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Christina D. Falci

University of Nebraska-Lincoln, cfalci2@unl.edu

Jeylan Mortimer

University of Minnesota - Twin Cities, morti002@umn.edu

HarmoniJoie Noel

University of Nebraska-Lincoln, hnoel@nebraska.edu

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Parental Timing and Depressive Symptoms in Early Adulthood

Christina D. Falci^{a,*}, Jeylan T. Mortimer^b, and HarmoniJoie Noel^a

^aUniversity of Nebraska-Lincoln, Department of Sociology, 711 Oldfather Hall, Lincoln, NE 68588-0324, USA

^bUniversity of Minnesota, Department of Sociology, 909 Social Sciences, 267 19th Ave. South, Minneapolis, MN 55455, USA

Abstract

Using data from a panel of 459 women, we find that early parents (< 20 years old at first birth) report higher levels of depressive symptoms in young adulthood (roughly age 29) compared to later parents (first birth in their 20's) or nonparents. Early parenting is also associated with more stressors and fewer resources in young adulthood. As young adults, early parents have lower educational attainment, less secure employment and a weaker sense of personal control; they also experience greater financial strain and more traumatic life events than later and nonparents. By the end of their twenties, early parents are also more likely to be single compared to late parents. The higher levels of depressive symptoms reported among early parents, compared to both later parents and nonparents, are primarily explained by their greater financial strain and lower sense of personal control.

Keywords

parental timing; mental health; stress exposure; mastery

1. Introduction

Early childbearing is associated with higher levels of depressive symptoms in adulthood than later childbearing (Boden, Fergusson, & Horwood, 2008; Deal & Holt, 1998; Henretta, Grundy, Okell, & Wadsworth, 2008; Mirowsky & Ross, 2002; Mollborn & Morningstar, 2009; Spence, 2008; Williams, Mcgee, Olan, & Knight, 1997). The more than 10% of women who have their first child prior to the age of 20 may be especially at risk of poor mental health (National Center for Health Statistics, 2005). The present study explores potential mechanisms underlying the association between parental timing (early, late, and nonparents at age 29) and depressive symptoms among young adult women.

Drawing from the life course perspective and the stress process model of mental health, this research investigates several potential mediators, in an attempt to understand why female early parents are at particular risk for depressive symptoms. Early childbearing is expected to hinder the development of human capital (educational attainment and employment), social capital (marriage), and psychological resources (a sense of personal control). It is also

*Please direct all correspondence to via cfalci2@unl.edu, phone: (402) 472-3762, or fax: (402) 472-6070. .

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expected to increase exposure to stressors, including financial strain and stressful life events in young adulthood. Fewer resources and greater stress exposure could explain the variation in depressive symptoms by parental timing.

The current study extends past research in several ways. First, unlike prior studies (e.g., Booth, Rustenbach, & McHale, 2008; Williams et al., 1997), we compare early female parents to both women who parent later (i.e., during their 20's) and those who remain childless. Second, we investigate the influence of parental timing on depressive symptoms during young adulthood (roughly age 29). Prior cross-sectional research has addressed mental health immediately after teenage childbirth (Deal & Holt, 1998), or has used retrospective data to examine the effects of parental timing on women of various ages spanning the entire life course, i.e., ages 18 through 95 (Mirowsky & Ross, 2002). Prior longitudinal research has focused on women above 50 (Henretta et al., 2008; Spence, 2008) or young adults below age 25 (Boden et al., 2008; Booth et al., 2008). Fourth, previous longitudinal studies of parental timing and young adult mental health have not considered the mechanisms that are examined in this study (Kalil & Kunz, 2002; Mollborn & Morningstar, 2009).

1.2. Parental Timing: Mental Health

Involvement in social roles (e.g., employment and marriage) often has mental health benefits (Menaghan, 1989; Thoits, 1983). Entrance into parenthood, however, may have mixed effects. Like many other role commitments, parenthood may increase a sense of mattering (the perception that one is recognized and important to others) and social integration (Nomaguchi & Milkie, 2003; Rosenberg & Cullough, 1981). But being responsible for the many needs of a young child can also give rise to numerous stressors (Umberson & Gove, 1989). As a result, it is not surprising that research on parenthood and mental health has produced inconsistent findings showing positive mental health benefits (Glenn & McLanahan, 1981; Kandel et al., 1985), negative mental health consequences (Bures, Koropecj-Cox, & Loree, 2009; Evenson & Simon, 2005), and no effect on mental health (Zhang & Hayward, 2001).

