Longitudinal Perceptions of Supportiveness From Biological Fathers and Maternal Mental Health Problems

Abstract

Together, increased popularity of the life course paradigm and availability of longitudinal data addressing family relationships have raised important questions about how family processes should be measured to ensure that longitudinal experiences are accurately captured. Using the Fragile Families and Child Well-Being Study (N = 2,158) this paper focuses on trajectories of mothers' perceived supportiveness from a biological child's father and mental health problems five years after the birth. A mother's relationship status with the father is significantly related to her perceptions of supportiveness with married mothers reporting the highest levels of supportiveness followed by mothers in cohabiting unions, romantic non-residential unions, and finally, mothers not in a romantic relationship with the child's father. Increasing slopes of supportiveness are associated with fewer subsequent mental health problems, controlling for both time-varying and time-invariant maternal and relationship characteristics. The discussion calls attention to alternate ways in which longitudinal experiences can be modeled.

Key Words: social support, mental health, mothers, Fragile Families

Relationships are the fabric of social life. They give meaning to the world around us. They help to buffer us from both catastrophic events and daily hassles while, at the same time, frequently give rise to the very negative events that we experience. Certain aspects of social relationships, especially the level of support we perceive from individuals who are closest to us, appear to be more relevant to our well-being than others (House, Landis, & Umberson, 1988a). Perceived support from parents and other close relatives, spouses, and friends can be a powerful coping resource and protect our overall health and well-being. But support from close relationships can also act as the source of unhappiness and dissatisfaction. Disappointment or frustration with respect to perceptions of relationship supportiveness may lead to lower levels of mental health. And this balance between helping and hurting can shift at any time.

Cornwell (2003) argues that, while the definition of social support is itself a static concept, over time, it has dynamic properties. The key for researchers interested in social relationships and health, then, is to find a concise and precise way to capture longitudinal experiences of social support in a dynamic way that can reflect its growth, decay, or staticity over time (House, Umberson, & Landis, 1988b). A number of options are available, each having their own strengths and weaknesses. At a minimum, all require longitudinal data. The study of family dynamics and functioning is one area of research that has seen recent growth in the availability of such longitudinal data. In particular, the Fragile Families and Child Well-Being Study has allowed researchers to focus on relationship dynamics among non-traditional family types. In an era when rates of both cohabitation and non-marital childbearing have seen dramatic increases (Elwood & Jencks, 2004; Teachman, Tedrow, & Crowder, 2000), studying these non-traditional families over time has also grown increasingly important. Given that the

majority of single-parent households are female-headed (Kreider, 2007), the bulk of this research has focused on mothers.

Why, in particular, should social scientist and policy makers be concerned with maternal perceptions of supportiveness? First, perceptions of support have shown to be very important for mental health (Lin, Ye, & Ensel, 1999), even more so than actual received support (Wethington & Kessler, 1986). Second, because mothers are primarily responsible for raising children and spend more time with them than fathers (Sandberg & Hofferth, 2005), and because a mother's mental health affects her ability to parent (Lovejoy, Graczyk, OHare, & Neuman, 2000; Pachter, Auinger, Palmer, & Weitzman, 2006), if we care about child well-being, we should care about how mothers fare. Third, research shows that children raised in the context of low-quality, high-conflict families fare worse than either those in high-quality, low-conflict families or in high-conflict families that divorce (Amato, 2006; Hetherington & Kelly, 2003). This also holds true for adults who remain in long-term, low-quality marriages (Hawkins & Booth, 2005)

This paper uses data from the Fragile Families and Child Wellbeing Study (FFCWS) to explore long-term experiences of perceived support that mothers have with their child's biological father. These mothers are drawn primarily from an economically disadvantaged population, where many families are living under separate roofs. Using latent growth curve modeling, analyses will test whether trajectories of mothers' perceived supportiveness are associated with subsequent mental health problems. They will also examine whether certain time-varying relationship characteristics are working through supportiveness trajectories to influence mental health and whether certain time-invariant maternal characteristics, including a history of mental health problems, mediate the association between supportiveness trajectories and maternal mental health problems. Ultimately, the goal of the paper is to motivate a new way

of thinking about the measurement of long-term trends in variables and constructs that impact well-being, one that pushes past static descriptions to focus on the dynamic aspect of social relationships and the life course.

Background

The salubrious effect of social support, whether perceived or actual, has been well documented (House, Landis, & Umberson, 1988a, b; Pearlin, Lieberman, Menaghan, & Mullan, 1981; Lin, Ye, & Ensel, 1999; Van der Zee, Bunk, & Sanderman, 1997; Wethington & Kessler, 1986). In general, this literature defines social support as the aspects of close social relationships that provide an individual with a sense of belonging, respect, love, and security (Jacobsen, 1986). The concept of supportiveness, then, is a direct measure of how much an individual perceives a relationship to provide him or her with these feelings. This support may come from any number of sources, with support from spouses receiving the most attention in the literature (Cutrona, 1996). Among married couples, spouses are typically the primary source of social support (Beach et al., 1993; Dakof & Taylor, 1990) and support from other sources does not appear to substitute for lack of spousal support (Coyne & DeLongis, 1986).

The role of spousal support in overall well-being may be especially salient for women, given gender stereotypes which emphasize the importance of intimate relationships (Acitelli, 1996; Cutrona, 1996; Erickson, 1993).[1] Acitelli and Antonucci (1994) find that perceptions of social support in marriage are more predictive of relationship satisfaction and general well-being among women than men. Although spousal support in particular is important, given recent

[1] However, some existing literature has reported that men actually benefit more from marital relationships in terms of support (Steil, 2000; but see Verhofstadt, Buysese, & Ickles, 2007 for contrasting evidence). Women are more likely to give than to receive support and thus men are more often recipients (Belle, 1982). Yet, other studies have reported a positive association between giving support and mental health (Väänvnen, Buunk, Kivimäki, Pentti, & Vahtera, 2005). Ultimately, the literature is not completely in agreement about what these two findings mean for gender differences in the protective effect of marriage.

changes in family formation and structure, as well as increases in non-marital births, support from a child's biological father, regardless of union status, has become a key determinant of maternal mental health.

Father Support And Maternal Well-Being

Social support from biological fathers is especially pertinent to the sample used here, namely mothers with young children. The majority are disadvantaged in terms of educational attainment and financial resources. Many of these women do not live with and are not romantically tied to the child's biological father but rely on him for supplemental financial assistance or co-parenting. For these families, lack of instrumental and emotional support can have a profound effect on family functioning (Green & Rodgers, 2001; Henly, Danzinger, & Offer, 2005; Meadows, *forthcoming*).

Motherhood, although a time of many positive and exciting changes, is also very stressful. Maternal parenting stress has been linked to both increased rates of mental illness among mothers (Crnic & Greenberg, 1990; Thompson, Merritt, Keith, Bennett, & Johndrow, 1993), as well as child behavior problems (Creasey & Jarvis, 1994; Cooper, McLanahan, Meadows, & Brooks-Gunn, *forthcoming*; Crnic, Gaze, & Hoffman, 2005). According to family stress theory, certain family level characteristics, such as social support from intimate partners, can alleviate parenting stress. Existing research shows that mothers who are satisfied with the level of supportiveness they perceive from partners report enhanced parenting, improved mother-child bonds, higher levels of self-esteem and self-efficacy (Baumrind, 1995; Belsky, 1993), and perceive lower levels of parenting stress (Mulsow, Caldera, Pursely, Reifman, & Huston, 2002). In sum, because of the increased pressures and decreased resources among disadvantaged, new

mothers, satisfaction with social support from fathers is an integral component of healthy families.

