marital status in our models.

We control for a variety of variables in this analysis, including demographic characteristics as well as socioeconomic status, which may be linked to both domestic violence and mental health as well. We also examine the role of social support to see if it would play a mediating role in the relationship between domestic violence and mental health. We conceptualized social support to include both mothers' perceptions of their available support as

well as religiosity. The availability of other sources of social support may serve as protective factors for mental health in the face of IPV. Additionally, literature suggests that religious involvement can be a protective factor against stress and mental health (Lee, 2007; Watlington and Murphy 2006). In particular, Watlington and Murphy (2006) found higher levels of religious involvement to be associated with fewer depressive symptoms, fewer posttraumatic stress symptoms, and higher levels of social support for a group of African American women survivors of domestic violence.

<div align="center">Method</div>

This research uses the Fragile Families study, a study of unwed mothers and fathers and their children. The baseline data includes a sample of 4,898 mothers and fathers ($n = 3830$) who had children (3,711 nonmarital and 1,187 marital) in the US between 1998 and 2000. Mothers and fathers were interviewed separately in the hospital shortly after their child's birth with follow-up interviews conducted when the child was one and three years old (see Reichman, Teitler, Garfinkel, & McLanahan, 2001 for a detailed discussion).

We rely on mothers' reports of her and the fathers' characteristics and behaviors. Therefore, we chose to deal with same-reporter bias, as opposed to non-response bias, due to the fact that there is much missing data (25% at baseline) from the fathers in the sample, and those missing are more likely to be disadvantaged (Teitler, Reichman, & Sprachman, 2003). For that reason, given the bias and small size of the father's data, we used only mother reports, substituting father's data only when mother reports were missing. In this study, we only draw data from mothers who were either cohabiting or married to the father of their child and were present at year one (n = 2639). Marriage and cohabitation at one year were pulled from the question: *What is your relationship with [father] now? Are you married, romantically involved, separated/divorced, just friends, or not in any kind of relationship?* Marriage was coded as a response of *married*. Cohabiting was measured as being *romantically involved* as well as reporting living together *all or most of the time* in response to the question *Are you and [father]*

currently living together all or most of the time, some of the time, rarely, or never? At year one, 1,254 (48.27%) of mothers reported being married and 1,344 (48.27%) cohabiting.

Independent Variables

Violence was coded at both 1 and 3 years for mothers who answered *Sometimes* or *Often* (rather than *Never*) to at least one of the following questions about their partner: *He slaps or kicks you; He hits you with his fist or an object that could hurt you; He tries to make you have sex or do sexual things you don't want to do;* or answered *Yes* to *Were you ever cut, bruised, or seriously hurt in a fight with the child's father?* The alpha for this scale at year 1 was 0.95 and 0.99 at year 3.

Control was coded at both 1 and 3 years for mothers answering *Sometimes* or *Often* to at least one of the following questions about their partner: *He insults or criticizes you or your ideas; He tries to keep you from seeing or talking with your friends or family; He tries to prevent you from going to work or school;* or *He withholds money, makes you ask for money, or takes your money.* The alpha of the control scale was 0.99 at year 1 and 0.99 at year 3. We include insulting and criticizing behaviors in our definition of control for two reasons: first, insulting behaviors have been included in previous literature as psychological or emotional abuse (Bonomi et al., 2006; Leaman & Gee, 2006). Secondly, the history of intimate terrorism is value-laden in patriarchal traditions of power, for which criticizing and insulting a partners' behavior can be an effective mechanism. Approximately half (47%) of our mothers having controlling behavior experienced insulting and criticizing behaviors in the absence of other controlling tactics.

In an effort to make distinctions between controlling and violent behaviors, as well as their intersection, we created three groups of violent unions: non-violent and non-controlling (n = 1448), controlling-only unions (n = 1123), and controlling and violent unions (n = 127). We did examine violent-only relationships, however, the sample size (n = 26) was too small to appropriately conduct analyses in this paper; therefore, these observations were dropped from

our analyses. The small number of violent-only observations, however, indicates the high

percentage of violent unions which also exhibit controlling behaviors (83% in this data).