Inconsistency in the association between parenthood and mental health could result from variability in the context of parenting (Umberson & Williams, 1999). *Parental timing* is the focus of this research. In accord with the life course concept of age grading (Neugarten, Moore, & Lowe, 1965; Settersten, 2003), many believe that there is an appropriate age for entry into parenthood, enabling recognition of those who are early, on-time or late with respect to this transition (Elder, Johnson & Crosnoe, 2004). Those who violate age norms are likely to experience disapproval and negative sanctions from others. The initiation of the National Campaign to Prevent Teen Pregnancy in 1996 signifies widespread social disapproval of teenage childbearing. Concerns about childbearing in the teen years continue to be expressed in extensive public and political discourse (Furstenberg, 2003).

In the present study, *early* parenthood refers to a first birth prior to the age of 20. This cut-off age is consistent with most previous research (e.g., Henretta et al., 2008; Kalil & Kunz, 2002; Mollborn & Morningstar, 2009) and is well below the average age of first birth among women in the US. In 1988 (the first year of data collection from the cohort of 9th graders studied here), women's average age at first birth was 24.1 (Mathews & Hamilton, 2002). In the present study, *later* parenthood refers to a first birth in the 20's and nonparents are childless at the time of young adult survey administration (roughly age 30). Within a life course framework, early transitional events, such as childbearing, can have negative consequences for mental health trajectories during the transition to young adulthood (Wickrama, Conger, Lorenz, & Jung, 2008). Therefore, we expect early parents to have

higher levels of depressive symptoms in young adulthood compared to later parents and nonparents.

According to the stress process model, variation in mental health across social groups arises from differences in personal or social resources and stress exposure (Pearlin, 1999). We also expect early transitional events to diminish the capacity to develop human capital, social capital, and psychological resources, as well as increase exposure to stressors in young adulthood. Heightened stressors and fewer resources, then, should explain the higher level of depressive symptoms among early parents compared to later parents and nonparents. In contrast, parenting “on time,” i.e., in the 20’s, is not expected to increase exposure to stressors or diminish the development of resources in young adulthood relative to nonparents. Therefore, we do not expect significant variation in young adult depressive symptoms between later parents and nonparents.

1.3. Parental Timing: Resources and Stressors

Early childbearing may shape life course pathways in ways that diminish an individual’s capacity to develop human capital during the transition from adolescence to adulthood (Wickrama, Conger, Wallace, & Elder, 2003). Early parents have relatively low levels of educational attainment (Boden et al., 2009; Deal & Holt, 1998; Hoffman, 1998; Mollborn, 2007) and experience frequent bouts of unemployment (Mirowsky & Ross, 2002; Baldwin, 1993). Individuals with lower educational attainment tend to report more depressive symptoms (Yu & Williams, 1999), and job insecurity is likewise linked to poor mental health (Ferrie, Shipley, Newman, Stansfeld, & Marmot, 2005). Thus, early parents may have higher levels of depressive symptoms than nonparents and later parents in young adulthood due to their lower levels of human capital development (Mirowsky & Ross, 2002; Williams et al., 1997).

Early childbearing may also diminish an individual’s capacity to develop social capital, by hampering the formation of stable marital bonds (Morgan & Rindfuss, 1999). Teenage mothers have a lower likelihood of being married at first birth and higher probability of divorce, if married (Kellam, Adams, Brown, & Ensminger, 1982; Maynard, 1997; O’Connell & Rogers, 1984). Compared to later parents, then, early parents are more likely to be single parents; however, we do not expect marital status to differ between early parents and nonparents. In addition to delaying childbearing, nonparents in young adulthood are likely to forgo marriage in pursuit of higher education (Macmillan & Copher, 2005). Research consistently shows that married young adults have better mental health than the unmarried (e.g., Simon, 2002). Furthermore, research on recent cohorts shows that cohabitation has similar mental health benefits as marriage (Horwitz & White, 1998). Thus, early parents’ single status, may explain their higher levels of depressive symptoms in young adulthood compared to later parents.¹

In addition to shaping various adult roles (e.g., student, worker, and spouse), early childbearing may hinder the development of personal control (i.e., the belief that one’s actions will produce desired ends) and heighten stress exposure. Simply becoming a parent can diminish a sense of control (Nomaguchi & Milkie, 2003), but early parenthood may be especially detrimental. In a panel study of women between the ages of 19 and 29, locus of

¹Previous research finds that marriage moderates the effects of parenthood on mental health (Nomaguchi & Milkie, 2003). However, a significant interaction effect is not found for marital status and parental timing on mental health. Teen mothers who were married at the birth of their first child had higher depressive symptoms compared to currently married later mothers (Kahil & Kunz, 2002). Our analysis (not shown) is consistent with these results. Marital status did not condition the association between parental timing and depressive symptoms in young adulthood. Across all current marital status groups, early parents reported the highest levels of depressive symptoms relative to later parents and nonparents.

control declined among women who reported an early first birth but increased among women who remained childless or had their first child on time (McLaughlin & Micklin, 1983). Early parents are also more prone to experiencing stressful acute life events, such as having an unfaithful partner, being sexually assaulted, being physically abused by a partner, or having a family member addicted to alcohol or drugs (Turner, Sorenson, & Turner, 2000). Financial strain should also be high among early parents because teenage mothers disproportionately live in poverty (Boden et al., 2008; Hoffman & Foster, 1997).