Unfortunately, many of these families are not healthy, resulting in union dissolution (Lichter, Qian, & Mellot, 2006). Clearly, something is changing within the family dynamic to result in the end of the relationship. If a mother perceives a decline in support from the child's father she may become dissatisfied with the relationship and ultimately opt to leave it, resulting in negative consequences for both mothers and children. Conversely, many mothers not in co-residential unions fully expect to move in with or marry their child's father in the future (Gibson-Davis, Edin, & McLanahan, 2005). Carlson, McLanahan, and England (2004) use the Fragile Families and Child Wellbeing Study and find that perceptions of partner supportiveness are powerful predictors of parents being in co-residential unions (i.e., marriage or cohabitation) one year after a birth, regardless of relationship status at birth. From the mother's standpoint, one could then hypothesize that such union formations are the result of *improving* family dynamics and levels of perceived supportiveness from fathers. So knowing something about how paternal support changes over time may allow us to predict who is going to dissolve a union and who is going to enter a union. But then the question is how to adequately measure social support longitudinally.

Social Support as a Process

The life course paradigm asserts that individual biographies reflect long-term patterns of change in social roles and statuses and that these trends can best be reflected through the use of *trajectories* (Elder, 1985; Giele & Elder, 1998; George, 1999). Integral to this approach is the dynamic aspect of social life. Life is a process, with individuals making their way through the life course, navigating all of the important developmental periods from childhood to adolescence

to adulthood. Analogous to this aging process is the "life course" of social relationships, which consists of changing perceptions and receipt of social support that parallel changes that occur in relationships (House, Umberson, & Landis, 1988b).

Cornwell (2003) argues that social support is dynamic and that individuals can experience support growth, support decay, and support staticity. Each trajectory has a different implication for mental health. A support growth trajectory would suggest that individuals are forming and strengthening intimate ties, which are protective of mental health. Entering a co-residential partnership or a marriage would be one such example (Kim & McHenry, 2002). In contrast, support decay trajectory might imply that an individual has become increasingly dissatisfied with the support he or she either perceives or receives from network ties. A divorce or separation, for example, may result in declines in emotional or instrumental support from a partner, in-laws, children, or friends (Kalmijn, 2007; Kalmijn & Broese van Groenou, 2005; Terhell, Broese van Groenou, & Van Tilburg, 2004). A static support trajectory might imply that an individual is satisfied with the support he or she perceives (and/or receives), or that social conditions prevent that individual from making changes to social relationships that would alter levels of social support.

Unfortunately, Cornwell (2003) falls one step short of actually measuring trajectories in a truly dynamic fashion by relying on descriptive typologies of longitudinal trends in adolescent perceptions of parental and peer support. Change in support is captured by simply subtracting perceived support at time one from perceived support at time two, approximately one year later. Typologies created this way are problematic for a number of reasons. First, they cannot account for all of the conceptual components of trajectories—sequencing, timing, transitions, and duration (Dupre & Meadows, 2007). Second, they cannot account for the rate of change in

social support. Third, they do not allow the researcher to incorporate other time-varying characteristics of individuals and social relationships that may also affect well-being as the trajectory is itself unfolding (i.e., marital status, employment status, household composition). And fourth, collapsing information about change into group level variables results in a loss of variance and may reduce explanatory power. Nonetheless, Cornwell finds that cumulative trends in support are predictive of mental health. For his sample of adolescents, the deleterious effect of support decay on depression was stronger than that of the salubrious effect of support growth.

Additional Predictors of Perceived Father Support

In the analyses that follow it will also be important to account for other factors that may influence both a mother's trajectories of perceived supportiveness from her child's biological father and her mental health status. Significant differences in many aspects of marital and cohabiting relationships have been noted, especially in levels of commitment to the relationship (Nock, 1995; Stanley, Whitton, & Markman, 2004) and mental health status (Marcussen, 2005). Given that individuals in cohabiting couples may be less committed to the relationship than individuals in marital unions it is possible that marital status is an important predictor of supportiveness. Further, couples who are in romantic but non co-residential unions may be less likely than married or cohabiting individuals to report satisfaction with the support received from partners in those relationships given even lower levels of commitment.

A number of other maternal characteristics have been theoretically and empirically linked to mental health problems and that may also affect maternal perceptions of supportiveness. Individuals with higher socioeconomic status have a lower lifetime prevalence of depression than lower status individuals (Blazer, Kessler, McGonagle, & Swartz, 1994) and the link between poverty status and poor mental health has been well documented among adults (McLeod &

Nonnemaker, 1999). Ross and Wu (1995) have pointed to education, rather than income or race, as the main mechanism through which SES affects health. Nonetheless, both education level and race/ethnicity will be included in the models. Two additional variables tap into a mother's stress level, which may adversely affect both her mental health and ratings of relationship supportiveness. These include the average number of hours the mother works and whether or not she has had or adopted a new baby since the last interview. Employment characteristics, especially, the number of hours a mother spends at work, have been linked to work-family conflict, especially among mothers (Bellavia & Frone, 2004; Sulsky & Smith, 2005). And the addition of another family member may increase the financial and time burdens that mothers face.

Research Aims

To date, few studies have explicitly modeled the longitudinal association between social support and adult well-being (see Olsen, Iversen & Sabroe, 1991; Turner, Hays, & Coates, 1993) and none have explicitly modeled social support as a trajectory in a methodologically rigorous way. Given the importance of support garnered from close, personal relationships for mental health, especially that from a spouse, and the importance of maternal mental health for child well-being, this study focuses on supportiveness *trajectories* mothers receive from biological fathers. It addresses two specific research questions. First, how do mothers differ in their ratings of perceived supportiveness based on relationship status with the biological father? It is expected that supportiveness levels will decline prior to the end of the relationship and that mothers no longer in a romantic relationship with the biological father will report lower levels of perceived supportiveness. If this is the case, then static measures of perceived supportiveness may not fully capture the dynamic nature of support over the course of a relationship.

Assessments early in the relationship may yield high levels of satisfaction whereas assessments later on may reflect dissatisfaction leading up to dissolution. Thus, the second research question asks: what is the association between longitudinal supportiveness experiences with the focal child's biological father and subsequent maternal mental health problems? To do this, the paper will utilize latent growth curve models to examine the association between the intercept and slope of perceived supportiveness trajectories and mental health problems five years after the birth of a child. It is hypothesized that mothers who experience an increase in perceived supportiveness trajectories will also report fewer mental health problems at year five than mothers who experience an overall decline in perceived supportiveness.

In this stage of the analysis it will be important to include a number of maternal characteristics to assess whether they may work through the trajectory itself to affect mental health, in the case of time-varying variables, or whether they may mediate the association between the trajectory parameters and maternal mental health, in the case of time-invariant characteristics. This stage of the analysis will proceed in three steps, with each step adding a set of characteristics. A baseline model examines the bivariate association between trajectories of supportiveness and mental health problems. Additional models, building on each, successively add: (1) time-varying characteristics of both the mother and her relationship with the biological father that may affect her perceptions of his supportiveness (e.g., relationship status, poverty status, hours worked, and additional births), (2) previous mental health problems, and (3) time-invariant characteristics of the mother that may affect mental health (e.g., age, education, race/ethnicity, and immigrant status).

Method

Data

Data come from the *Fragile Families and Child Wellbeing Study* (FFCWS), a national longitudinal survey of parents and their children (Reichman, Teitler, Garfinkel, & McLanahan, 2001). The FFCWS consists of 4,898 children born in large U.S. cities, including 3,712 whose parents were unmarried at birth. Maternal baseline interviews were conducted in-person, within 48-hours of the focal child's birth, with follow-up interviews via telephone when the focal child was one-, three-, and five-years of age. Response rates were 89 percent at year one, 86 percent at year three, and 85 percent at year five.

