

SOCIETY AND MENTAL HEALTH

The Journal of the Sociology of Mental Health Section
of the American Sociological Association

VOLUME 1 • NUMBER 1 • MARCH 2011

SOCIETY AND MENTAL HEALTH

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Society and Mental Health (SMH) publishes original and innovative peer-reviewed research and theory articles that link social structure and sociocultural processes with mental health and illness in society. It provides an outlet for sociologically relevant research and theory articles that are produced in other disciplines and subfields concerned with issues related to mental health and illness. The aim of the journal is to advance knowledge in the sociology of mental health and illness by publishing the leading work that highlights the unique perspectives and contributions that sociological research and theory can make to our understanding of mental health and illness in society.

Society and Mental Health (ISSN 2156-8693/eISSN 2156-8731) is published three times a year—in March, July, and November—by SAGE Publications, 2455 Teller Road, Thousand Oaks, CA 91320 on behalf of the Sociology of Mental Health Section of the American Sociological Association, 1430 K Street, NW, Suite 600, Washington, DC 20005. Send address changes to *Society and Mental Health* c/o SAGE Publications, Inc., 2455 Teller Road, Thousand Oaks, CA 91320.

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Parenthood, Life Course Expectations, and Mental Health

Daniel L. Carlson¹ and Kristi Williams¹

Abstract

Although past research indicates that giving birth at a young age and prior to marriage negatively affects mental health, little is known about the role of individual expectations in shaping these associations. Using data from the National Longitudinal Survey of Youth 1979, the authors consider how individual expectations for the sequencing of marriage and parenthood and the timing of first births shape mental health outcomes associated with premarital childbearing and age at first birth, and they investigate variation in the role of expectations across gender and race/ethnicity. Results indicate that expecting children before marriage ameliorates the negative mental health consequences of premarital first births and that subsequently deviating from expected birth timing, either early or late, results in increased distress at all birth ages. In both cases, however, the degree and manner in which expectations matter differ by gender and race/ethnicity. Expectations for premarital childbearing matter only for African Americans' mental health, and although later-than-expected births are associated with decreased mental health for all groups, earlier-than-expected births are associated only with decreased mental health for women, Hispanics, and non-Hispanic whites.

Keywords

depressive symptoms, life course, parenting, roles, self-concept

Substantial evidence indicates that having children prior to marriage and at a young age has significant costs for the mental health of the average adult (Kalil and Kunz 2002; Koropecj-Cox, Pienta, and Brown 2007; Mirowsky and Ross 2002). However, average associations of age at first birth and premarital births with mental health likely obscure significant variation in their mental health consequences. This overly generalized view of the mental health consequences of age at first birth and premarital births does not identify those most at risk of negative mental health outcomes. Despite the prevalence of premarital and teen births in the United States, little progress has been made in identifying factors that shape mental health outcomes related to premarital first births and age at first birth. One such factor noted to be important to mental health, but which has

received little attention in the family and mental health literature, is life course expectations.

We use data from the National Longitudinal Survey of Youth 1979 (NLSY79) to examine whether the negative mental health consequences of premarital childbearing depend on whether one expected to have a premarital birth. We also investigate whether failing to meet expectations for the timing of the first birth affects mental health independently of age at first birth. Social psychologists have long noted the centrality of

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expectations to the appraisal of life circumstances (Higgins 1987; Marcussen and Large 2003; Simon 1997), and decades of research and theory on social stress have established that expectations strongly shape the mental health consequences of life events and role transitions (Lazarus and Folkman 1984; Pearlin 1989; Simon and Marcussen 1999). Thus, expectations in young adulthood are likely to be fundamentally implicated in the mental health outcomes associated with the sequencing of marriage and parenthood and with birth timing. Indeed, evidence that unintended and mistimed births result in elevated levels of distress (Grussu, Quatraro, and Nasta 2005; Najman et al. 1991) underscore the importance of expectations for parents' mental health, although this research has a number of limitations that we address. In doing so, we draw attention to potential gender and race/ethnic variations in these processes, an important contribution given the near-exclusive focus on the impact of these factors on women's (as opposed to men's) well-being and in light of substantial race/ethnic variation in rates of premarital births and first birth timing.

BACKGROUND

Premarital Births, Expectations, and Mental Health

It is well established that single parenthood is associated with poor mental health throughout the life course among women (Avison, Ali, and Walters 2007; Kaili and Kunz 2002; Wang 2004), a significant concern given the prevalence of nonmarital childbearing. Approximately 40 percent of all births in the United States now occur to unmarried women (Martin et al. 2010), and more than 80 percent of these are to women who have never married (Terry-Humen, Manlove, and Moore 2001). Although much less is known about the effects of premarital births on the mental health of fathers, emerging evidence suggests negative economic and mental health outcomes for men as well (Buchanan and Robbins 1990; Nock 1998).

Explanations for the negative mental health consequences of nonmarital childbearing typically point to the economic and psychosocial resource deficits experienced by single parents, especially mothers. Primary among these is economic strain. Premarital births are associated with low educational and occupational attainment (McLanahan and Sandefur 1994; Nock 1998) and low

socioeconomic status (Nock 1998)—disadvantages that persist into later life, at least among women (Johnson and Favreault 2004). Approximately two thirds of families receiving Temporary Assistance for Needy Families are headed by single mothers (U.S. Department of Health and Human Services 2005). Single mothers also face greater exposure to economic deprivation and role overload (Avison et al. 2007; Cairney et al. 2003); have lower levels of social support (Cairney et al. 2003); and are at a greater risk of permanent singlehood, long-term cohabitation, and marital dissolution (Nock 1998; Qian, Lichter, and Mellott 2005) than those whose first births occurred in marriage.

Although there is little doubt that the cumulative disadvantages and stress proliferation associated with premarital childbearing play a substantial role in undermining mental health, average statistical associations of premarital births with mental health likely mask significant heterogeneity. U.S. domestic policy over the past 25 years has done much to discourage nonmarital childbearing, taking a broad approach that is most appropriate if such negative consequences apply equally to all. In contrast, identifying which groups are most at risk for the negative mental health outcomes of premarital parenthood can help target and increase the effectiveness of such policies and interventions.

We argue that personal expectations fundamentally shape the impact of premarital childbearing on well-being and will, therefore, moderate the well-established association of premarital childbearing with mental health. As such, average associations of premarital childbearing with poor mental health likely reflect large negative consequences for those who had an unexpected premarital birth but may obscure relatively benign effects among those who anticipated having their first child before marriage. Our first central hypothesis is that lower levels of psychological well-being related to premarital births compared with postmarital births will be most pronounced among those who do not expect children before marriage.