For relationship dissolution, a marriage was coded as dissolved if the mothers reported

being married to the father of their child at year 1 but not at year 3. Cohabiting unions were

coded as dissolved if the mother stated she no longer lived with the father *all/most of the time* by

year 3. We excluded from our analyses mothers whose relationships fit the above criteria but also

reported maintaining a romantic relationship with the father. Ten percent of married and 38% of

cohabiting couples dissolved by year 3.

Dependent Variables

We utilized continuous measures of depression and anxiety for our indicators of mental

health. Symptoms of depression coded at both years 1 and 3 used diagnostic criteria from the

Composite International Diagnostic Interview – Short Form (CITI-SF). Scoring of the CITI-SF

matches the *Diagnostic and Statistical Manual of Disorders, Fourth Edition* (DSM-IV,

American Psychological Association, 2000) diagnostic criteria for major depressive episode.

Depression items included: *During the past 12 months, has there ever been a time when you felt*

sad, blue, or depressed for two or more weeks in a row? Has there ever been a time lasting two

weeks or more when you lost interest in most things like hobbies, work, or activities that usually

give you pleasure? Did you feel more tired out or low on energy than usual? Did you gain or

lose weight without trying? Did you have a lot more trouble concentrating than usual? The

continuous coding of depression consisted of eight items (alpha = 0.88 at Year 1 and 0.90 at

Year 3). Participants received a value of 1 for a *Yes* response to each symptom, and the sum of

these items became their score. It is important to note that respondents who did not report

experiencing the first two symptoms (feeling depressed or experiencing a loss of interest), did

not answer any of the following CITI-SF items, as part of the questionnaire design. The same is

true for the survey items which assessed anxiety. We therefore have a skewed distribution of our

dependent variables, which we account for in our statistical analyses.

Measures of anxiety were also coded continuously at both the baseline and final waves. Assessment of anxiety includes the following items, among others: *Did you have a time in the past 12 months when you worried a lot more than most people would in your situation? Did/Do you find it difficult to stop worrying? Did/Do you have different worries on your mind at the same time? How often did/do you find it difficult to control your worry? Were you also keyed up or on edge?* The anxiety coding consists of seven total items, including those mentioned previously (alpha = 0.94 at year 1 and 0.93 at year 3). Using this coding, we find that 29.91% of our mothers at baseline have at least one symptom of anxiety with about 5.51% experiencing multiple symptoms of anxiety. The incidence of anxiety was slightly higher for the mothers at the final wave, with 36.33% reporting at least one symptom and 6.58% experiencing multiple symptoms.

Control Variables

In our analyses we controlled for various demographic variables, including marital status, mother's age in years, race, education, and employment status. Mother's marital status, age, race, education, and employment status are all self-reported observations. Mother's age was coded continuously by years, and we code race and education dichotomously for the following groups: White, Black, and Hispanic, and less than high school, high school diploma or equivalent, and at least some college education. Employment status refers to mothers as having participated in regular work for pay in the week before their interview date (1) or not participating in regular work (0). Mothers' cohabitation status was coded as (1) cohabiting and (0) married.

We accounted for fathers' employment status as this can potentially be related to total income of the family unit and the mothers' mental health. We gave a value of 1 for a *Yes* answer and 0 for answering *No* to the question *Is father* (of the shared child) *currently working.* For this item we used mothers' responses and replace those with missing values from the fathers' reports. For an additional measure of income status, we controlled for welfare use as measured by the mother as (1) used welfare in the last year and (0) not using welfare in the last year. To assess

other indicators of socioeconomic status, we controlled for mothers' educational involvement, giving a value of 1 to those mothers who were currently in school. We assigned a value of 1 to mothers who had completed education since our baseline wave, a potential indicator of improvement in their socioeconomic status. Additionally, we accounted for the number of children residing in the household giving us information about the potential burden on finances. This variable was coded as biological or step-children living in the home who were under 18 using a household roster. These last variables together supply comprehensive indicators of the family socioeconomic status without using income, which had a large amount of missing data.