Low personal control and high stress exposure are consistently linked to more depressive symptomatology (Ross & Sastry, 1999; Turner & Lloyd, 1999). Therefore, early parents' higher stress exposures and fewer personal resources are expected to explain their greater propensity to experience depressive symptoms in young adulthood when compared with later parents and nonparents. Variation in stress exposure accounts for substantial variation in depressive symptoms across social status groups (Turner & Avison, 2003). Moreover, the combination of reduced personal or social resources and heightened stress exposure would further amplify the risk of depressive symptoms because limited resources make it particularly challenging to cope with stressors (Pearlin, 1999).

1.4. Parental Timing: Selection

The association between early parenting and depressive symptoms in young adulthood could result from circumstances prior to adolescent childbearing. Several factors associated with increased risk of early childbearing are likely to foster depressive symptoms in adulthood. Importantly, depressed adolescents may attempt to fulfill unmet emotional needs by having their own children (Horwitz, Klerman, Kuo, & Jekel, 1991; Miller-Johnson et al., 1999). A recent study found higher depressive symptoms among adolescent girls prior to their teen pregnancy and subsequent early first birth compared to adolescent girls who did not become pregnant or have an early first birth (Mollborn & Morningstar, 2009). Since the occurrence of depression in adolescence sets a foundation for recurrent and severe depressive episodes later in life (Dunn & Goodyer, 2006), we control for depressed mood in adolescence, prior to childbearing, in addition to several other potential bases of selection.²

In addition to higher depressive symptoms, teens who become early parents are characterized by low levels of educational aptitude (Booth et al., 2008; McHale, 2008; Mollborn, 2007); they are more likely than other teens to grow up in non-intact families with lower quality parent-child relationships and less parental monitoring (Barth, Schinke, & Maxwell, 1983; Mollborn & Morningstar, 2009; Roming & Bakken, 1990); and they are disproportionately non-white and have lower socioeconomic backgrounds (Booth et al., 2008; Mollborn, 2007). In fact, higher depressive symptoms among teen mothers prior to childbearing are explained by their socioeconomic status, academic achievement, family structure and sexual activity (Mollborn & Morningstar, 2009). At the same time, circumstances prior to adolescent childbearing also translate into risk for depressive symptoms in young adulthood. Low educational attainment (Yu & Williams, 1999), a non-intact family structure in youth (Barrett & Turner, 2005), and race (Turner & Avison, 2003) predict depressive symptoms in young adulthood.

2. The Present Study

The present study addresses the following primary research question: Do early parent females report higher levels of depressive symptoms in young adulthood compared to later parent females and women who remain childless throughout their 20's? If so, then why?

²Adjustment for selection bias, such as propensity score matching, is not a viable option for this study because the "treatment" effect (parental timing) is not binary. It has three categories: nonparents, early parents and later parents.

Controlling for several bases of selection into early childbearing, we expect early parents to report the highest levels of depressive symptoms in young adulthood. Moreover, we expect that early parents' disadvantage with respect to young adult mental health will disappear when their greater stressors and fewer resources are taken into account.

3. Method

3.1 Sample

The Youth Development Study (YDS) is a prospective longitudinal study of a community sample of adolescents and their parents. Consent was obtained from 1,139 students (of 1785 randomly chosen) who were enrolled in the St. Paul Minnesota School District and their parents, resulting in a 64% response to invitation rate. The Youth Development Study provides a useful data set for this study for several reasons. First, its longitudinal character allows us to control for selection into the timing of parenthood, especially depressed mood in adolescence. Second, the YDS continued to survey adolescents who dropped out of high school; since early parents are more likely to drop out of school, school drop-out is an important consideration.

To measure adolescent background characteristics, we use the first wave (1988) of data when adolescents attended the 9th grade. Questionnaires were administered to students while in school. Information about socioeconomic status was obtained from mothers and fathers who were surveyed by mail in the first year of the study. Parents of 96% of the students responded. For young adult measures, we use one of three waves of data. For the vast majority of the respondents in the analytic sample (87%), we used data from wave 13, when respondents were roughly 29 years of age. However, if subjects did not have complete data in wave 13, then we used data from wave 14 (roughly age 30) or from wave 12 (roughly age 27) instead. Questionnaires were mailed to research subjects in 2000 (wave 12), 2002 (wave 13), and 2003 (wave 14).