Why Expectations Shape Mental Health Consequences of Premarital Parenthood

Three theoretical perspectives in social psychology and sociology provide a strong rationale for our first hypothesis: self-discrepancy theory

(Higgins 1987; Marcussen and Large 2003), developmental theory (Markus and Nurius 1986; Nurmi 1993), and the social stress model (Pearlin 1989). Self-discrepancy theory (Higgins 1987) draws attention to the psychological distress associated with discrepancies between individuals' assessments of who they really are (actual selves) and their views of whom they expected to be (ideal/ought selves). In a similar vein, developmental theory emphasizes that identity is based not only on current role occupancy (e.g., single parent, teen mother) but also on future role expectations and goals (Markus and Nurius 1986; Nurmi 1993). Both perspectives suggest that discrepancies between anticipated and actual identities produce psychological distress because they result in (1) threat to or loss of identity, (2) negative self-concept, and (3) unanticipated and undesirable adjustments of self-concept (Higgins 1987; Marcussen and Large 2003).

Expectations for premarital birth, in particular, likely determine preparedness for parenthood, satisfaction with the role, and the extent to which it threatens identity (Lazarus and Folkman 1984; Nurmi 1993). A violation of these expectations necessitates uninvited and distressing reevaluations of identity (Thoits 1991). As a result, those with discrepant identities are more likely to think of their futures in negative terms (Adamson, Ferrer-Wreder, and Kerpelman 2007) and to report lower self-esteem (Pinquart, Silbereisen, and Wiesner 2004) and psychological well-being (De Goede et al. 1999; Higgins 1987). Taken together, developmental theory and self-discrepancy theory suggest that violations of life course expectations threaten identity and mental health. Consistent with this view, research on marriage and mental health has shown that the effects of marital transitions on mental health depend on the value that the individual places on marriage (Simon and Marcussen 1999).

The social stress model provides a framework for further understanding this process because of its emphasis on the importance of personal expectations in shaping the relationship of life events and role incumbencies with psychological distress. A central tenet of the social stress model is that the extent to which potentially stressful life events undermine mental health depends in part on whether the event is normative, scheduled, desired, and controllable. The idea of role captivity is particularly relevant. As Pearlin (1989) notes, role captivity, a chronic stressor, occurs

when individuals unwillingly occupy a role. Because those who did not expect to become single parents are more likely to be unwilling incumbents of this role, we argue that they will be more likely than those who expected single parenthood to be distressed by premarital childbearing. Of course, even those who expected the single parenthood role must cope with its common secondary strains (e.g., resource deprivation, child care, etc.). However, the stress model also suggests that the proliferation of stress undermines the ability to cope with future stressors (Thoits 2006). As a result, those who did not expect to become single parents are likely more vulnerable to the negative mental health consequences of secondary strains than those who expected the role.

The violation of expectations not only should shape the mental health consequences of premarital parenthood in the short term but is also likely to have enduring consequences throughout the life course (Thoits 2006). Because they are distressing, unexpected entrances into single parenthood are especially likely to impede the attainment of other developmental goals. As noted by Thoits (2006), those with good mental health are better able to set and achieve goals and to reverse negative developmental trajectories. Thus, unexpectedly sequenced entrances into parenthood likely result in further violations of developmental expectations and reoccurring mental health problems over time.

First Birth Timing, Expectations, and Mental Health

Just as expectations should shape the mental health consequences of premarital parenthood, they also are a fundamental consideration in the effect of first birth timing on mental health. Clarifying the role of expectations in the effect of age at first birth on mental health is the second central goal of our study. Substantial evidence indicates that first births at young ages, typically defined in the literature as births occurring prior to age 20, negatively affect educational achievement, occupational attainment (Mirowsky and Ross 2002), and union formation (McLanahan and Sandefur 1994; Nock 1998)—status attainment trajectories that are, in turn, strongly associated with mental health (Koropecyk-Cox et al. 2007; Mirowsky and Ross 2002). Although less well established, there is also evidence that births

late in the life course are distressing, suggesting a curvilinear pattern in the effects of age at first birth on mental health (Mirowsky and Ross 2002).

We expect that deviation from expected age at first birth (i.e., the difference between expected and actual age at first birth) is an equally, if not more, important predictor of mental health than actual age at first birth, although the latter has received greater attention in the literature. Developmental theory suggests that both earlier- and later-than-expected births should threaten identity (Nurmi 1993), and the social stress model emphasizes that mistimed (i.e., unscheduled and unexpected) events and role transitions occurring both earlier and later than expected are potential stressors (Lazarus and Folkman 1984; Pearlin 1989), with consequent detriments to well-being. Furthermore, because individual expectations for birth timing are often shared among friends and cohort members, transitioning earlier or later than expected may reduce access to social support and parental socialization experiences, increasing both exposure and vulnerability to the physical and psychological demands of parenting. Although our aim is not to differentiate between these explanations, they nonetheless provide a firm foundation for the hypotheses of this study. In sum, our second core hypothesis is that larger differences between expected age at first birth and actual age at first birth will be associated with lower levels of mental health (net of age at first birth). We expect to observe the lowest levels of mental health among those with the greatest deviations, early or late, from expected birth timing.

Unwanted and Mistimed Births and Mental Health

The importance of personal expectations is evident in past research on the mental health effects of unwanted and mistimed (earlier-than-desired) births (Barber, Axinn, and Thornton 1999; Grussu et al. 2005; Leathers and Kelley 2000; Najman et al. 1991; Orr and Miller 1997). Although evidence that mistimed births are associated with psychological distress (Leathers and Kelley 2000; Orr and Miller 1997) is consistent with our hypothesis about the mental health consequences of deviations from expected birth timing, substantial methodological limitations prevent drawing conclusions from this body of work. Most importantly, evidence of negative

mental health consequences of birth mistiming in the United States is based exclusively on clinical or other nonprobability samples, limiting its generalizability. Moreover, all prior studies assess timing intentions retrospectively (sometimes decades after the birth) and dichotomously (i.e., births are measured as mistimed or not), limit measures of mistiming to earlier-than-expected births (excluding later-than-expected births), and fail to differentiate between unwanted and mistimed births. Prior research also assesses mental health a few months after birth and cannot distinguish effects on postpartum depression from more enduring effects among women (for reviews, see Gipson, Koenig, and Hindin 2008; Logan et al. 2007).