Perceptions of social support, which was measured at both years 1 and 3, included the following items: *Could you count on someone to loan $200 in the next year? Could you count on someone to loan $1000 in the next year? Could you count on someone to provide a place to live in the next year? Could you count on someone to help with emergency child care? Could you count on someone to co-sign for a loan for $1000? Could you count on someone to co-sign for a loan for $5000?* These items were combined in our support scale if they answered *Yes* to these questions. Respondents received a zero for each item if they responded *No* or *Don't know*, since it is the perception of support we were interested in evaluating (alphas 0.96 at year1 and 0.99 at year 3). Religious involvement was coded incrementally from 0-5. Scores indicate attendance (0) never attending religious services, (1) attending less than once a year, (2) a few attendances per year, (3) a few times in a month, (4) one time per week, (5) more than once a week. Therefore, a higher score on this variable indicated a higher level of involvement.

To examine change in violent and controlling status over time, we constructed a multinomial variable, with (0) indicating mothers who remained in non-controlling and non-violent unions over the two waves, (1) mothers who remained in controlling-only unions, (2) mothers staying stable in violent and controlling unions, (3) those leaving from, or dissolving, violent and/or controlling unions, and (4) mothers dissolving relationships which were not violent or controlling.

Analytic Plan

      We estimated three different sets of models to examine the association between mental health and intimate partner violence in our sample. We began by examining the association between type of violent union (i.e. no violence or control, controlling only, or violent and controlling) and depressive and anxious symptoms at year 1. Control variables in these models included mothers' age, race, and education, which were measured at baseline, and their marital status, employment status, school status, welfare use, total children in care, perceived social support, religious involvement, and fathers' employment status, measured at year 1. We use negative binomial regression to examine the association between type of violent union and the count variables number of depressive symptoms and number of anxious symptoms. These count variables were skewed toward 0 and have over-dispersion (the variance of the variable is greater than its mean; variance = 1.84; mean = 0.61 for anxiety; variance = 3.59; mean = 0.92 for depression at year 1). Therefore, rather than using ordinary least squares (OLS) regression, as is standard with continuous variables that are normally distributed, we used a negative binomial regression. 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 clinical depression, by a factor of e^{β}, holding all other variables constant. We report both the β and the exponentiated β (e^{β}), and we discuss the exponentiated β or odds ratios in the text (see Fomby & Cherlin, 2007, for an application of negative binomial regression to family data and Long & Freese, 2005, for a technical discussion).

      We next examine the role of type of violent union in predicting the dissolution of unions between years 1 and 3. We use simple logistic regression to predict union dissolution and again discuss the exponentiated coefficients. Control variables included mothers' marital status, age, race, education, employment status, school status, welfare use, total children in care, perceived social support, religious involvement, and fathers' employment status all measured at year 1.

Our final set of models examined the change in mental health between years 1 and 3 by type of violent union and the stability of violent union. To examine the change in mental health over time and account for observed heterogeneity, we utilized fixed effects regression, where time-variant characteristics can be examined as part of the model. The general equation for a fixed effects model is as follows (Allison, 2006; D. Johnson, 2005):

$$y_{it} = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i + \varepsilon_{it}$$

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. 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.

Because we are using two waves of data in our analysis, our fixed effects analysis will consist of two equations, which are as follows:

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

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

We can assess change between times 1 and 2 by subtracting the first equation from the second:

$$y_{i2} - y_{i1} = (\mu_2 - \mu_1) + \beta(x_{i2} - x_{i1}) + (\varepsilon_{i2} - \varepsilon_{i1})$$

In the above equation the coefficients and error terms that do not vary over time, γz_i and α_i, are differenced out. Therefore, only observed time-variant variables are entered into the equation when estimating the fixed effects results. In these models, variation that is due to stable, observed, and unobserved characteristics of the respondents are differenced out. Thus, there remains a single source of un-modeled heterogeneity that could serve as a source of third-variable bias – unobserved, time-varying heterogeneity. We examine the role of the following time-varying covariates in models: mothers' and fathers' employment status, educational status,

having completed education, the total number of children, perceived social support, and

religious involvement. We use Stata (Version 10) to conduct all analyses.

Results

Descriptive Statistics

The average number of depressive symptoms in the sample was 0.75 on a scale of 0 to 8,

and 0.54 for anxious symptoms on a scale of 0 to 7 at year 1. These low numbers can be

explained, as mentioned earlier, by the highly skewed distribution of depressive and anxious

symptoms. Approximately 78% of the sample experienced no depressive symptoms and 70%

experienced no anxious symptoms at year 1.