The analytic sample for the current study excludes Hmong refugees. The Hmong respondents are not included because the Hmong adolescents did not interpret the survey questions about depressive symptoms and personal control in the same manner as the non-Hmong (Dunnigan, Miles, & Mortimer, 1993). We also limit our analyses to women (N=528). The effects of parental timing on subsequent mental health may vary by gender (Mirowsky & Ross, 2002), but there are too few early parent males (N=32) in this panel to investigate this possibility. Due to sample restrictions, attrition and/or missing data, the final analytic sample contains 459 women, 87% of the women eligible for the analytic sample. The sixty-nine women without sufficient data to be included did not differ in levels of depressed mood, educational promise, or parent support in the first wave of the study. However, they were more likely to come from low socioeconomic status backgrounds, to be nonwhite, and to have unmarried parents.

3.2 Measures

Timing of parenthood is based on age at first child birth. Early parents had a child prior to age 20, later parents had their first child at or after age 20 and prior to the young adult survey administration, and nonparents reported no children at the time of the young adult survey administration. Early parents comprise roughly 19% of the sample and the remainder is evenly split between later parents and nonparents. On average, early parents had their first child at age 18, whereas later parents were age 24 when they had their first child.

3.2.1 Measures in Young Adulthood—Depressive symptoms are measured by a seven item index (derived from Ware et al., 1979) asking respondents how often during the past

month they have felt depressed; been in low or very low spirits; felt downhearted or blue; felt worn out or exhausted; felt tense or high strung; been under strain or pressure; and been lonely. The response choices ranged from not at all (coded 1) to all of the time (coded 5). Higher values on the summed scale indicate more depressive symptoms (Cronbach's $\alpha=.91$). The personal control index is based on five measures indicating a lack of control (Pearlin & Schooler, 1978): I feel I am being pushed around in life, I have little control over the things that happen to me, I often feel helpless in dealing with problems in life, there is little I can do to change many of the important things in my life, and there is really no way I can solve some of the problems I have. Response choices ranged from strongly agree (coded 1) to strongly disagree (coded 5). The scale was created by taking the mean of a minimum of three valid items. Higher values on this index indicate higher levels of personal control (Cronbach's $\alpha=.80$).

Financial strain is a three-item scale signifying stress in meeting financial obligations, difficulty in paying bills on time, and burden from financial debt. Response choices ranged from not at all stressful (coded 1) to extremely stressful (coded 7). The scale was created by taking the mean of a minimum of two valid items with higher values indicating more financial strain (Cronbach's $\alpha=.85$). The traumatic life events index is the sum of thirteen negative events occurring within the last two years. The events include having a serious illness or injury; death of a partner, family member, friend and pet; romantic relationship break-up; parental remarriage and divorce; having been assaulted, jailed and arrested; having been fired and having had trouble at work.

Marital status is a three category variable (married, cohabitating and single) based on the respondents' marital status at the time of the young adult survey administration. We focus on current marital status because current marriage is found to explain the beneficial effect of having ever been married on mental health, and because an early marriage (prior to age 19) is as detrimental to mental health as premarital birth (Mirowsky & Ross, 2002). Educational attainment is a three-category measure (high school or less, some college, and a BA or more). Employment status also has three categories (unemployed, non-secure employment and secure employment). Respondents were classified as being securely employed if they indicated that their primary job was very secure or secure. If they described their job as somewhat secure or not at all secure, they were categorized as having non-secure employment.

Current age is the respondent's age at the time of survey administration in young adulthood. The mean age of the analytic sample in young adulthood is 29.64; 93% percent are age 29 or older (not shown). For two reasons, however, this variable ranges from age 26 to 32. First, although the YDS is a study of a single school-year cohort, there are some age differences at the first wave of survey administration. Second, for the majority of cases in the analytic sample *all* young adulthood measures are drawn from wave 13 when respondents were typically age 29. For twenty-nine cases, however, respondents did not have complete data for wave 13 and *all* young adulthood measures are drawn from wave 14 when respondents were typically age 30. For an additional twenty-nine cases respondents did not have complete data for wave 13 or 14 and *all* young adulthood measures are drawn from wave 12 when respondents were about age 27.

3.2.2 Background Characteristics in Adolescence—Depressed mood is measured by three items (derived from Ware, Johnson, Davis-Avery, & Brook, 1979) that ask respondents how much during the past month they have felt depressed, been low in spirits, and felt downhearted or blue. The response choices ranged from not at all (coded 1) to all of the time (coded 5). Items were summed to create an index of depressed mood with higher values on the summed index indicating greater depressed mood (Cronbach's $\alpha=.83$).

Educational promise is a three-item scale that assesses the adolescents' perception of their own intelligence, reading skills, and overall school ability compared to their peers. The response choices ranged from far below average (coded 1) to far above average (coded 5). Items were summed to create an index of educational promise with higher values on the index indicating greater educational promise (Cronbach's $\alpha=.72$).