Our approach extends this literature in several important ways. First, we employ a nationally representative, longitudinal probability sample of U.S. men and women. This improves the generalizability of findings and allows us to consider the enduring consequences of birth mistiming. Second, our central hypotheses consider the role of *sequencing* and *timing* expectations for marriage and parenthood, not just the overall wantedness of a pregnancy, as in other studies. Third, we assess expectations prior to pregnancy and childbirth, eliminating bias associated with retrospective assessments of childbirth intentions and ex-post rationalizations (Lloyd and Montgomery 1996). Fourth, we consider how the *degree* of mistiming (both early and late) affects mental health. Finally, our large probability sample allows us to consider potential gender and race/ethnic differences in the salience of parenthood expectations for mental health.

Gender, Race/Ethnicity, and the Salience of Life Course Expectations

There are several reasons to expect that gender influences vulnerability to violated life course expectations. Evidence that the parental role is more important to women's identities than to men's (Simon 1992) suggests that women may be more strongly affected by violations of expectations for parenthood. In support of this, qualitative studies have shown that women are more negatively affected by infertility and unintended births than men are (Andrews, Abbey, and Halman 1991; Leathers and Kelley 2000). Failing to achieve expected identities also appears to be generally more detrimental for women's well-being than for men's (Allen et al. 1996).

Examining potential variation in the impact of timing and sequencing expectations across race/ethnicity is also warranted, although the likely direction of the association is less clear compared with that of gender. Both average age at first birth and rates of premarital childbearing vary across race/ethnicity, with African Americans and Hispanics more likely to have (Martin et al. 2010) and expect (East 1998) children at younger ages and outside of marriage than do non-Hispanic whites. Indeed, although rates of non-marital births have risen recently for all groups in the United States, the majority of nonmarital and teen births occur to race/ethnic minorities, most especially African Americans (Martin et al. 2010). Despite little research to support a hypothesis of differential vulnerability to the violation of expectations for birth timing and sequencing across race/ethnicity, the fact that expected and actual pathways to parenthood vary drastically across race/ethnic groups in the United States justifies an exploration of this possibility.

In sum, our third hypothesis is that the role of expectations in shaping mental health differences associated with first birth timing and sequencing will vary by gender and race/ethnicity. We expect that the associations described in Hypotheses 1 and 2 will be stronger for women than for men. Prior research provides less guidance in specifying the direction of specific race/ethnic differences in these associations.

METHOD

Data. Data are from the NLSY79, a nationally representative sample of 12,686 U.S. youths ages 14 to 22 in 1979. Each respondent was interviewed annually from 1979 to 1994 and biennially since. Beginning in 1998, respondents who reached age 40 completed a one-time health module containing a seven-item portion of the Center for Epidemiologic Studies Depression (CES-D) Scale. Two portions of the sample (military respondents and the supplementary subsample of disadvantaged youth) were dropped from the design over the course of the study. This leaves a sample size eligible for inclusion in our study of 9,964. As of 2006, all of these NLSY79 respondents had turned age 40 and were eligible to respond to the Health Module questionnaire; 84.95 percent ($N = 8,465$) completed it.

Analytic sample. Our analysis is restricted to African Americans, Hispanics, and non-Hispanic white parents whose first biological child was born between 1979 and age 40 and who were not currently expecting a child in 1979 (questions on expectations for first birth were not retrospective).¹ Of the 8,465 respondents who completed the Health Module by 2006, 82.8 percent ($n = 7,006$) met these criteria.² We further limit the sample to the 5,762 (90.7 percent) respondents who expected to become parents, because our central independent variables are measured only among this group. In all, 4,970 of respondents who expected to have at least one child had experienced a first birth by age 40. Cases in which information on the respondent's age at first birth was missing or inconsistent with the respondent's report of being childless in 1979 ($n = 502$) were excluded from analysis, leaving a final analytic sample of 4,468.

Attrition. A potential limitation of this study comes from the possibility of selection bias. Only 4,468 of a possible 9,964 original respondents of the NLSY79 (excluding dropped subsamples) were included in this study. We excluded some cases for reasons noted above. Others were excluded because of attrition. Supplemental analysis (not shown) suggested no association of our key independent variables (expectation for premarital parenthood and age at first birth) with attrition. An additional concern is whether there are fundamental differences between those who had young first births before the 1979 interview (i.e., before age 21) and those in the sample who had not had their first child before 1979 but who also had young first births. Analyses revealed few differences other than those in the sample were somewhat more likely to be female and to have their first child before marriage.

Measures

Depressive symptoms. Respondents completed a seven-item version of the CES-D scale once when they turned 40 years of age (either in 1998, 2000, 2002, 2004, or 2006). Higher scores indicate more frequent reports of depressive symptoms and range from 0 to 3 (0 = rarely/none of the time/1 day; 3 = most/all of the time/5-7 days). Responses are mean scaled ($\alpha = .83$), which requires five out of seven valid responses,

and summed (range = 0 to 21). Consistent with other studies, we log the CES-D score [$\ln(\text{depression score} + 1)$] to adjust for skew (Cole et al. 2000).

Independent variables. Three variables from the NLSY79 are used to construct measures of expectations for birth timing and premarital childbearing. Respondents were asked in 1979, "At what age would you like to marry?" (*before age 20, age 20 to 24, age 25 to 29, after age 30, or never*), "What is the total number of children you expect to have" (range = 0 to 16), and "When do you expect to have your first/next child?" (months and years from 1979 interview).³

Age at first birth is a continuous variable measured in years. *Off-time deviation of first birth* is the difference between actual and expected age at first birth, as reported in 1979. Positive values indicate later-than-expected first births, negative values indicate earlier-than-expected first births, and a value of 0 indicates first births that occurred at the age the respondent expected (range = -25 to 20). A squared term is also included to model a curvilinear association.

Premarital first birth is a dummy variable coded 1 for those whose reported age of first birth precedes their reported age of first marriage. *Expected premarital first birth* is a dichotomous variable coded 1 for those whose expected age at first birth is less than their preferred age at first marriage, as well as those who report they would never like to marry but expect to have a child. Preferences for marriage timing are measured categorically in the NLSY79, and we therefore estimate respondents' expectations for a premarital birth conservatively. Only those who expected their first child before the lowest age of each marital age category are coded as having expected a premarital first birth. For example, respondents who expected their first child at age 24 and stated that they would like to marry between age 25 and 29 are coded as having expected their first child before marriage, but those who expected the first child at age 25 or 26 and stated that they would like to marry between age 25 and 29 are not.