Sample

Due to skip patterns in the data not all mothers responded to the supportiveness items.[2] Mothers who reported not being in a romantic relationship with the biological father and who had not been in a romantic relationship with the father in previous were skipped out of the supportiveness section of the survey. In many cases, these skip patterns are based on missing information from mothers (i.e., those who move in and out of waves) because it is not clear if they had ever been in a romantic relationship with the biological father. Supportiveness ratings are available from 2,264 mothers across all four waves, with the bulk of the loss coming from mothers who are missing data at year five (n=871, 17% of the total sample), followed by a group of mothers who appear only at the baseline and year three interviews (n=496, 10% of the entire sample) and a group of mothers who appear at baseline but never again (n=459, 9% of the entire

[2] At baseline, supportiveness questions are not asked of 242 mothers. At year one, supportiveness questions are not asked of mothers who are skipped out of the screener (n=344), who were currently not married or romantically involved with the biological father and were not married to or romantically involved with the biological father at baseline (n=388), and who were not interviewed (n=534). An additional 24 mothers refused to answer, or did not know, one or more of the supportiveness items. At year three, supportiveness questions are not asked of mothers who are skipped out of an initial screener (n=126), who were currently not married or involved with the biological father and were not married to or in a romantic relationship with the biological father at baseline or year one (n=67), and who were not interviewed (n=667). An additional 42 mothers refused to answer, or did not know, one or more of the supportiveness items. At year five, supportiveness questions are not asked of mothers who are skipped out of an initial screener (n=103), who were currently not married or romantically involved with the biological father and were not married to or in a romantic relationship with the biological father at baseline, year one, or year three (n=1,215), and who were not interviewed (n=759). An additional 21 mothers refused to answer, or did not know, one or more of the supportiveness items.

sample). Data that is also missing, but not due to survey design, is discussed in the analysis section.

Measures

Dependent Variable. A composite score for *mental health problems* is created by summing three dichotomously coded items—heavy episodic drinking (i.e., binge drinking), illicit drug use, and diagnosis of a major depressive episode—all of which are available at the year one, year three, and year five interviews. Heavy episodic drinking is defined as consumption of at least 5+ drinks in one sitting at least once in the previous month at the year one interview and 4+ drinks at the year three and five interviews. Roughly five percent of mothers at year one, 11 percent at year three, and 12 percent at year five report a recent episode of binge drinking (see Table 1). Illicit drug use is defined as use of at least one illicit drug (sedatives, tranquilizers, amphetamines, analgesics, inhalants, marijuana, cocaine, LSD/hallucinogens, or heroin) without a prescription, in larger amounts than prescribed, or for longer than prescribed in the past month. Two percent of mothers at year one and five percent at years three and five report recent illicit drug use. Depression is measured using the Composite International Diagnostic Interview Short Form (CIDI-SF) Version 1.0 November 1998 (see Kessler, Andrews, Mroczek, Ustum, & Wittchen 1998). Scoring followed procedures outlined by the developers of the CIDI-SF to yield 12-month DSM-IV diagnoses of Major Depressive Episode (MDE) (American Psychiatric Association, 1994; Walters, Kessler, Nelson, & Mroczek, 2002). Thirteen percent of mothers at year one, 19 percent at year three, and 16 percent at year five meet the diagnostic criteria for MDE. The mean mental health problem score across all mothers is .21 at year one, .35 at year three, and .33 at year five.

Note that the CIDI depression measure is not obtained at the baseline interview because of potential overlap with postpartum depressive symptoms. Similarly, comparable measures of drug use and binge drinking are not available at the baseline interview. However, mothers are asked to indicate whether they used drugs or alcohol during pregnancy. One percent of mothers reported using drugs and two percent reported using alcohol during the prenatal period. Independently, each of the three items in the composite mental health problems score has been cited in existing studies as an indicator of poor mental health. Moreover, Aneshensel (2002) has argued that disorder specific models provide a biased estimate of the impact of social factors and stress on mental health when these factors may influence more than one health outcome. Indeed, recent literature on the study of mental health has moved to including both internalizing (e.g., depression) and externalizing (e.g., alcohol use/abuse, violence) behaviors as indicators of mental health problems (Umberson, Williams, & Anderson 2002). Combining depression, binge drinking, and drug use into one measure of mental health problems maximizes the variability of this construct within the sample and more fully captures the breadth of emotional distress than may result from changes in family structure (see Meadows, McLanahan, & Brooks-Gunn, 2008; Meadows, 2008).

Independent Variable. At the baseline, year one, year three, and year five interviews mothers are given four statements related to the level of *supportiveness* they perceive from the child's biological father. The statements were: father is "fair and willing to compromise when you have a disagreement" (fair), "expresses love and affection" (love), "criticizes you or your ideas" (insult), and "encourages or helps you to do things that are important to you" (encourage). Frequency was measured as "often" (3), "sometimes" (2), or "never" (1). The insult item was reverse coded. Items are taken from the Multi-Dimensional Support Scale (Winefield,

Winefield, & Tiggemann, 2000). Descriptive statistics use a mean of valid items so long as mothers responded to at least two of the supportiveness items. Cronbach alphas for the analysis sample were .56 at baseline, .65 at year one, .72 at year three, and .77 at year five. Growth models treat supportiveness as a latent construct, with categorical indicators (see Procedure section). Using the mean from items that mothers responded to at each wave, the average supportiveness ratings at baseline, year one, year three, and year five were 2.70, 2.58, 2.52, and 2.45, respectively (see Table 1).

[Insert Table 1 about here.]

The supportiveness items were asked of all mothers, regardless of their relationship status with the father. When parents were no longer romantically involved, the statements asked mothers to rate the supportiveness of the last month of the relationship. Because this protocol may have resulted in mothers rating supportiveness of relationships that may have ended up to five years ago (i.e., the period from birth to year five) an alternate specification of the supportiveness measures recoded the observed supportiveness measures (i.e., fair, love, insult, and encourage) of mothers who were not in a romantic relationship with the biological father as zero for that wave.

Time-Varying Variables. The analyses include a number of time-varying variables. *Relationship status* with the focal child's biological father is measured at each wave: married (reference category); cohabiting, but not married; in a romantic relationship, but not cohabitating; and no relationship (not involved). *Poverty* is a dummy variable indicating whether or not the mother's income is at or below 100 percent of the federal poverty line at each wave. *Weekly hours worked* tabulates the average number of hours the mother reported working during the past year. Finally, a dummy variable indicates whether or not the mother had an *additional*

birth or adopted a new baby. With the exception of relationship quality and the indicator for a new birth, which were assessed only at years one, three, and five, all other control variables are available at each wave, including the baseline interview.

Time-Invariant Variables. Basic sociodemographic controls include mother's *age* at baseline (in years), *education* (less than high school, high school, some college, college and above, with high school as the reference category), *race/ethnicity* (Black, White, Hispanic, Other with White as the reference category), and *immigrant status* (dummy variable indicating mother is a recent immigrant). Means and standard deviations of all control variables can be found in Table 1.

Procedure

Because the paper is interested in the longitudinal association between maternal ratings of supportiveness and mental health problems, a summary measure of supportiveness is needed. Further, this measure should be able to handle latent constructs. Latent growth curve modeling in a structural equation framework does both. This strategy assumes that mothers differ in initial ratings of supportiveness based on certain time-invariant characteristics, and that variance in subsequent growth (or decay) of supportiveness trajectories also varies by those characteristics. The basic growth model is depicted in Figure 1.

[Insert Figure 1 here.]

Each mother's trajectory is characterized by a unique intercept (α), linear, time-dependent slope (β), and some measurement error (ε). Thus, the level one equation is as follows:

$$y_{it} = \alpha_i + \beta_i t + \varepsilon_{it} \qquad \text{(Equation 1)}$$

This equation represents within-individual (i) change over time (t). In order to incorporate the time-varying variables into the model, Equation 1 must be modified as follows:

$$y_{it} = \alpha_i + \beta_i t + \gamma_t w_{it} + \varepsilon_{it} \quad \text{(Equation 2)}$$

The addition of the "$\gamma_t w_{it}$" term represents the effect of each time (t) variable on supportiveness at time (t) for each ith individual. In other words, each γ represents a perturbation from the latent supportiveness trajectory associated with a particular marital status, poverty level, number of weekly hours worked, or additional child at a specific point in time.