For up to four parental figures (i.e., for residential and non-residential mothers and fathers), adolescents were asked how much they wanted to be like their parent, how close they felt, how often their parent talked over important decisions with them, how often their parent listened to their side of an argument, and how often they talked over personal concerns and decisions. Factor analyses and Cronbach's α showed single factor and reliable indices (Cronbach's $\alpha=.80$ or above) for each type of parental figure. The mother support measure is based on adolescent reports about residential mothers because residential parents have a more consistent and pervasive influence on adolescent outcomes than non-residential parents (Falci, 2006). Only a measure of mother support is used in analysis, because the father support measures suffered from high missing data and including father support did not change the findings. In nine cases, however, reports about mothers were not available and father reports were used instead. Since the response content varied by question (a lot to not at all, extremely close to not close at all, or never to often), the mother support index is created by summing the standardized responses, with higher values indicating more mother support.

Family structure is a dummy variable: non-intact=1 and intact=0 (the child was living with both their biological, or adoptive, mother and father). Race is a dummy variable: nonwhite=1 and white=0. The parent survey of the YDS obtained information on the socioeconomic status (SES) of the family of origin. Following House et al. (1990), socioeconomic status of origin is measured by a composite of parental income and education obtained in the first year of data collection. Parental income (ranging from 1 for "\$5,000 or less" to 13 for "\$100,000 or more") was obtained from fathers' reports, or if not available, from mothers' reports. Parental education was determined by averaging the reported education of the two parents in the household, or by the education of the sole parent. Parents were asked to report their highest level of education (ranging from 1 for "less than high school" to 8 for "PhD or professional degree"). An index of background SES was constructed by summing the Z-scores for household income and parents' education.

4. Results

The first row of Table 1 shows significant variation in young adult depressive symptoms across parental timing categories. Early parent females have higher levels of depressive symptoms (12.84) in young adulthood compared to later parent females (10.63, $p<.01$) or non-parent females (10.37, $p<.001$). The remaining sections of the table show variation in additional adult outcomes across parental timing categories, which should promote insight into the processes that underlie mental health differences across parental timing categories.

4.1 Parental Timing: Resources and Stressors

The middle section of Table 1 reports the results from a generalized logit analysis with post hoc contrasts to show differences in marital status, employment status and educational attainment by parental timing. Later parents are more likely to be married (59%) than early parents (35%) and nonparents (30%), whereas early parents are more likely to be cohabitating (26%) than later parents (21%). Overall, however, later parents are also the least likely to be single (21%). With regard to employment, early parents are the least likely to have secure employment when employed (48%) compared to both later parents (65%) and nonparents (69%), and the most likely to be unemployed. Finally, early parents are much

more likely to have only a high school degree or less (41%) than later parents (21%) and nonparent females (11%); nonparents appear to have higher levels of education attainment (51% with at least a BA) compared to later parents (20%).

The bottom part of Table 1 uses analysis of variance with post hoc contrasts to show variation in personal control, financial strain and traumatic life events by parental timing categories. Early parent females report a significantly lower sense of personal control (9.32) compared to both later parents (10.61) and nonparents (10.50). Early parents also report significantly more financial strain (11.48) than later parents (9.41) and nonparents (8.52). These differences in personal control and financial strain are large, ranging from one-half to two-thirds of a standard deviation. Finally, early parents report more negative life events (1.42) compared to both later parents (1.08) and nonparents (1.06). There were no statistically significant differences in personal control, financial strain and traumatic life events between later parents and nonparents.

The results in Table 1 suggest that it is not parenthood per se that is associated with greater financial strain, lower personal control, more negative life events and less educational attainment in young adulthood, rather it is the timing of parenthood (i.e., parenting early) that is associated with these disadvantages in young adulthood. Moreover, among parents, early parenting is associated with a higher probability of being a single parent. The next section will investigate if differences in these stressors and resources in young adulthood can explain the higher levels of depressive symptoms reported by early parents compared to later parents and nonparents.

4.2 Mediation Models

Model 1 of Table 2 shows that significant mean differences in young adult depressive symptoms across parental timing categories still remain when taking into account factors that select individuals into early childbearing; however, the differences are reduced. For example, the difference between early parents and later parents is 2.21 in Table 1; it is 1.70 in Model 1 of Table 2. Race is the primary contributing factor to this reduction. Nonwhite adolescents were significantly more likely to become early parents (analyses not shown). Thirty-eight percent of nonwhite adolescents became early parents, whereas only 14% of white women became early parents. Since nonwhite adolescents have significantly higher levels of depressive symptoms in young adulthood ($b=1.77$, $p<.01$), racial disparity in becoming an early parent, in part, explains higher levels of depressive symptoms among early parent females.³