The *expected premarital first birth* dummy variable is used as an internal moderator (Mirowsky 1999) because expectations for a premarital birth should only be relevant to the mental health of those who have one. Those who indicated that they expected to have a premarital first birth and who had a premarital birth are given

a value of 1; those who had a child after marriage and those who had a premarital first birth unexpectedly are given a value of 0.

We acknowledge that phrases such as "like to" and "expects to" may carry different meanings for respondents. Indeed, one problem is that "like to," which is used in the question, "At what age would you like to marry," most clearly taps individual preferences. In contrast, the phrase "expects to," which is used to assess expectations for the timing of parenthood, indicates intentions. The concern is whether or not these different, yet unobserved, orientations toward the timing of marriage and parenthood may affect the interpretation of results related to premarital childbearing. Research on childbearing motivations (Miller and Pasta 1988) suggests that desires are less predictive of future behavior than expectations are. Failing to achieve desires then may be less detrimental to mental health than failing to meet expectations, since expectations indicate a higher commitment to a goal. Without a measure of expectations to compliment reported preferences for age at marriage, it is possible that this study may underestimate the effect of "violated expectations" for premarital childbearing if we are capturing one's preferences for the sequencing of marriage and parenthood rather than one's expectations.

Control variables. We control for a range of variables that may influence both our key independent variables (early life course expectations and the sequencing and timing of parenthood entry) and depressive symptoms at midlife. Control variables, measured in 1979, include *age*; *poverty status 1978-1979*⁴ (1 = in poverty); and respondents' household family structure at age 14: *both biological parents* (reference), *single mother*, *mother-stepfather*, and *other family structure*. To control for respondents' mental health before entering parenthood, models incorporate a retrospective measure (taken at age 40) of whether the respondent had *ever been diagnosed with a mental illness* prior to the 1979 interview date (1 = yes). We also include Rotter's locus of control scale, assessed in 1979 ($\alpha = .38$, range = 0 to 12), which is a measure of respondents' sense of control. Higher scores indicate an internal versus external locus of control. A sense of control over events is highly correlated with mental health (Benassi, Sweeney, and Dufour 1988), and although this measure does not directly control for mental health at baseline, its presence in our

models should assist in controlling for any mental health selection effects related to age at first birth, premarital childbearing, and the violation of expectations.

RESULTS

Descriptive statistics for the analytic sample are shown in Table 1. A correlation matrix of all variables in the analysis is provided in the appendix. As shown in Table 1, on average, respondents had their first child around age 25, which was 1.92 years later than expected.⁵ Of the sample, 26.5 percent experienced a premarital first birth, and of these, 39.3 percent previously expected to do so. The table also reveals several notable race/ethnic and gender differences in both expected and actual pathways to parenthood. African Americans and Hispanics had their first child at younger ages than did non-Hispanic whites and closer to their expected age. Both groups, but especially African Americans, were also more likely to have and expect a premarital first birth than were non-Hispanic whites. Approximately 56 percent of African American men and women experienced premarital first births, accounting for approximately two thirds of all premarital births in the sample. Men of all race/ethnic groups had their first child at later ages than women did, while non-Hispanic white and African American men also entered parenthood much later than expected compared with non-Hispanic white and African American women. All men, compared with women, were more likely to expect a premarital first birth, but there were no differences by gender in the actual occurrence of a premarital first birth. These differences strongly support our decision to examine potential gender and race/ethnic variation in the role of expectations in shaping mental health differences associated with first birth timing and sequencing.

Age at First Birth, Premarital First Births, and Life Course Expectations

Results from the test of our two central hypotheses are presented in Table 2. Consistent with prior research, Model 1 indicates that there is a significant, negative relationship between age at first birth and depressive symptoms⁶ and that those who had a premarital first birth exhibit more

depressive symptoms than those who did not. In Model 2, the nonsignificant internal moderator term for Premarital First Birth \times Expected Premarital First Birth fails to provide support for our first hypothesis that the lower levels of psychological well-being related to premarital compared with postmarital first births would be most pronounced among those who did not expect children before marriage. Instead, having a premarital first birth is associated with greater depressive symptoms than having one's first birth in marriage, and this is does not vary by sequencing expectations.

However, the results in Model 2 support our second hypothesis that larger differences between expected age at first birth and actual age at first birth are associated with lower levels of mental health, net of age at first birth. As the coefficients for off-time deviations and off-time deviations squared indicate, there is a significant, curvilinear, U-shaped relationship between deviations from expected first birth timing and depressive symptoms, net of age at first birth. A graph of the relationship between off-time deviations from expected timing and depressive symptoms is shown in Figure 1. Although hypotheses for a curvilinear relationship are supported, the depicted pattern does not conform to the hypothesis that depressive symptoms are lowest when respondents meet their timing expectations. Rather, the model predicts the lowest levels of depressive symptoms approximately eight years earlier than expected. Nonetheless, when the effects of age at first birth and timing deviations are considered together, they indicate a great deal of heterogeneity in mental health outcomes. Supplemental interaction models (not shown) indicated no difference in the effect of timing deviations across age at first birth.

Figure 2 illustrates how both aspects of birth timing simultaneously affect mental health. The graph displays the curvilinear effect of off-time deviations with separate prediction lines for age at first birth. The predicted values in the graph for each birth age are limited to deviations that actually occur in the data. For example, for those who had their first child before age 20, deviations from expected birth timing are limited to earlier-than-expected or on-time births, while deviations from expected timing for those who became a parent at age 40 are limited to later-than-expected births. Figure 2 shows that the general decline in

Table 1. Descriptive Statistics: Birth Sequencing and Timing by Race/Ethnicity and Gender