Turning to relationship variables, almost half of our sample was married (48%) while

52% were cohabiting at year 1. Overall, 17% of mothers dissolved their unions between year 1

and year 3. A large portion (44%) of mothers experienced at least one symptom of control in

their unions, while a much smaller 5% experienced violence.

The mothers' racial identity was fairly evenly distributed with 37% Black, followed by

30% Hispanic and 28% White. Education level was also fairly dispersed. Mothers having at least

some college education represented 42% of our sample, followed equally by mothers with less

than a high school diploma at 29% and mothers having a high school diploma or GED also at

29%. The average age of mothers was approximately 26 years old. About half of our mothers

were employed (53%) while a much larger percentage of their partners participated in work

outside the home (88%). Sixteen percent of mothers were enrolled in an educational or training

program at year 1, and 16% had completed that education or training by year 3. Mothers had an

average of 2.05 children at wave 1, suggesting that many mothers in our sample had other

children in their care. Further, about 15% of our sample had utilized some form of welfare

services in the past year (the first year of their child's life). Finally, mothers reported having

fairly high levels of social support with a mean of 4.36 on a 6-point scale, and reported religious

attendance (a mean level of 2.56) between a few times a month to a few times per year.

(Table 1 about here)

Results from Models Predicting Depression and Anxiety at 1-Year

Turning to our first research question: Does the association between mental health and domestic violence vary by type of violence, we found that both controlling only and violent and controlling unions had negative implications for mental health. Net of all control variables, we found that mothers in controlling unions had 87% greater odds of reporting an additional depressive symptom and mothers in controlling and violent unions had 286% greater odds of reporting an additional depressive symptom compared to mothers who were in non-violent/non-controlling unions. With regard to symptoms of anxiety, we found that mothers who were in controlling unions had 62% greater odds of reporting an additional anxious symptom while mothers who were in controlling and violent unions had 255% greater odds of reporting an additional anxious symptom compared to mothers who were in non-violent/non-controlling unions. The addition of controls for demographic and economic factors did little to change the coefficients. However, the addition of the support variables to the model did slightly diminish the coefficients, but the differences between the controlling only and violent and controlling groups and the no violence or control group remained significant.

(Table 2 about here)

With regard to our control variables we found that, overall, marital status was unrelated to depressive and anxious symptoms. We also found only marginally significant or no associations between mothers'age, employment status, welfare use, education status, and number of children under her care. We did find that Hispanic mothers reported fewer depressive and anxious symptoms than did White mothers. We also found that Black mothers had fewer anxious symptoms than did White mothers. In terms of education, we found few mental health differences between mothers with less than a high school education and those with a high school education. However, we found mothers with post high-school education to be less likely than those with a high school education only to have anxious symptoms. Finally, we found that

mothers with employed partners were more likely to have an additional depressive and anxious symptom than those mothers whose partners were unemployed.

Turning to the support variables, we found that for each additional source of social support, the odds of having an additional depressive symptom decreased by 13%, and the odds of having an additional anxious symptom decreased by 14%. We also found that for each additional level of religious involvement, the odds of having an additional depressive symptom marginally increased by 7% and the odds of having an additional anxious symptom marginally increased by 5%. Overall, it appears, at least initially, that support is not uniformly associated with mental health. In this at-risk population, having sources of social support is beneficial, but religious involvement may not be beneficial to mental health.

Net of all control variables, mothers in controlling-only unions still had 75% greater odds of having an additional depressive symptom and 45% greater odds of having an additional anxious symptom when compared to mothers in non-violent, non-controlling unions. Further, mothers in controlling *and* violent unions experienced 240% greater odds of having an additional depressive symptom and 182% greater odds of having an additional anxious symptom. These results support hypothesis 1: we found greater odds of having depressive and anxious symptoms for mothers in the controlling-only, and violence *and* controlling unions compared to mothers experiencing no violence or control.

Results from Models Predicting Leaving at 3-Years

Turning to our second research question, does the probability of leaving vary by violent type, we find that mothers in controlling-only unions were not significantly more likely to dissolve their union between years 1 and 3 than were mothers in non-violent/non-controlling unions (see Table 4). However, we found that mothers in violent and controlling unions had 87% greater odds of dissolving their unions between years 1 and 3 than mothers who were in non-violent/non-controlling unions before accounting for controls. This indicates that mothers in these most severe relationships did recognize a need to leave and were more likely to do so. The

addition of controls for support at year 1 diminished the effect slightly, but the difference

between mothers in controlling and violent unions and mothers in non-controlling/non-violent

unions remained significant. These findings partially supported our second hypothesis such that

though women in controlling-only relationships were not more likely than those in non-

violent/non-controlling unions to leave their relationships, women who experienced violent acts

in a controlling union had greater odds of union dissolution.