Subsequent models in Table 2 include mediators that could potentially explain the higher levels of depressive symptoms among early parents. Model 2 shows that single individuals have higher levels of depressive symptoms in young adulthood than married individuals ($b=2.21$, $p<.001$). Depressive symptoms, however, do not differ between married and cohabitating individuals ($b=.33$, ns). Previous analyses demonstrated early parents' higher propensity to be single parents compared to later parents. Controlling for marital status reduces the differences in depressive symptoms between early and later parents by 23% (from $b=-1.70$, $p<.01$ in Model 1 to $b=-1.30$, $p<.05$ in Model 2). Model 3 includes financial strain and Model 4 includes a sense of personal control, each of which substantially reduces the effect of parental timing on depressive symptoms in young adulthood. In fact, all significant differences in depressive symptoms in young adulthood across parental timing

³Model 1 of Table 2 also shows that depressed mood in adolescence is positively associated with depressive symptoms in young adulthood ($b=.32$, $p<.001$). In multinomial logistic regression analysis not shown, however, depressed mood in adolescence did not predict entry into early parenting. Educational promise, family structure and SES predicted entry into early parenting, but none of these background variables are significantly associated with depressed mood in young adulthood.

categories disappear in both models. Previous analysis showed that early parents reported the highest levels of financial strain and the lowest sense of personal control compared to later parents and nonparents. Higher financial strain ($b=.43$, $p<.001$) and lower personal control ($b=-1.10$, $p<.001$) are both associated with higher levels of depressive symptoms in young adulthood. Financial strain reduces the differences between early parents and nonparents by 59%, and personal control reduces the difference between early parents and later parents by 72%.

The final model in Table 2 includes all possible mediators estimated in the same model. Marital status, financial strain and personal control still have significant effects on young adult depressive symptoms when included jointly in the model. This model also shows that the number of traumatic life events, educational attainment and employment status did not have significant effects on depressive symptoms in young adulthood.⁴ This final model is further used to assess both the significance of mediation across the multiple mediators included and the specific indirect effects of parental timing via each mediator. Given the low sample size of our study we do not assume normality of the sampling distribution; therefore, we follow a bootstrapping method described in Preacher and Hayes (2008).

First, we statistically explore whether the difference between the estimated total effect (direct and indirect) of parental timing on depressive symptoms and the direct effect only is significantly different from zero; a significant result indicates significant mediation has occurred. We find significant mediation effects for both the differences in depressive symptoms between early parents and later parents (direct effect= 0.032, total effects= -1.698, and the difference = -1.730, $p<.05$) and the differences in depressive symptoms between early parents and nonparents (direct effect= -0.573, total effects= -1.711, and the difference = -1.138, $p<.05$). Thus, there is significant mediation of the association between parental timing and depressive symptoms by the mediators included in the model.

Next, we explore the specific indirect effects of parental timing on depressive symptoms through each mediator. This analysis is not shown in the Table 2. In this and the next paragraph, we only report statistically significant indirect effects and use standardized regression coefficients to identify the most influential mediators. In explaining differences in depressive symptoms between early parents and later parents, parental timing has significant indirect effects through three mediators: sense of control ($\beta=-.101$, $p<.05$), financial strain ($\beta=-.046$, $p<.05$), and being single vs. married ($\beta=-.024$, $p<.05$). Contrast hypotheses indicate that the indirect effect through personal control is significantly stronger than indirect effects through financial strain and marital status ($p<.05$). Thus, a sense of control is the most influential mediator for understanding differences in depressive symptoms between early parents and later parents.⁵

⁴In analyses not shown, the effect of educational attainment approached statistical significance (the b coefficient for BA or higher is -1.249, $p<.11$) when only parental timing and background controls are included in the model. A similar pattern occurs with employment status. Specifically, having unsecure work is marginally associated with higher depressive symptoms compared to secure work (analysis not shown), but has no effect when financial strain and personal control are included in the model. Both educational attainment and employment status are positively associated with financial strain and a sense of personal control. Thus, education and employment appear to have indirect effects on depressive symptoms. In a study without measures of personal control and financial strain, achieved socioeconomic status has been shown to explain differences in depressive symptoms among early child bearers who are in a later stage of the life course, over age 65 (Spence, 2008).

⁵Although not shown in Table 2, we explored family size as an additional contributing factor to differences in depressive symptoms between early and later mothers, because teenage mothers tend to have more children than older mothers (Morgan & Rindfuss, 1999). In our panel, early parents had 2.76 children on average, whereas later parents had 1.81 children. Mothers with more than two children also tend to be more distressed than mothers with only one child, particularly if they are young mothers (Brown, Adams, & Kellam, 1981). In analysis not shown, we find that having more children is associated with higher levels of depressive symptoms among the parents in our study. However, the number of children no longer significantly predicted depressive symptoms in young adulthood upon controlling any one of the following: marital status, financial strain or personal control. Also, we did not find a significant indirect effect of early parenting on depressive symptoms via the number of children ($\beta=-.025$, ns).