	All expected parents at age 40 (N = 4,468)	Non-Hispanic white		Hispanic		African American	
		Men (n = 1,071)	Women (n = 1,088)	Men (n = 493)	Women (n = 478)	Men (n = 725)	Women (n = 613)
Dependent variable							
Depressive symptoms (logged)	1.020 (.902)	.860 (.840)	1.111 (.892)	.947 (.901)	1.065 (.942)	.956 (.907)	1.238 (.925)
Independent variables							
First birth prior to marriage (0 = first birth after marriage)	.265	.090	.089	.231	.249	.559	.574 ⁺
Expects first birth prior to marriage (0 = expects first birth after marriage)	.239	.171	.090*	.243	.182*	.477	.377** ⁺
Proportion of premarital first births that were expected	.393	.198	.093*	.272	.294	.541	.432** ⁺
Off-time deviation of first birth	1.921 (5.411)	2.960 (5.386)	2.291* (5.080)	1.611 (5.588)	.977 (5.229)	1.776 (5.539)	.606** ⁺ (5.457)
Control variables measured in 1979							
Ever diagnosed mentally ill (0 = never diagnosed mentally ill)	.002	0	.006	0	0	.001	.005
Rotter's locus of control	7.268 (2.386)	7.709 (2.403)	7.518 (2.393)	6.864 (2.307)	6.967 (2.387)	7.070 (2.322)	6.848 (2.307)
Female (0 = male)	.487	-	-	-	-	-	-
Race/ethnicity							
African American	.299	-	-	-	-	-	-
Hispanic	.217	-	-	-	-	-	-
Non-Hispanic white (reference)	.483	-	-	-	-	-	-
Age							
Poverty status (0 = not in poverty)	17.200 (2.135)	17.371 (2.206)	17.245 (2.135)	17.170 (2.166)	17.038 (2.149)	17.170 (2.080)	17.013 (2.017)
Family structure at age 14	.255	.083	.090	.381	.363	.421	.432
Two biological parents (reference)	.691	.824	.804	.657	.678	.521	.499
Single mother	.162	.076	.079	.189	.180	.263	.302
Mother-stepfather	.070	.059	.071	.075	.073	.079	.069
Other family structure	.077	.042	.046	.079	.069	.137	.131
Control variables measured at age 40							
Age at first birth	25.472 (5.321)	27.363 (5.120)	26.045* (5.111)	25.199 (5.012)	23.973* (5.274)	24.659 (5.097)	23.506** ⁺ (5.338)

Note: Means are shown, with standard deviations (in parentheses).
 *p < .05 (two-tailed) for independent samples t-test of gender differences within racial category.
 +p < .05 (two-tailed) for comparison of group means using ANOVA (4462, 5).

Table 2. Ordinary Least Squares Regression of Age 40 Logged Depressive Symptoms on Expectations for First Birth Sequencing and Deviations from Expectations in First Birth Timing: NLSY Parents Who Expected Children in 1979

	Model 1 B (SE)	Model 2 B (SE)
Independent variables		
Premarital first birth (0 = first birth after marriage)	.164*** (.035)	.173*** (.040)
Premarital First Birth × Expected Premarital First Birth	–	–.059 (.054)
Off-time deviation of first birth	–	.016*** (.004)
Off-time deviation of first birth squared	–	.001*** (.000)
Control variables measured in 1979		
Ever diagnosed mentally ill	1.022*** (.267)	1.038*** (.266)
Rotter's locus of control	–.030*** (.006)	–.028*** (.006)
Female (0 = male)	.204*** (.027)	.197*** (.027)
African American (0 = non-Hispanic white)	–.032 (.037)	–.041 (.037)
Hispanic (0 = non-Hispanic white)	–.046 (.036)	–.056 (.036)
Age	–.005 (.006)	.004 (.007)
Poverty (0 = not in poverty)	.011 (.035)	–.000 (.035)
Single mother age 14 (0 = two biological parents)	.012 (.039)	.010 (.039)
Mother-stepfather age 14 (0 = two biological parents)	.048 (.053)	.045 (.053)
Other family structure age 14 (0 = two biological parents)	.074 (.051)	.071 (.051)
Control variable measured at age 40		
Age at first birth	–.010*** (.003)	–.031*** (.005)
Intercept	1.441*** (.128)	1.745*** (.147)
R ²	.042	.047

Note: NLSY = National Longitudinal Survey of Youth. N = 4,468.

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

depressive symptoms as age at first birth increases does not, by itself, adequately represent the nature of the relationship between first birth timing and psychological well-being. The degree of mistiming is also important and produces substantial variation in mental health within each age at first birth.

Gender, Race/Ethnicity, and Life Course Expectations

In Table 3, we test our third hypothesis that the role of expectations in shaping mental health differences associated with first birth timing and sequencing will vary by gender and race/ethnicity.