The second level of the growth model allows the random intercepts (α_i) and slopes (β_i) to be a function of variables that differ across individuals (i) but do not change across time (t). This level represents between-individual change over time. The level two equations are as follows:

$$\alpha_i = \alpha_0 + \alpha_1 x_{i1} + \alpha_2 x_{i2} + \ldots \alpha_k x_{ik} + u_i \quad \text{(Equation 3)}$$

$$\beta_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots \beta_k x_{ik} + v_i \quad \text{(Equation 4)}$$

The intercept and slope for the supportiveness trajectory are directly regressed on these characteristics to assess for potential group differences in the means of the growth factors.

What results from this latent growth model is a unique intercept, or starting point, and trajectory, or course, of supportiveness for each mother in the sample. These trajectory parameters, then, precisely summarize a mother's longitudinal experience of her perceived supportiveness from the focal child's biological father. Intercepts and slopes can then be treated as independent variables in a regression model where the dependent variable is mental health problems at year five. The full model is depicted in Figure 1. In addition to the intercept and slope, which take into account the full set of time-varying variables, the time-invariant maternal characteristics (i.e., age, education, race/ethnicity, and immigrant status), as well as mental health problems at year three, are also regressed on mental health problems at year five.

[Insert Figure 1 about here.]

All models are estimated using Mplus, Version 4.1 (Muthén & Muthén, 2006). Although full information maximum likelihood (FIML) is available in Mplus, because mental health problems is treated as a categorical variable the analytic sample is restricted to only mothers with complete information on the x (i.e., exogenous) variables in the full model. This resulted in the loss of an additional 106 mothers. Thus, the final analytic sample is 2,158. Possible attrition bias is addressed by comparing the complete case sample (n=2,158) to the full sample (N=4,898) on all of the variables in the final model to assess for substantive differences in these measures.

Compared to mothers in the analytic sample, those who are not in the analytic sample are more disadvantaged (i.e., have lower levels of education and are more likely to live in poverty), less likely to be a co-residential relationship (including both marriage and cohabitation) with the biological father, more likely to be white and less likely to be black, and perceive higher levels of perceived supportiveness at baseline, year one, and year three. However, all of the aforementioned differences are substantively very small, always less than .10 units, and differences grow smaller over time. Mental health differences are only apparent at year one (.22 versus .24 problems, $p < 01$) and at year three (.34 versus .37 problems, $p<.05$), where mothers in the analytic sample report significantly fewer problems.

Given the skip patterns in the data it is not surprising that mothers who remain in the complete case sample are more likely to co-reside with the biological father and to perceive higher levels of supportiveness. Mothers with missing information at various wave typically skipped the supportiveness items. If mental health problems are causing mothers to leave the survey then any results using the complete case sample may be suspect due to reverse causation. As such, it is important to compare the mental health of mothers who exit the survey in the year *prior to their departure* to those who remain in all four waves. For example, mothers who exit

the survey after year one have a mental health problem score at year one but not years three or five. Their year one score can be compared to the year one score of mothers who have valid interviews at baseline and years one through five. Note that this is not a perfect test of selection given the two-year duration between waves because mothers could experience a mental health problem in the interim causing them to leave the survey. Nonetheless, it should give some indication of whether mental health is related to attrition. No significant differences in self-reported mental health emerged between these groups of mothers. So it does not appear, based on this test, that poor mental health is selecting mothers out of the survey.

Model fit is evaluated using the maximum likelihood ratio test statistic (χ^2), which if significant, indicates poor fit. Because models with sample sizes over 200 are frequently significant, three supplemental measures of model fit are used: the root mean square error of approximation (RMSEA), the Tucker Lewis Index (TLI), and the Comparative Fit Index (CFI). Convention dictates that values of RMSEA below .05, and values of TLI and CFI close to 1.0 (Bollen & Curran, 2006), are indicative of good fit. All statistical tests referenced in the text are two-tailed.

Results

Supportiveness Ratings. Recall that the first aim of the paper was to assess whether mothers differ in their perceived ratings of supportiveness based on relationship status with the focal child's biological father. In doing so, it is possible to assess whether mothers "select" themselves out of relationships based on lower perceived supportiveness. Table 2 presents these results. What appears in the cells of the table are mean supportiveness ratings from mothers based on their relationships statuses between waves. Mothers are classified as either in a romantic relationship (i.e., married, cohabiting, or romantically dating) or not. For example, in

Row A, we see that mothers who were in romantic relationships with the child's father at the time of the birth rate the mean perceived supportiveness of the father as 2.72 whereas mothers who were not in a romantic relationship with him at birth rate supportiveness significantly lower, at 2.30 ($p < .001$). Remember that these mothers are using the last month of the relationship as the basis for their ratings; however in this case, the last month of the relationship had to fall somewhere between the conception of the child and the interview at birth (a rough maximum of nine months ago).

[Insert Table 2 about here.]

Row B in Table 2 compares mothers who were in a romantic relationship with the father at the baseline interview but ended that relationship sometime between the birth and the year one interview. Although all of these women were coupled at baseline, there is already some evidence of lower supportiveness perceptions among mothers who will end the relationship within the next year (2.7 versus 2.59, $p < .001$). By the year one interview the difference has grown larger, 2.63 versus 2.12 ($p < .001$), again suggesting that perceived relationship supportiveness declined in the months leading up to the dissolution of the union.

Rows C and D show similar trends for mothers who end their romantic relationships with biological fathers between years one and three and years three and five. In Row C, differences between romantically involved and non-involved mothers are significant at every wave but are much smaller at baseline (2.73 versus 2.63, $p<.001$). As the dissolution approaches, differences grow larger. A similar pattern is also evident in Row D where differences are substantively small at baseline but increase over time.

Of course a word of caution is required when interpreting these results because post-dissolution mothers are retrospectively reporting supportiveness levels of relationships that were

not satisfactory. Thus it is not clear if low levels of satisfaction led to the end of the relationship or whether the end of the relationship altered perceptions of supportiveness. Nonetheless, the fact that a similar pattern exists across all mothers, regardless of when the relationship was dissolved, suggests that dissatisfaction with support played an important role in the demise of these relationships. Because differences in perceived supportiveness can be seen, in some cases, years prior to the end of the relationship it is then important to think about how long-term relationship experiences may influence well-being.

Supportiveness Trajectories. Before exploring a more complex model, it is useful to first describe the basic growth model (i.e., no covariates) of supportiveness among all mothers. Figure 2 depicts this basic growth model. Maternal supportiveness ratings at each interview are treated as latent constructs and factor loadings and thresholds are constrained to be equal over time to ensure measurement invariance (e.g., $F_b = F_1 = F_3 = F_5$). Factor loadings for the intercept are set to one at each wave, as is convention in growth models. Factors loadings for the slope are set to one, three, and five at the year one, three, and five interviews, respectively, to reflect time since the baseline interview. According to the model, the average mother's supportiveness trajectory starts at zero (ns) and decreases at a rate of .06 ($p < .001$) support units per year. The results may appear nonsensical, but because significant variance exists around both the intercept and slope mothers do have positive values of supportiveness. The correlation between the intercept and slope indicates that mothers who start with higher levels of perceived supportiveness will experience a slight increase in perceived supportiveness over time, although this association is not significant ($\beta = .001$, ns).

[Insert Figure 2 about here.]