(Table 3 about here)

Turning to the control variables, we found that marital status was the most powerful

predictor of dissolution. Consistent with previous research, mothers in cohabiting unions were

208% more likely to dissolve their union compared to mothers in marital unions. We also found

that the odds of dissolution decreased by 6% for each additional year in age. Further, Black

mothers had 54% greater odds of dissolution than did White mothers. Hispanic mothers were

somewhat less likely to dissolve their union than were White mothers. We also found that

mothers with at least some college education were marginally significantly less likely to dissolve

their unions. Employed mothers and those who had used welfare in the past year also had greater

odds of dissolution. We also found that for each additional level of social support, mothers had

9% lower odds of dissolving their union. However, for each additional level of religious

involvement a mother reported, her odds of dissolution increased by 7%.

(Table 4 about here)

Results from Models Examining Change in Depression and Anxiety over Time

Regarding our fixed effects regression results reported in Table 4, we found mothers in

all violent groups reported an increase in their depressive symptoms from year 1 to year 3. The

magnitude of change was greatest for mothers remaining in violent and controlling unions,

followed by those who dissolved violent and/or controlling unions and unions which were not

characterized by violent or controlling behaviors, mothers in controlling-only stable unions, and

finally, by stable non-violent/non-controlling unions. These results remained consistent after accounting for economic and support controls.

Considering our control variables, we found that change in mothers' educational status (that is, the mother entering school of some sort) was associated with a significant decrease in reported depressive symptoms. However, for each additional child the mother had between years 1 and 3, she experienced a significant increase in depressive symptoms. We also found that an increase in the level of perceived social support was significantly associated with a decrease in reported depressive symptoms, as would be expected.

Moving to the results for anxious symptoms between years 1 and 3 reported in Table 4, we found significant increases in anxious symptoms only for mothers in controlling-only stable and dissolved non-violent/non-controlling unions. These results were no longer significant for controlling-only mothers after we included controls for economic variation and support. Although mothers in stable non-violent/non-controlling, violent and controlling stable, and violent and/or controlling dissolved did not experience change in mental health, the direction of their coefficients was positive. The lack of significant changes in anxious symptoms may be due to the small incidence rate of anxious symptoms in our sample.

Mothers who became employed between years 1 and 3 experienced a significant decrease in anxious symptoms, as did mothers whose children's fathers also became employed. Mothers who began to use welfare between years 1 and 3 experienced a marginally significant decrease in anxious symptoms, possibly due to the lessening financial worries. However, mothers who completed their education or training program between years 1 and 3 experienced a marginally significant increase in anxious symptoms. This may be due in part to the stress of searching for employment.

Comparing Violent Groups

To appropriately measure differences *between* our violent and controlling behaviors and the change in depressive and anxious symptoms over time, in results not shown we employed

fixed effects analyses utilizing interaction terms. That is, we modeled the natural change in depressive and anxious symptoms over time for a reference group and then examined whether this natural change over time was significantly different compared to those in our remaining violent groups. These analyses included all control variables.

We found, net of control variables, that mothers remaining in controlling and violent unions were significantly more likely to increase in depressive symptoms over time than were mothers remaining in controlling-only stable unions and those remaining in non-controlling/non-violent stable unions, offering support to our third hypothesis. However, we did not find significantly different changes in either depressive or anxious symptoms for mothers in controlling-only stable unions as compared to mothers in non-controlling/non-violent stable unions. Yet, we still find evidence to support hypothesis 3: mothers who remained in violent or controlling unions experienced significant increases in depression and anxiety.