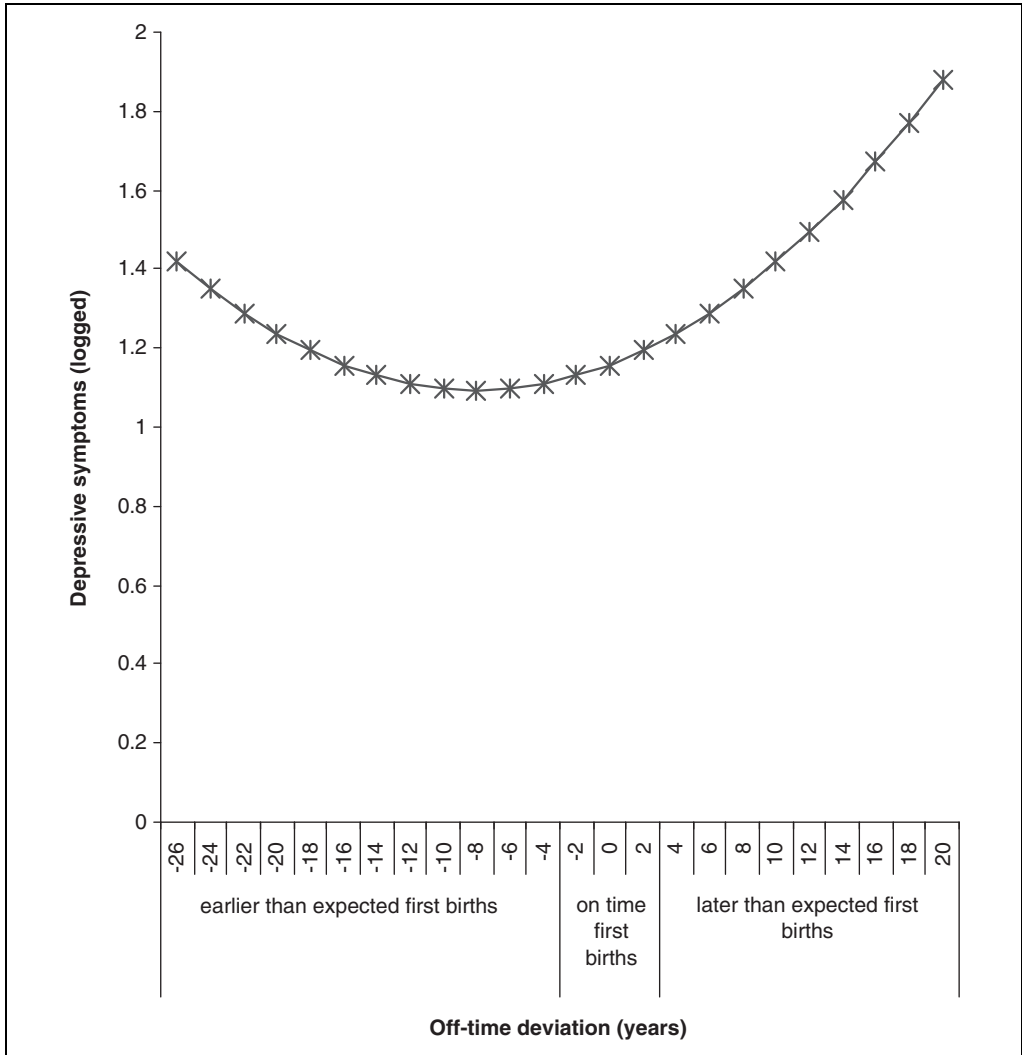


Figure 1. Depressive symptoms (logged) by deviation from expected timing of first birth for all expected parents

Model 1 presents the results for the test of gender differences in these associations. Contrary to our hypothesis, we find no evidence of gender variation in the role of sequencing expectations in conditioning the effect of a premarital birth on mental health. The coefficient for the interaction of gender with the premarital birth and expected premarital birth internal moderator term is not significant.

The curvilinear relationship of off-time deviations with depressive symptoms, however, does vary by gender. Although the curvature of the

arc does not significantly vary by gender, the linear trend does. Accordingly, the difference between men and women lies not in the curvature of the arc but in the point on the *x*-axis where the arc reaches its minimum. This relationship is depicted graphically in Figure 3. Depressive symptoms are lowest for men when births occur approximately 14 years earlier than expected, while for women the lowest levels are found when births occur much closer to on time (approximately 3 years early). Because of this difference, earlier-than-expected births result in increasingly

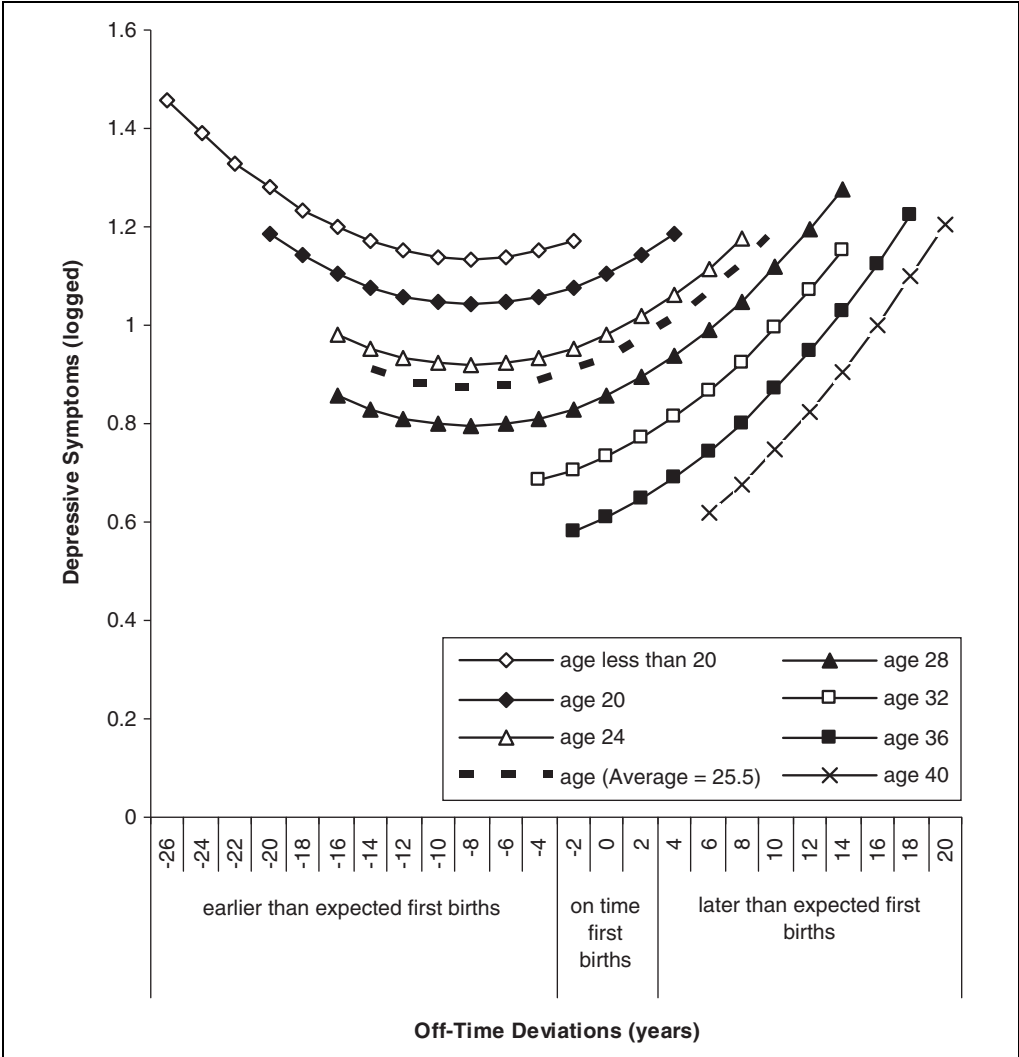


Figure 2. Depressive symptoms (logged) of parents by age at first birth parenthood, expectations, and men

higher levels of depressive symptoms for women compared with men, while later-than-expected births appear to negatively affect both at a similar rate. This finding provides some support for the hypothesis that deviations from expected timing matter more for women’s mental health. Nonetheless, this appears to be true only for earlier-than-expected births.