Longitudinal Supportiveness Experiences and Mental Health Problems. The second aim of the paper was to assess the association between trends in maternal perceived supportiveness and mental health problems at the year five interview. Results are presented in Table 3, in four separate steps. Model 1 examines the basic association between supportiveness trajectory parameters, that is the intercept and slope, and mental health problems at year five. Building on Model 1, Model 2 adds controls for associations between mothers' time-invariant characteristics (TVVs) and their supportiveness trajectories (see Figure 1). In doing the model captures time-specific measurement error that is not captured by the growth factors themselves. Building on the first two models, Model 3 adds a control for prior mental health problems at year three to see if it mediates any of the association between the supportiveness trajectory parameters and mental health at year five. And finally, Model 4 adds a direct association between mental health problems at year five and the TIVs.

[Insert Table 3 about here.]

The first two columns of Table 3 (Model 1) report that a significant association exists between supportiveness trajectories and mental health problems at year five. Specifically, mothers who start their trajectories with higher levels of perceived supportiveness at the birth of the child have fewer mental health problems five years later ($\beta = -.55$, $p < .001$). Further, an increasing support trajectory (i.e., a positive slope) is associated with fewer mental health problems at year five ($\beta = -3.07$, $p < .001$). These results suggest that long-term support experiences do affect subsequent mental health.

Model 2, shown in columns three and four, adds the indirect association between the TVVs and mental health problems at year five, via their associations with the latent supportiveness constructs at baseline, year one, year three, and year five. Remember that the

TVVs include the mother's marital status with respect to the biological father, her poverty status, how many hours she works per week (on average), and whether she has given birth to or adopted a new baby since the last interview. The associations between the supportiveness trajectory parameters remain significant. Mothers who start out with higher levels of perceived supportiveness experience fewer mental health problems at year five ($\beta = -.61$, $p < .001$) and mothers who experience an increasing supportiveness trajectory also experience fewer mental health problems at year five ($\beta = -3.88$, $p < .001$).

One of the TVVs appears to be a particularly salient for perceived supportiveness: relationship status, especially having no involvement with the biological father. At all four waves, mothers who report having no relationship with the biological father report much lower levels of perceived supportiveness than mothers who are married to him. Table 2 showed that relationship status is associated with significant differences in perceived supportiveness, with mothers who leave relationships reporting lower levels of support in the month preceding the dissolution. Given that this model specification simultaneously estimates the association between relationship status and perceptions of supportiveness at each wave it cannot disentangle the causal ordering.

Columns five and six show the results for Model 3, which adds a control for prior mental health problems at year three, to assess whether a history of mental health problems can account for the association between the supportiveness trajectory parameters and mental health at year five. Not surprisingly, mothers who experience mental health problems at year three are likely to experience problems at year five ($\beta = .78$, $p<.001$). The inclusion of previous problems reduces the magnitude of the supportiveness intercept coefficient and renders it non-significant ($\beta = -.26$). It does little, however, to change the slope coefficient ($\beta = -3.10$, $p<.001$). These results

suggest that in terms of mental health outcomes, where a mother starts her supportiveness trajectory may not be as important as the path of that trajectory.

Finally, Model 4, shown in the last two columns of Table 3, incorporates the associations between the TIVs and mental health problems at year five, including a mother's age at baseline, education level, her race/ethnicity, and her immigrant status. These variables are unable to complete account for the association between the supportiveness trajectory parameters and mental health problems at year five. In fact, the intercept parameter almost reaches statistical significance ($\beta = -.31$, $p<.10$). The association between the slope and mental health problems at year five weakens slightly, but still indicates that a decline in perceived supportiveness results in more mental health problems at year five ($\beta = -3.03$, $p<.001$). It is not surprising that the TIVs were unable to account for these associations given that only two, black and Hispanic, have significant associations with mental health problems at year five.

Robustness Checks

Four alternate specifications of Model 4 were used to asses the robustness of the findings. First, a model is estimated using the alternate coding of supportiveness indicators where mothers no longer in romantic relationships with the biological father receive a score of zero on the supportiveness indicators. Second, a subsample of the complete case sample containing only mothers who were in romantic relationships with the biological father across all waves was utilized. Mothers in this model were either married, cohabiting, or in romantic, non-residential relationships. Third, mental health problems at year five were treated as a count variable. And fourth, models were run using the three independent components of the overall mental health problems measure: major depressive episodes, binge drinking, and illicit drug use.

Zero Supportiveness Ratings. Substantive results from models using the specification where mothers not in romantic relationships with the biological father received a score of zero on the observed measures of supportiveness (i.e., fair, love, insult, and encourage), did not differ from Model 4 as reported in Table 3 (intercept $\beta = -.69$, $p<.001$ and slope $\beta = -5.74$, $p<.001$). It should be noted that in some cases mothers in non-romantic relationships with the biological father likely do perceive some amount of (positive) support from him so these results are artificially decreasing supportiveness ratings overall, introducing zeros in the data, and as a result, decreasing the variance.

Romantically Involved Mothers Only. A second version of Model 4 uses only mothers who remained in romantic relationships with the biological father throughout the five-year observation period. That is, these mothers were either married, cohabiting, or romantically involved but non-resident. The total sample for this analysis is 1,395. Results form this model support the findings presented in Table 4, Model 4. The intercept of the supportiveness trajectory is not significant ($\beta = -.05$, ns) but the slope coefficient indicates that mothers who experience a decline in perceived supportiveness from the biological father over time experience more mental health problems at year five ($\beta = -5.99$, $p<.001$). Clearly, the subgroup used in this analysis is selective in that these are mothers who have been able to maintain a romantic relationship with the father. One could assume that, on average, these mothers have a higher levels of supportiveness than their peers who were unable to maintain such relationships. However, it is revealing that changes in longitudinal support perceptions still had an association with mental health among this select group of mothers.

Count Variable of Mental Health Problems. Supplementary analyses also estimated the regression model for mental health problems using a Poisson distribution and a continuous

distribution. The substantive conclusions did not change. Because of the large proportion of zeros among the mental health problem measure at year five the author also examined whether a zero inflated Poisson (ZIP) regression model would be appropriate. The first step of this test was to examine whether the mean of the outcome was (roughly) equal to its variance. Using the analytic sample, the mental health problems measure at year five has a mean of .33 and a variance of .36 (at year three $\mu = .34$, $\sigma^2 = .35$ and at year one $\mu = .21$, $\sigma^2 = .19$). The second step of this test was to compare the distribution of each measure of the mental health outcome to a known Poisson distribution using the mean of each outcome. Comparing these two figures showed good fit between the expected distribution and the observed distribution for both the FIML and restricted samples (results not shown). Taken together, these results suggest that there is no problem with a preponderance of zeros and thus the ZIP model is not necessary.

Independent Mental Health Problems. Additional models analyzed each of the three mental health composite items independently. For major depressive episodes, the results were almost identical to those for overall mental health problems (intercept $\beta = -.61$, $p<.001$ and slope $\beta = -4.56$, $p<.001$). Results were weaker for binge drinking, with the intercept of the supportiveness trajectory not significantly associated with binge drinking at year five ($\beta = .02$, ns) but the slope of the trajectory was significant and in the expected direction ($\beta = -2.03$, $p<.05$). Finally, results for drug use are in line with the findings outlined above but coefficients do not reach statistical significance (intercept $\beta = -.17$, ns and slope $\beta = -1.28$, ns). In light of the fact that major depression is the most commonly reported mental health problem in the data and drug use is the least common, these findings are to be expected. The experience of major depression does appear to be driving the results, although substantively, binge drinking and illicit drug use follow very similar patterns.