In explaining the differences in depressive symptoms between early parents and nonparents, parental timing has significant indirect effects (not shown) through the two mediators with similar degrees of influence: sense of control ($\beta = -.064$, $p < .05$) and financial strain ($\beta = -.061$, $p < .05$). The indirect effect of parental timing through marital status (being single vs. married) is positive ($\beta = .015$, $p < .05$) indicating a significant suppressor effect. Essentially, early parent females would report even higher levels of depressive symptoms compared to nonparent females if they did not have the advantage of being more likely to be married than single compared to nonparents. Financial strain and personal control are equally influential mediators for understanding differences in depressive symptoms between early parents and nonparents.

5. Discussion

Consistent with previous research, the current study finds that parenting early (i.e., first birth prior to age 20) is associated with a greater risk of experiencing depressive symptoms in young adulthood for women (around age 29) relative to later parents (first birth in their 20's) and nonparents. Among women, it appears that early childbearing shapes life course pathways in ways that diminish their capacity to develop personal resources (a sense of personal control) and social capital (romantic relationship partners) during the transition to adulthood. It may also increase an individual's exposure to stressors, especially in the form of financial strain. All of these factors lead to higher levels of depressive symptoms among early childbearing women. In contrast, depressive symptoms, personal control and financial strain do not vary between later parents and nonparents. Taken on the whole, the findings of this study suggest that parenting early has substantial costs, whereas parenting "on-time" does not necessarily provide benefits to mental health in young adulthood.

The findings from this research contradict a recent study arguing that early family transitions may have benign consequences for well-being, especially among disadvantaged youth. After controlling various background characteristics, depression did not increase or decrease among adolescents who transitioned into parenthood early (sometime prior to age 23) compared to adolescents who made no early family formation transitions (Booth et al., 2008). The results of this previous study, however, are based on a sample of youth between the ages of 17 and 23, and the mental health consequences of parenting early may develop over a longer period of time. The findings from our study show significant differences in depressive symptoms to be present at age 29, controlling for background characteristics that select youth into early childbearing. Furthermore, Henretta et al. (2008) and Spence (2008) show that differences in depressive symptoms across parental timing categories extends into mid-life (beyond age 50).

The findings from the current research should be considered in light of the study strengths and limitations. The prospective longitudinal design allowed us to control for selection into early childbearing. Importantly, we control for depressed mood, educational promise, family structure and social class in early high school, prior to our measurement of parental timing. When assessing mechanisms that might lead to higher levels of depressive symptoms in young adulthood for early female parents, however, our data is cross-sectional. In other words, we cannot establish proper temporal order between the mediators and depressive symptoms. Furthermore, we also do not know if early parenting caused a reduction of resources or an increase in stressors. It is possible that not pursuing college or having high financial strain may push an adolescent toward early parenting. However, controlling for educational promise and the socioeconomic status in the family of origin slightly mitigates these concerns.

Nevertheless, the current study extends past research by comparing early parent females to both women who parent “on-time” *and* those who remain nonparents and by exploring a more diverse array of potential mechanisms; mechanisms that fully explained the differences in depressive symptoms in young adulthood across parental timing categories. The measure for one potential mechanism, the number of stressful life events, however, was fairly restrictive because respondents could only report on a limited number of such events. This could account for its lack of explanatory power with respect to depressive symptoms in young adulthood. Another limitation of the study is the primarily white, urban sample located in the Midwest. Future research should explore the possibility that the consequences of early childbearing differ by social location.

Future research should also explore why early parent females are more likely to be single parents. Births prior to age 20 are likely to occur outside of marriage and those who marry at a young age have high rates of divorce (Kellam et al., 1982; Maynard, 1997; O’Connell & Rogers, 1984). It will be important to know, however, what potentially hampers women from maintaining their prior intimate relationships or from forming “new” stable romantic relationships in young adulthood. Stable romantic relationships are important to maintaining positive mental health (Meadows, McLanahan, & Brooks-Gunn, 2008). Consistent with previous research on recent cohorts, we find the mental health of people who cohabit to be similar to those who are married (Horwitz & White, 1998). Thus, the benefits of stable relationships could be in the form of marriage or cohabitation.

Future research should also explore why a sense of personal control may be diminished among early parent females. During the teen years and throughout young adulthood personal control should increase (Falci, 2008; Lewis, Ross, & Mirowsky, 1999). Early childbearing and the subsequent stressors that follow may disrupt these developmental gains, which will have long lasting consequences for personal control (Pearlin, Nguyen, Schieman, & Milkie, 2007). Low levels of educational attainment will further disadvantage the development of personal control (Mirowsky & Ross, 2007). Early parents tend to take longer to achieve their educational aspirations (Furstenberg, Brooks-Gunn, & Morgan, 1987), but policy makers could expedite the process by providing childcare and housing assistance, as well as financial aid (Mollborn, 2007). Such policies may also help alleviate the financial strain more typical among early parents, although future research should pinpoint the reasons for the higher levels of financial strain. The current study suggests that unstable employment (or unemployment) and low levels of educational attainment may be two contributing factors.