The results in Model 2 of Table 3 support our hypothesis of race/ethnic differences in the effect of sequencing expectations on the relationship between premarital first births and depressive

symptoms. Neither the interaction of non-Hispanic white nor Hispanic with the internal moderator Premarital First Birth \times Expected Premarital First Birth is significant, suggesting that expectations do not condition the effect of premarital first births on mental health for these groups. Rather, support for our first central hypothesis (that expectations condition the mental health consequences of premarital parenthood) appears to be limited to African Americans, for whom the $-.394$ interaction term is significant. In fact, for African Americans, the negative

Table 3. Ordinary Least Squares Regression of Age 40 Logged Depressive Symptoms on Expectations for First Birth Sequencing and Deviations from Expectations in First Birth Timing and Interactions with Gender and Race/Ethnicity: NLSY Parents Who Expected Children in 1979

	Model 1 Gender interactions B (SE)	Model 2 ^b Race/ethnicity interactions B (SE)
Independent variables and interactions		
Premarital first birth	.198*** (.055)	.038 (.073)
Female × Premarital First Birth	-.058 (.075)	-
African American × Premarital First Birth	-	.200* (.094)
Hispanic × Premarital First Birth	-	.182† (.106)
Premarital First Birth × Expected Premarital First Birth	-.057 (.073)	.242 (.180)
Female × Premarital First Birth × Expected Premarital First Birth	.000 (.107)	-
African American × Premarital First Birth × Expected Premarital First Birth	-	-.394* (.191)
Hispanic × Premarital First Birth × Expected Premarital First Birth	-	-.221 (.221)
Off-time deviation of First birth	.021** (.005)	.012* (.006)
Off-time deviation of First birth ²	.001* (.000)	.001** (.000)
Female × Off-time Deviation of First Birth	-.012* (.006)	-
Female × Off-time Deviation of First birth ²	.001 (.001)	-
African American × Off-time Deviation of First Birth	-	.013* (.007)
African American × Off-time Deviation of First birth ²	-	-.001† (.001)
Hispanic × Off-time Deviation of First Birth	-	.004 (.007)
Hispanic × Off-time Deviation of First birth ²	-	.000 (.001)
Selected control variables ^a		
Female	.217*** (.036)	.198*** (.028)
African American (0 = non-Hispanic white)	-.042 (.037)	-.043 (.049)
Hispanic (0 = non-Hispanic white)	-.055 (.036)	-.091* (.045)
Intercept	1.708*** (.149)	1.761*** (.148)
R ²	.048	.050

Note: NLSY = National Longitudinal Survey of Youth. *N* = 4,468.

a. Although not shown, models also includes controls for baseline mental health, age in 1979, poverty status, family structure at age 14, and age at first birth.

b. Coefficients shown here were nearly identical when gender and race/ethnicity interaction terms were included in a single model.

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001 (two-tailed tests).

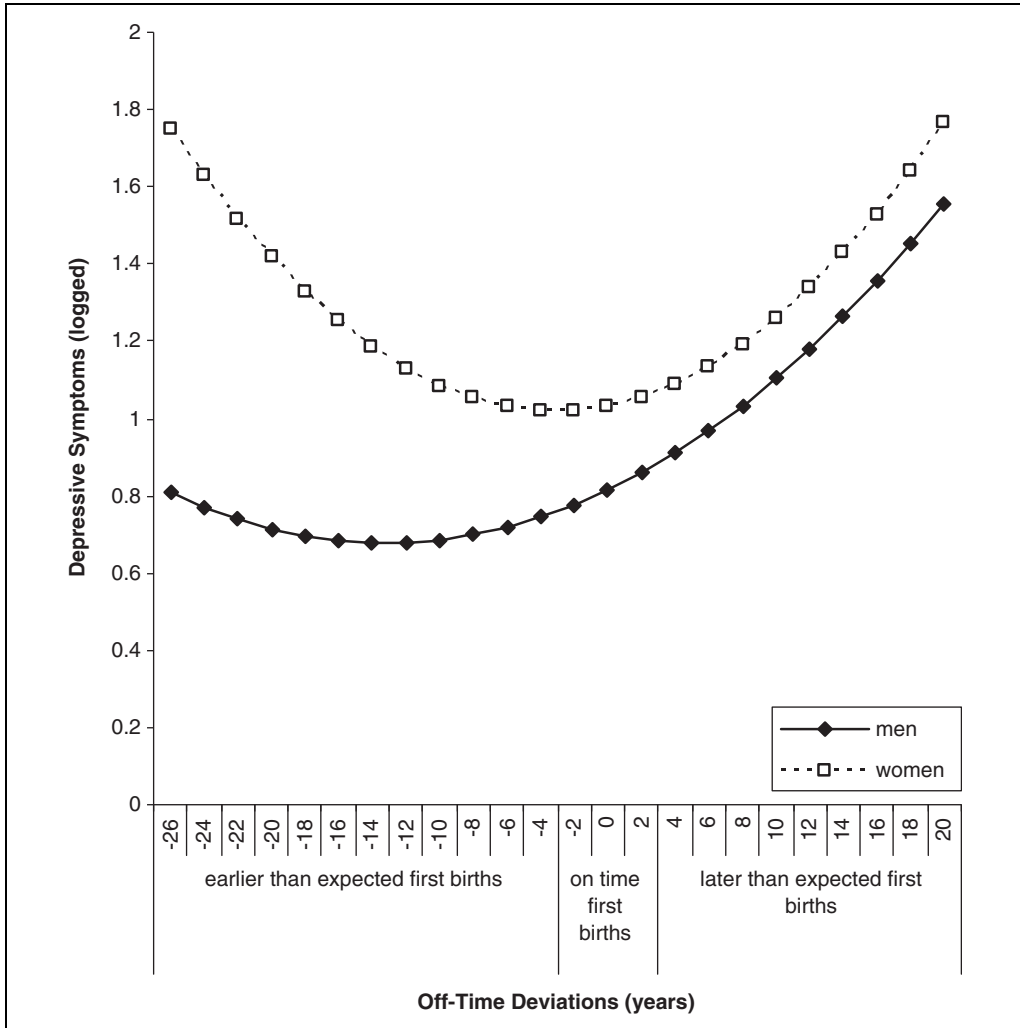


Figure 3. Depressive symptoms (logged) by deviations from expected timing of first birth and gender

mental health consequences of a premarital first birth appear to be completely ameliorated by having expected it. The estimated difference in the logged depressive symptom score of African Americans who had and expected a premarital first birth compared with those who had a postmarital first birth is $.086 (.038 + .200 + .242 - .394)$ and not significantly different from zero.