Discussion

This research sought to uncover whether long-term trends in maternal ratings of supportiveness from her child's biological father have an association with subsequent mental health problems. It has argued that social relationships, as well as the support that is garnered from them, can be viewed as processes and should be operationalized as such. Latent growth models revealed that mothers who had higher levels of perceived supportiveness at the birth of their child reported fewer mental health problems five years later. Similarly, mothers who experienced growth in supportiveness over time also experienced fewer problems later. However because perceived supportiveness can be influenced by a number of maternal characteristics, statistical models also analyzed whether these factors could mediate the associations between supportiveness trajectories and maternal mental health problems. The negative association between supportiveness trajectory slopes and mental health problems was robust to the inclusion of these variables into the model.

Results also showed that mothers who ended romantic relationships reported lower levels of supportiveness during the last month of the union. Yet mothers who remained together the longest before ending their relationships with fathers showed little difference in supportiveness ratings from mothers who remained stably in romantic unions with biological fathers. The differences, although statistically significant, were substantively small initially. However they grew over the five year period in which women were observed. Taken together, these results suggest that dissatisfaction *at the end* of a broken relationship may be the real driving force behind the association between supportiveness trajectories and mental health problems observed here. Despite the fact that union dissolution, a time-specific stressful event, may have an immediate impact on mental health, long-term trends in social and emotional resources are still

likely to play an important role in individual well-being. Amassing support from family and friends, even if it is only the perception of support, may well serve as a buffer when individuals do encounter stress and strain.

Although it did little to affect the influence of supportiveness trajectory parameters on subsequent mental health problems, a mother's relationship status with the biological father did affect how much support she received from the father. Not surprisingly, at all waves, married mothers reported the highest levels of supportiveness followed by cohabiting mothers and mothers in non-residential romantic relationships. By far, mothers who were no longer in any type of relationship with the biological father reported the lowest levels of supportiveness at the end of the relationship. Based on the models presented here it is not clear whether low levels of support were a cause or a consequence of the end of the relationship. Given that these excessively negative support ratings may have biased the results the analysis was re-run using only mothers in romantic relationships, including marriages, cohabiting unions, and dating relationships. These results, although using a much more selective sample yielded similar results: declining support trajectories are associated with more mental health problems. Further, an additional model used an alternate operationalization of support where mothers in non-romantic relationships automatically received a score of zero on the observed indicators (i.e., fair, love, insult, and encourage). Again these results yielded identical substantive results.

The results presented here may have important policy implications for families and child well-being. Mothers who are no longer in romantic relationships with biological fathers report lower levels of support. Social support, measured either as a snap-shot or longitudinally, is associated with a mother's mental health, which is then related to her ability to parent and provide the resources needed to raise a healthy child. Thus the findings of this study suggest that

one way to improve both maternal and child mental health is to focus on relationship quality, and perceived supportiveness, among non-co-resident parents (see Cowan, Cowan, Pruett, & Pruett, 2007). A recent study by Carlson and colleagues (2008) finds that positive co-parenting, as perceived by mothers, is highly predictive of nonresident fathers' involvement with children. Obviously, in the optimal situation divorced or separated parents would "get along" for the sake of the child because the impact of the parents' relationship on child well-being works both directly, through father involvement and co-parenting, and indirectly, through maternal mental health. Thus one possible unintended consequence of the Healthy Marriage Initiative, designed to foster relationship skills among *romantically* involved parents, is to cultivate continued positive interactions between parents who end their unions (Dion, 2005).

Future Research

One of the primary goals of this research was to heighten awareness of the ways in which social scientists can measure longitudinal processes in constructs important to well-being. Indeed, the perception of supportiveness *is* a process because it waxes and wanes over time, responding to normal changes in ever-evolving social relationships (Cornwell, 2003). In terms of the salience of spousal support for mental health, existing research clearly suggests that it is important (Waite, 1995), although men are believed to benefit more from spousal support and women from friend support (Burleson, 2004; Cutrona, 1996). The idea that a partner provides "built-in" emotional support is implicit in this literature. But how to measure that support, especially over time, and how longitudinal trends in support are associated with well-being, is less clear. For instance, is it more important, in terms of mental health, for perceptions of spousal support to be constantly high (i.e., what is typically assume in the "built-in" theory of support) or do perceptions need to grow over time to have an impact on well-being? Is a persistently low

level of spousal support better, worse, or the same as a decreasing trajectory of perceived supportiveness? In a sample of adolescents, Cornwell (2003) found that the cumulative effect of social support on depressive symptoms was significantly weaker if support trajectories were categorized by staticity versus growth or decay. These findings could reflect a statistical artifact. That is, with little or no variance in growth/decay, support may have little explanatory power. Or the findings may reflect the fact that, in general, the status quo is good enough to maintain current levels of mental health. If an individual is satisfied with his or her support, and has good mental health, that level of well-being remains in tact. Unfortunately, this would also suggest that if individuals have poor mental health and perceive little support there positive changes in well-being will be equally unlikely.

More generally, future research should begin incorporate trajectories of other longitudinal experiences, including stressful life experiences and daily strains, received expressive and instrumental support, interaction with social networks, and lifestyle factors like diet and exercise. Each of these constructs can be considered through a trajectory lens by increasing, decreasing, or remaining constant over time. Having one set of parameters to express these trends may be a useful way to summarize life experiences. And by simultaneously modeling multiple trajectories researchers can test for mediating and cross-lagged associations, helping to disentangle timing issues and move closer to a causal story.

Limitations

Although the Fragile Families Study is useful for studying patterns of well-being in mothers across many relationship statuses, the sampling frame of mothers in large, urban areas may limit its generalizability. Further, despite the use of a multifaceted question-set related to relationship supportiveness, these questions are really only applicable to mothers who were

currently in a romantic relationship with the biological father at the specified wave. No *current* measure of supportiveness, or relationship quality, is available for non-co-resident parents at each wave. In some instances, mothers may be reporting on a relationship that ended four or five years ago making it impossible to make definitive causal claims about the results. And even for mothers who were in romantic relationships with the biological father it is possible that perceptions of supportiveness changed multiple times in the time between interviews, a period that could span up to two years. This highlights the importance of collecting more fine-grained relationship data. In addition, no measures of perceived emotional support received from others, including friends and family, is available. It is possible that declines in supportiveness from fathers are offset by support garnered from others. Such counterbalancing trajectories are one possible avenue for future research.

Conclusion

As social scientists, we need to think more about the best way to summarize long-term, life-course processes, especially as more and more of our data sources become longitudinal. This paper has focused on modeling longitudinal experiences mothers have with a child's biological father. Specifically, it tested whether trajectories of perceived supportiveness were associated with subsequent mental health problems. This association does exist, but a mother's relationship status with the father is also an important determinant of the support she perceives. Given the current fluidity of family formation in the United States today it is now especially important to capture changing family and relationship dynamics, especially among parents with young children. The results presented here call attention to alternate ways in which such longitudinal experiences and processes can be modeled.