Concerning our fourth and final hypothesis, our results indicated that mothers who dissolved violent and/or controlling unions experienced a significant increase in depressive symptoms over time, net of economic and support variables. These results did not lend support for hypothesis 4, which predicted that mothers leaving violent and/or controlling unions would experience a *decrease* in symptoms. We also found that these controlling and/or violent mothers who dissolved their unions experienced a significant increase in depressive symptoms when compared to mothers in both the non-violent/non-controlling stable and controlling-only stable unions. However, when compared to mothers who remained in violent and/or controlling unions, mothers who dissolved their violent and/or controlling unions did not experience significantly different changes in mental health. Overall, we found no support for our final hypothesis that these mothers experienced a decrease in mental health symptoms over time.

Discussion

This study documents the consequences of controlling and violent unions on mental health and union dissolution of 2598 mothers using longitudinal data from the Fragile Families

study. We found support for our first hypothesis finding that mothers in controlling and violent unions experienced greater odds of depressive and anxious symptoms than those not experiencing violence or control. Our second hypothesis was also supported, which found mothers in more severely violent unions to have greater odds of leaving the union. Further, our third hypothesis was supported finding that mothers who remained in controlling and/or violent unions experienced significant increases in mental health symptoms over time. Finally, our fourth hypothesis was not supported. In fact, we found evidence that mothers who dissolved their violent and/or controlling unions also experienced an *increase* in depressive symptoms (but not anxious symptoms), between years 1 and 3. Further, our analysis of violent and controlling behaviors supports the typology of Michael Johnson (2008) which distinguishes violent groups on these two sets of behaviors.

Most importantly, we found that all mothers who were in some type of controlling union had poor mental health outcomes. The most severe consequences occurred for mothers experiencing what Johnson (2008) would label *intimate terrorism*, or unions involving both male perpetrated violence and controlling behaviors. These mothers began at year 1 with high rates of depressive and anxious symptoms, and then experienced a significant increase in symptoms over time. Although our sample of mothers experiencing *intimate terrorism* was only 9% of our sample and 18% of mothers experienced violent or controlling behaviors, our findings indicate this group to be an at-risk population. These mothers are in need of psychological and social services due to their significantly greater likelihood of depression and anxiety.

Our findings in table 4 suggest that leaving a violent relationship does not lead to better mental health. It is possible that the effects of controlling and/or violent behaviors linger, or that our measures do not provide sufficient time after dissolution to see decreases in negative mental health. Also, these mothers share a child with their abusers, and are likely to be tied to the fathers after the dissolution, hence putting them at risk for further abuse. Finally, these mothers may also be mourning the end of the relationship while making a transition to single-parent family life.

The most important implication of this study is the identification of a specific violent group, those that are controlling-only. We find that the group of mothers experiencing non-violent controlling behaviors had more symptoms of depression and anxiety than mothers not experiencing violence or control, and experienced significant increases in depressive symptoms over time. These results illustrate the significant impact of the controlling mechanism on mothers' mental health, and perhaps should be categorized as a separate and distinct category: Following Michael Johnson's typology, this group could be labeled pre-*intimate terror*. That is, just as intimate terrorism behavior escalates over time, relationships may start off with controlling behaviors which may then increase in severity over time to include violent behaviors. In the data used in this study, approximately 4% of mothers who remained stable in their union that experienced controlling-only behaviors at year 1 reported both controlling *and* violent behaviors at year 3. This group of victims of controlling behaviors is not highlighted in the literature as a public health concern or as a group at-risk for future physical violence.

No study is without limitations, and we examine several here that pertain to these analyses. Our research is bound by the limitations of the Fragile Families study. We have missing data for some variables at wave three and also lose respondents to attrition. We are not able to assess frequency or severity of the violent acts in full accordance with Michael Johnson's (2006) typologies, specifically the intent for violence central to *violent resistant* unions. The Fragile Families study does not assess use of threats as a controlling behavior, such as threatening physical abuse, to take children away or to hurt them, or to leave, although other research has shown this to be prevalent among groups of abused women (Raj, Silverman, McCleary-Sills, & Liu, 2005; Thompson et al., 2006). We also note that we use the terms "leaving" and "dissolving her union", but acknowledge that we have no information on relationship dissolution that would suggest which partner initiated the breakup.

Implications for future policy and research are vast. Screenings for intimate partner violence should include issues of controlling behaviors, including isolation, emotional abuse, and

economic abuse, and should occur in all settings, including the medical, psychological, social service, and educational fields. Clinical research should examine interventions used with women experiencing intimate partner violence, especially mothers, to determine which interventions are appropriate and successful with each group, particularly utilizing the knowledge that a mother's psychological well-being may not improve when she exits an abusive relationship. Further, future research should examine the resiliency of mothers and situational determinants which may serve as either risk or protective factors for mothers' mental health after dissolution from these unions.