6. Conclusion

Among young women, there is considerable heterogeneity in the timing and sequencing of family formation in young adulthood (Macmillan & Cohper, 2005; Schoen, Landale, & Daniel, 2007). Some of these pathways, however, may have more mental health consequences than others. Our research shows that women who take the pathway of “early” parenting report more depressive symptoms as young adults. This is explained by lower levels of personal control and heightened exposure to financial strain. When specifically comparing early parents to later parents, a higher likelihood of being single provides an additional, but substantially weaker, explanation for why early parents report higher levels of depressive symptoms in young adulthood compared to later parents. Overall, the findings of this study suggest that promoting a sense of mastery and easing financial burdens will do more to ameliorate the high levels of depressive symptoms among early childbearing women than efforts to increase marriage.

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Table 1

Depressive Symptoms, Resources and Stressors by Parental Timing

	Early Parent	Later Parent ^a	Not ^a Parent ^a	
	Mean			F-Test
Depressive Symptoms	12.84	10.63 **	10.37 ***	8.08 ***
	Column Percent ^e			Chi-square
<i>Marital Status</i>				45.12 ***
Married ^c	34.5 (30)	58.9 (109)	30.0 (56)	
Cohabit ^b	26.4 (23)	20.5 * (38)	19.3 (36)	
Single ^b	39.1 (34)	20.5 *** (38)	50.8 (95)	
<i>Employment Status</i>				24.07 ***
Secure Employment ^c	48.2 (42)	64.9 (120)	69.0 (129)	
Insecure Employment	20.7 (18)	12.4 * (23)	20.9 (39)	
Not Employed ^b	31.0 (27)	22.7 * (42)	10.2 *** (19)	
<i>Educational Attainment</i>				91.81 ***
BA or Higher ^d	3.5 (3)	19.5 (36)	51.3 (96)	
Some College ^c	55.0 (48)	60.0 (111)	37.4 (70)	
High School or Less	41.4 (36)	20.5 * (38)	11.2 ** (21)	
	Mean			F-Test
Personal Control	9.32	10.61 ***	10.50 **	8.34 ***
Financial Strain	11.48	9.41 *	8.52 ***	10.99 ***
Traumatic Life Events	1.42	1.08 *	1.06 *	4.31 *
<i>N (total=459)</i>	87	185	187	

* Notes: p<.05;

** p < .01;

*** p < .001 (two-tailed)

^a Asterics for these statistics indicate significant differences from early parents based on post-hoc contrasts.

^b Indicates significant differences between later parents and not yet parents at p<.05 based on post-hoc contrasts.

^c Identifies the omitted comparison group for post hoc contrasts in the generalized logit analysis.

^dPost-hoc contrasts are not made with this level of education because the cell size for early parents is too small (n=3).

^eCell sizes are in parentheses.

Table 2
 OLS Regression of Depressive Symptoms on Parental Timing, Stressors, Resources, and Background Characteristics (N=459)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	se	b	se	b	se	b	se	b	se
Intercept	9.73		8.80		5.64		19.82		14.98	
Later Parents ^a	-1.70 **	.65	-1.30 *	.65	-.92	.59	-.47	.54	.03	.52
Nonparent ^a	-1.71 *	.68	-1.95 **	.67	-.69	.62	-.94	.56	-.57	.56
<i>Stressors and Resources</i>										
Single ^b			2.21 ***	.53					1.38 **	.42
Cohabiting ^b			.33	.60					-.18	.48
Financial Strain					.43 ***	.04			.26 ***	.04
Personal Control							-1.10 ***	.07	-.93 ***	.07
Traumatic Life Events									.28	.18
Some College ^c									.46	.48
BA or Higher ^c									.35	.62
Unemployed ^d									.12	.47
Unsecure Employment ^d									-.25	.48
<i>Background Characteristics</i>										
Depressed Mood	.32 ***	.09	.36 ***	.09	.20 *	.08	.17 *	.07	.14 *	.07
Educational Promise	.04	.13	.02	.13	.05	.12	.18	.11	.12	.11
Mother Support	-.04	.06	-.02	.06	-.02	.05	-.02	.05	.00	.05
Nonintact (vs. Intact)	.14	.48	.06	.48	.12	.44	.03	.40	-.03	.38
Nonwhite (vs. White)	1.77 ***	.58	1.67 ***	.57	1.36 ***	.52	1.97 ***	.47	1.55 ***	.45
SES Family of Origin	.01	.16	.00	.16	.02	.15	.23	.13	.20	.13
Age (<i>centered</i>)	.25	.29	.26	.28	-.04	.26	-.02	.24	-.16	.22
R-square	.09		.12		.26		.39		.47	

* Notes: p<.05;

** p < .01;

p < .001 (two-tailed)

a Omitted comparison group for is early parents,

b for married,

c for High School or less,

d and for unemployed.