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Table 1. Means/Percentages and Standard Deviations for Analysis Variables, Complete Case Sample (N = 2,158)

	Baseline		Year-One		Year-Three		Year-Five	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
Mental Health								
Binge Drinking[a]	1.90%		5.52%		10.90%		12.05%	
Drug Use[a]	1.39%		1.67%		5.26%		5.33%	
Depression (CIDI)	na		13.44%		18.55%		15.94%	
Total MH Problems (0-3)	na	na	.21	(.44)	.35	(.59)	.33	(.59)
Relationship Characteristics								
Supportiveness[b] (1-3)	2.70	(.32)	2.8	(.41)	2.52	(.46)	2.45	(.51)
Fair[c] (1-3)	2.54	(.57)	2.38	(.69)	2.34	(.64)	2.29	(.69)
Love[d] (1-3)	2.82	(.41)	2.76	(.48)	2.67	(.57)	2.57	(.63)
Insult[e] (1-3)	2.70	(.51)	2.54	(.63)	2.49	(.64)	2.45	(.67)
Encourage[f] (1-3)	2.76	(.47)	2.67	(.57)	2.58	(.63)	2.49	(.67)
Marital Status								
Married	34.62%		42.96%		46.39%		46.99%	
Cohabiting	42.22%		41.33%		29.66%		21.08%	
Romantic	21.32%		6.95%		3.71%		2.78%	
Not Involved	1.85%		8.76%		20.25%		29.15%	
New Baby	na	na	4.73%		25.21%		32.385%	
Demographics								
Race								
Black	42.86%							
White	26.04%							
Hispanic	26.55%							
Other	4.26%							
Immigrant[g]	16.45%							
Age	25.83	(6.0)						
Education								
Less HS	27.85%							
HS	30.40%							
Some College	26.69%							
College	15.07%							
Poverty[h]	29.47%		34.11%		32.76%		31.58%	
Hours Worked	33.07	(13.11)	33.70	(13.89)	35.14	(12.80)	35.79	(13.05)

Notes: Variable range in parenthesis, if applicable. SD = Standard Deviation

[a] At baseline, both refer to use during pregnancy. [b] Mean maternal rating of relationship supportiveness from biological father. If mother and father are no longer romantically involved score reflects supportiveness from the last month of the relationship. Higher scores indicate higher perceived supportiveness. [c] Father is fair and willing to comprise during disagreements. Higher score indicates higher frequency. [d] Father expresses affection or love. Higher score indicates higher frequency. [e] Father insults or criticizes ideas. Reverse coded. Higher score indicates lower frequency. [f] Father encourages or helps do things important to mother. Higher score indicates higher frequency. [g] Dummy variable indicating mother is of immigrant status. [h] Dummy variable indicating mother is at or below 100% of poverty level.

Table 2. Comparison of Pre- and Post-Romantic Involvement Maternal Ratings of Relationship Supportiveness with the Biological Father, Complete Case Sample (n=2,158).

	Baseline	**Year One**	**Year Three**	**Year Five**
Relationship Exit Between:	Mean	Mean	Mean	Mean
A. Conception and Baseline				
Involved (n=2,115)	2.72***			
Not Involved (n=43)	2.30			
B. Baseline and Year One				
Involved (n=1,969)	2.72***	2.63***		
Not Involved (n=189)	2.59	2.12		
C. Year On and Year Three				
Involved (n=1,721)	2.73***	2.63***	2.62***	
Not Involved (n=437)	2.63	2.42	2.10	
D. Year Three and Year Five				
Involved (n=1,529)	2.73***	2.64***	2.62****	2.60***
Not Involved (n=629)	2.65	2.47	2.28	2.07

Notes: Romantic relationships are defined as married, cohabiting, or romantically dating. Shaded cells indicate mothers' supportiveness ratings of the last month couples were together.
†p < .10 *p < .05 **p <.01 ***p < .001

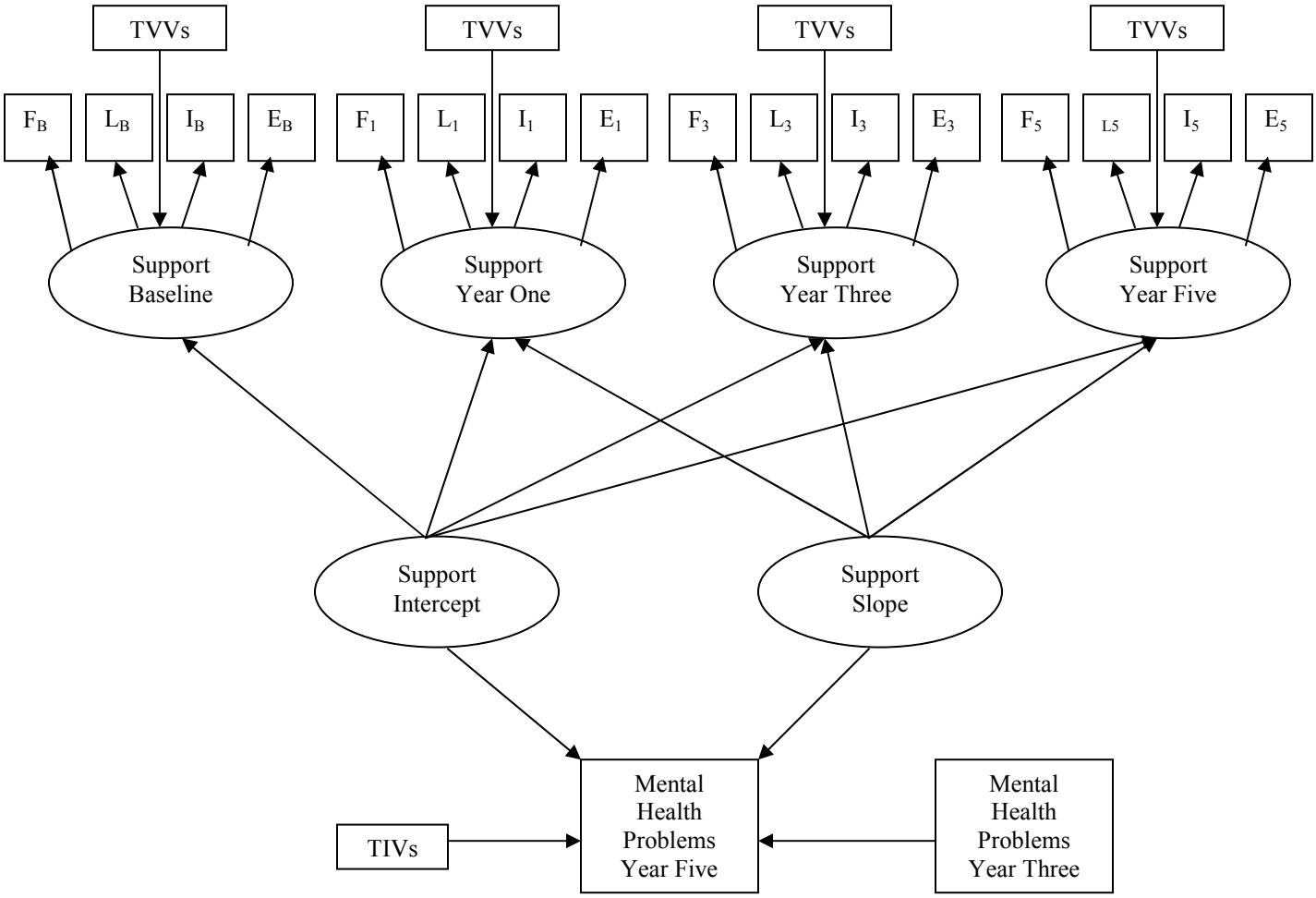
Table 3. Latent Growth Curve Model of Mothers' Perceived Supportiveness Trajectories on Mental Health Problems at Year Five (N=2,158)