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Table 1 *Descriptive Statistics of Sample*

	μ	sd	range	α
Depressive Symptoms, Year 1	0.75	1.73	0-8	0.88
Anxious Symptoms, Year 1	0.54	1.27	0-7	0.94
Cohabitating Union, Year 1	0.52	0.5	0-1	
Dissolution between Year 1 and Year 3	0.17	0.38	0-1	
Control in the Relationship, Year 1[a]	0.44	0.5	0-1	0.99
Violence in the Relationship, Year 1[b]	0.05	0.22	0-1	0.95
Mothers' Race, Birth				
White	0.28	0.45	0-1	
Black	0.37	0.48	0-1	
Hispanic	0.30	0.46	0-1	
Mother's Education, Year 1				
Less than High School Diploma	0.29	0.46	0-1	
High School Diploma or GED	0.29	0.45	0-1	
At least some College	0.42	0.49	0-1	
Mother's Age, Year 1	26.11	6.13	0-1	
Mother Employed, Year 1	0.53	0.5	0-1	
Father Employed, Year 1	0.88	0.33	0-1	
Mother Currently in School, Year 1	0.16	0.37	0-1	
Completed Education Year 1 to Year 3	0.16	0.37	0-1	
Total Number of Children, Year 1	2.05	1.16	0-10	

Welfare Use in the Last Year, Year 1	0.15	0.36	0-1	
Perceived Social Support, Year 1	4.36	1.77	0-6	0.96
Religious Involvement, Year 1	2.56	1.53	0-5	
N		2598		

Notes: [a]Four items were used to construct a dichotomous indicator of control.
[b]Four items were used to construct a dichotomous indicator of violence.

Table 2 *Negative Binomial Regression Results for Symptoms of Depression and Anxiety, Reporting Coefficients and Odds Ratios*

	Symptoms of Depression						Symptoms of Anxiety					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	β	e^{β}	β	e^{β}	β	e^{β}	B	e^{β}	β	e^{β}	β	e^{β}
Controlling Categories												
No Violence and Control	-	-	-	-	-	-	-	-	-	-	-	-
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	1.35***	3.86***	1.33***	3.78***	1.22***	3.40***	1.27***	3.55***	1.21***	3.34***	1.04***	2.82***
Demographic and Economic												
Cohabiting Union			0.06	1.07	0.01	1.01			0.07	1.07	-0.01	0.99
Mother's Age			-0.01	0.99	-0.01	0.99			0.01	1.01	0.01	1.01
Mother's Race												
White			-	-	-	-			-	-	-	-
Black			0.07	1.07	0.03	1.03			-0.22*	0.80*	-0.26*	0.77*
Hispanic			-0.28+	0.76+	-0.35*	0.70*			-0.27*	0.76*	-0.32**	0.73**
Mothers' Education												
Less than High School			0.26+	1.30+	0.23	1.25			0.03	1.03	-0.02	0.98
High School			-	-	-	-			-	-	-	-
At Least Some College			0.04	1.04	0.1	1.01			-0.29**	0.75**	-0.23*	0.80*
Mother Employed			-0.11	0.89	-0.09	0.92			-0.12	0.88	-0.11	0.9
Father Employed			-0.39*	0.67*	-0.31+	0.73+			-0.39**	0.67**	-0.32**	0.72**
Welfare Use in Past Year			0.17	1.18	0.16	1.18			-0.01	0.99	-0.07	0.93

	β	e^β	β	e^β	β	e^β	β	e^β	β	e^β	β	e^β
Mother Currently In School			0.12	1.12	0.1	1.11			0.09	1.09	0.11	1.11
Number of Children			0.02	1.02	0	1			0.06+	1.07+	0.04	1.04
Support Variables												
Perceived Social Support					-0.13***	0.88***					-0.15***	0.86***
Religious Involvement					0.06+	0.94+					0.05+	0.95+
Constant	-0.70***	0.50***	-0.26	0.77	0.49	1.64	-0.94***	0.39***	-0.74**	0.48**	0.1	1.11
N	2598		2545		2542		2598		2545		2542	
Chi-square	50.35***		77.03***		97.45***		77.06***		114.9***		158.4***	