	Model 1		Model 2		Model 3		Model 4	
	β	*SD*	*β*	*SD*	*β*	*SD*	*β*	*SD*
	Year Five Mental Health Problems							
Supportiveness								
Intercept	-.55***	.14	-.61***	.16	-.26	.16	-.31†	.17
Slope	-3.07***	.49	-3.88***	.73	-3.10***	.78	-3.03***	.78
MHP Year Three					.78***	.04	.75***	.04
TIVs								
Age at Baseline							.01	.01
Education								
Less High School							.08	.08
Some College							.08	.08
College Plus							-.08	.12
Rae/Ethnicity								
Black							-.33***	.08
Hispanic							-.31***	.09
Other							-.14	.18
Immigrant Status							-.19†	.10
TVVs			**Baseline Supportiveness**					
Cohabiting			.07*	.03	.07*	.03	.06*	.03
Romantic			.02	.03	.01	.03	.002	.03
Not Involved			-.42***	.05	-.42***	.05	-.43***	.05
Poverty			-.01	.02	.001	.001	-.01	.02
Hours Worked			.001†	.001	-.01	.02	.001†	001
TVVs			**Year One Supportiveness**					
Cohabiting			-.05	.04	-.05	.04	-.05	.03
Romantic			-.09†	.05	-.09*	.05	-.09†	.05
Not Involved			-.59***	.04	-.59***	.04	-.58***	.04
Poverty			-.06*	.02	-.06**	.02	-.06*	.03
Hours Worked			-.001†	.001	-.001†	.001	-.001	.001
New Child			.02	.04	.01	.04	-.002	.04
TVVs			**Year Three Supportiveness**					
Cohabiting			-.15***	.04	-.15***	.04	-.16***	.04
Romantic			-.14*	.07	-.15*	.07	-.17*	.07
Not Involved			-.63***	.04	-.62***	.04	-.64***	.04
Poverty			.001	.03	.002	.03	.004	.03
Hours Worked			-.001	.001	-.001	.001	-.001	.001
New Child			.003	.03	.01	.03	.002	.03
TVVs			**Year Five Supportiveness**					
Cohabiting			-.21***	.05	-.19***	.04	-.20***	.04
Romantic			-.34***	.08	-.33***	.08	-.34***	.08
Not Involved			-.78***	.04	-.77***	.04	-.79***	.04

Poverty		-.001	.03	.01	.03	.002	.03
Hours Worked		.001	.001	.001	.001	.001	.001
New Child		.04	.03	.03	.03	.02	.03
Model Fit							
χ^2 (df)[a]	251.09*** (48)	439.77*** (173)		611.72*** (184)		679.44*** (227)	
RMSEA	.044	.027		.891/.912		.891/.906	
CFI/TLI	. 894/.958	.929/.943		.033		.030	

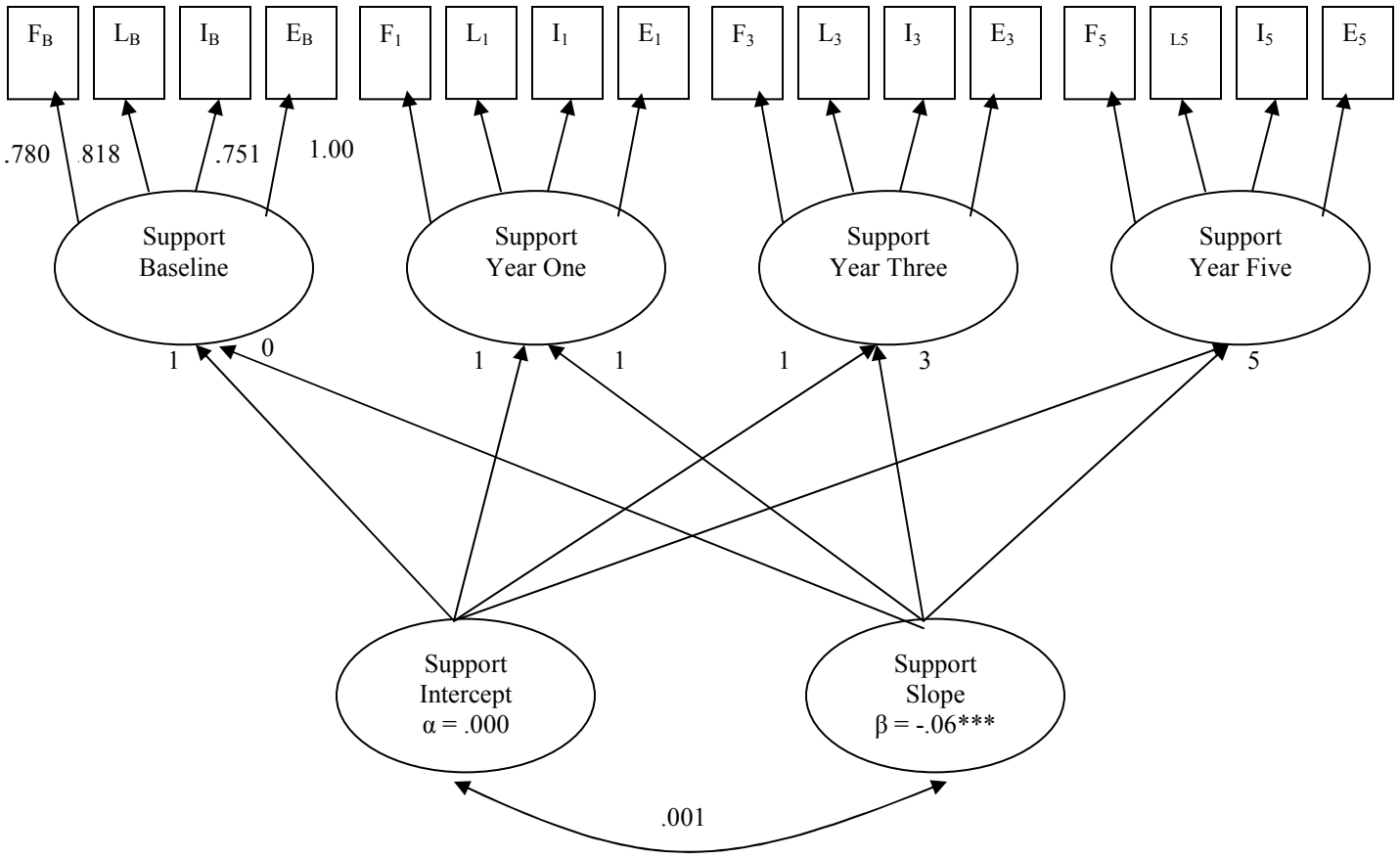
Notes: Models are nested. TVVs = Time-Varying Variables. TIVs = Time-Invariant Variables. Model 1 includes the supportiveness growth curve parameters (intercept and slope). Model 2 adds the association between the TVVs and the latent support constructs of supportiveness at baseline, year one, year three, and year five. Model 3 adds the association between mental health problems at year three and year five. Model 4 adds the association between the TIVs and mental health at year five (i.e., age at baseline, education level, race/ethnicity, and immigrant status).
[a] Chi-square values should not be used to compare fit across models with categorical endogenous variables.
†p < .10 *p < .05 **p <.01 ***p < .001

Figure 1. Full Growth Model of Maternal Ratings of Relationship Supportiveness with the Biological Father and Mental Health Problems at Year Five.



Notes: TVVs = Time-Varying Variables (marital status, relationship quality, poverty, weekly hours worked, additional child); TIVs = Time-Invariant Variables (mother's age at baseline, educational status, race/ethnicity, immigrant status); F = Fair; L = Love; I = Insult; E = Encourage. Subscripts indicate data wave (B = Baseline, 1 = Year One; 3 = Year Three; 5 = Year Five. Model 1 includes the supportiveness growth curve parameters (intercept and slope). Model 2 adds the association between the TVVs and the latent support constructs of supportiveness at baseline, year one, year three, and year five. Model 3 adds the association between mental health problems at year three and year five. Model 4 adds the association between the TIVs and mental health at year five. (i.e., age at baseline, education level, race/ethnicity, and immigrant status).

Figure 2. Base Latent Growth Model of Maternal Ratings of Supportiveness with the Biological Father.



Notes: F = Fair; L = Love; I = Insult; E = Encourage. Subscripts indicate data wave (B = Baseline, 1 = Year One; 3 = Year Three; 5 = Year Five). Factor loadings are constrained to be equal across waves. Error variances and correlations among observed supportiveness indicators are not shown. Variances around both the intercept and slope are significant.
Model fit: $\chi^2 = 394.99$, df = 97, $p < .001$; RMSEA = .038; CFI/TLI = .966/.958; n = 2,158.
†p < .10 *p < .05 **p <.01 ***p < .001