Note: e^β = exponentiated β

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 3 *Logistic Regression Results Predicting Dissolution, Reported Coefficients and Odds Ratios*

	Model 1		Model 2		Model 3	
	β	e^{β}	β	e^{β}	β	e^{β}
Controlling Categories						
No Violence and Control	-	-	-	-	-	-
Controlling Only	0.10	1.10	0.09	1.10	0.06	1.06
Violent and Controlling	0.63**	1.87**	0.63*	1.88*	0.58*	1.79*
Demographic and Economic						
Cohabiting Union			1.13***	3.08***	1.15***	3.16***
Mothers's Age			-0.07***	0.94***	-0.07***	0.93***
Mother's Race						
White			-	-	-	-
Black			0.43**	1.54**	0.34*	1.41*
Hispanic			-0.31+	0.73+	-0.39*	0.68*
Mother's Education						
Less than High School			-0.04	0.96	-0.05	0.95
High School			-	-	-	-
At Least Some College			-0.26+	0.77+	-0.22	0.80
Mother Employed			0.26*	1.30*	0.28*	1.32*
Father Employed			-0.11	0.90	-0.06	0.94
Welfare Use in Past Year			0.38*	1.46*	0.36*	1.44*
Mother Currently In School			0.09	1.09	0.10	1.10
Number of Children			0.06	1.06	0.04	1.04
Support Variables						
Perceived Social Support					-0.09**	0.91**
Religious Involvement					-0.07+	1.07+
Constant	-1.31***	0.27***	-0.62+	0.54+	-0.29	0.75
N	2243		2201		2198	

x^2	7.89*	325.80***	335.60***
df	2	13	15

Note: e^{β} = exponentiated β

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 4 *Fixed Effects Regression Results for Depressive and Anxious Symptoms by Violent Group*

	Depressive Symptoms						Anxious Symptoms					
	β	SE(β)	β	SE(β)	β	SE(β)	β	SE(β)	β	SE(β)	β	SE(β)
Violent Groups												
No Violence or Control, Stable	0.22**	0.07	0.17*	0.08	0.17*	0.08	0.05	0.05	0.02	0.06	0.01	0.06
Controlling-Only, Stable	0.23***	0.06	0.18**	0.07	0.17*	0.07	0.11*	0.05	0.07	0.05	0.06	0.05
Violent & Controlling, Stable	1.04***	0.24	0.91***	0.24	0.89***	0.24	0.18	0.18	0.12	0.18	0.10	0.18
Violent/Controlling, Dissolved[a]	0.59***	0.15	0.46**	0.16	0.46**	0.17	0.16	0.11	0.09	0.12	0.09	0.12
No Violence or Control, Dissolved	0.59***	0.14	0.57***	0.15	0.55***	0.16	0.33**	0.11	0.30**	0.12	0.28*	0.12
Economic Variables												
Mother Employed			-0.08	0.08	-0.07	0.08			-0.20**	0.06	-0.20**	0.06
Father Employed			-0.17	0.00	-0.17	0.11			-0.27***	0.08	-0.27***	0.08
Mother in School			-0.22*	0.01	-0.21*	0.10			-0.10	0.07	-0.09	0.07
Mother Completed Education			0.12	0.12	0.11	0.12			0.15+	0.09	0.16+	0.09
Number of Children			0.15*	0.07	0.15*	0.07			0.03	0.05	0.03	0.05
Welfare Use in Past Year			0.01	0.12	0.00	0.12			-0.17+	0.09	-0.18*	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	0.75***	0.03	0.66***	0.18	0.96***	0.23	0.55***	0.02	0.87***	0.14	0.92***	0.17
N	4994		4901		4890		4994		4901		4890	

Number of Mothers	2524	2518	2518	2524	2518	2518
R^2 within	0.03	0.03	0.03	0.01	0.02	0.02
R^2 between	0.03	0.03	0.03	0.01	0.02	0.02
F-statistic	0.03***	0.01***	0.03***	0.01***	0.01***	0.01***

Notes: [a]Mothers in this group could be violent, controlling, or violent and controlling at year 1.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.10$