Model 2 of Table 3 also indicates that the mental health consequences of deviations from expected timing differ significantly for African Americans compared with non-Hispanic whites. The effect of off-time deviations is curvilinear for non-Hispanic whites and Hispanics but is

positive and linear for African Americans. This relationship is depicted graphically in Figure 4. Earlier-than-expected births are associated with fewer reported depressive symptoms for African Americans, while later-than-expected births are associated with more depressive symptoms.

We also estimated a final model (not shown) that included all gender interaction terms from Model 1 and race/ethnicity interaction terms from Model 2 and found no difference in the magnitude or significance of the coefficients shown here. Tests for three-way interactions (not shown) between race/ethnicity, gender, and off-time deviations were not statistically significant, implying that the

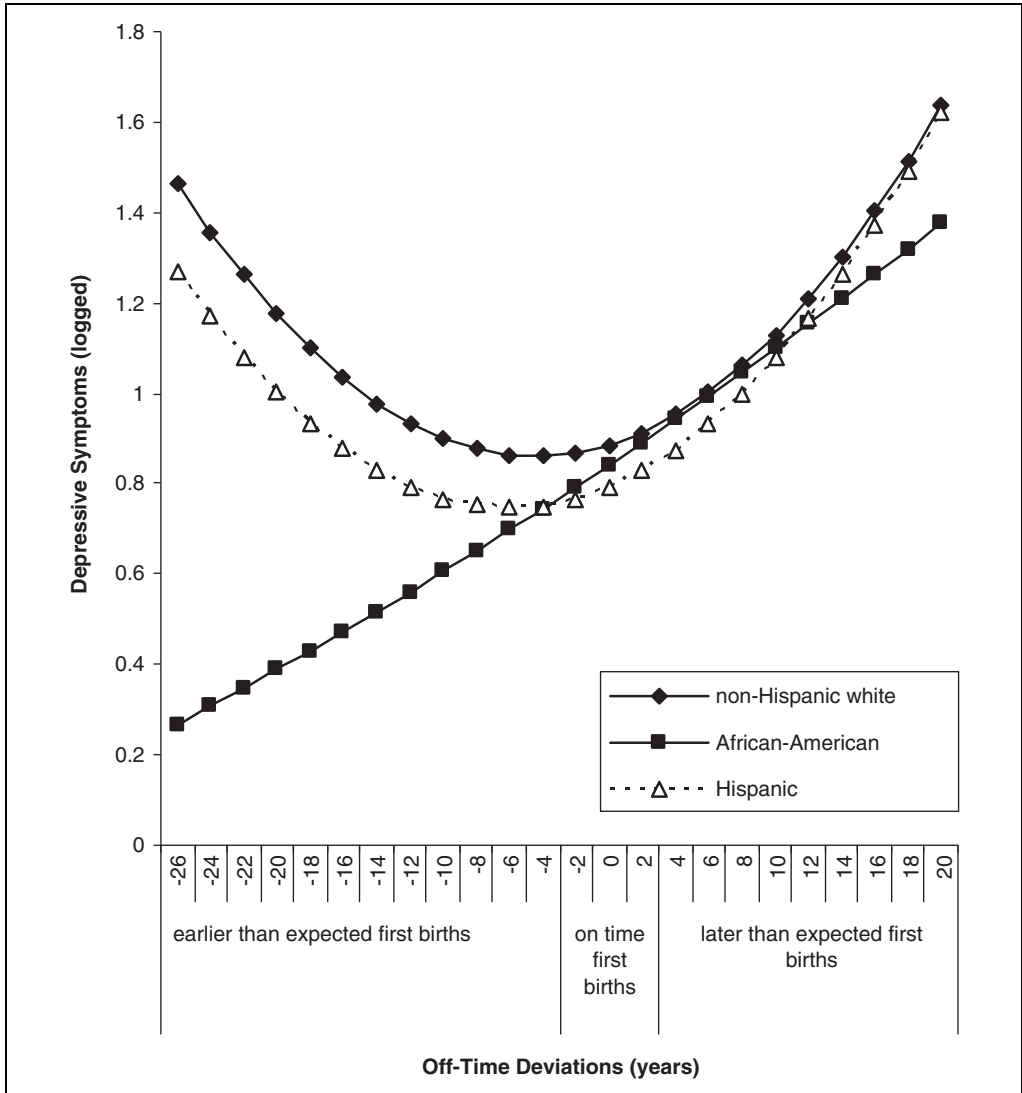


Figure 4. Depressive symptoms (logged) by race/ethnicity and deviations from expected timing of first birth

conditioning effect of gender is constant across race/ethnicity and vice versa, although small cell sizes likely limited statistical power in some cases.

DISCUSSION

The past several decades have witnessed a substantial increase in rates of premarital childbearing in the United States as well as growing heterogeneity in the timing of the entry into parenthood.

Although premarital and young first births are clearly linked to poor mental health (Koropecj-Cox et al. 2007; Kalil and Kunz 2002; Mirowsky and Ross 2002) on average, little is known about the conditions under which these pathways to parenthood are most deleterious to mental health or the circumstances under which they may be relatively benign. The social stress model as well as developmental and self-discrepancy theories suggest that individual expectations should fundamentally shape the

extent to which pathways to parenthood affect mental health over the life course. Our analyses lead to two central conclusions regarding the role of expectations in the association of premarital parenthood and first birth timing with mental health at midlife.

Premarital Parenthood, Expectations, and Mental Health

Our first central conclusion is that for African Americans, any negative consequences of premarital parenthood for mental health at age 40 appear to be completely ameliorated by having expected a premarital first birth. This finding is particularly noteworthy given the disproportionately high rates of premarital childbearing among African Americans in the United States (Martin et al. 2010) and our results (see Table 1), which indicate that a substantial proportion of African American men and women who had premarital first births in the past 30 years anticipated this pathway to parenthood. Despite the well-documented financial and parenting-related stressors associated with lone parenthood (Avison et al. 2007; Kalil and Kunz 2002; Wang 2004), our results suggest few negative mental health consequences for this nontrivial and likely growing segment of the population.

Nonmarital childbearing has become an increasingly normative experience for African Americans (Martin et al. 2010; Teachman, Tedrow, and Crowder 2000). As a result, some scholars have pointed out that because marriage is not required to legitimize childbearing for African Americans, as has historically been the case for whites, African Americans have two legitimate alternatives with respect to the sequencing of marriage and parenthood (Anderson 1991; Cherlin 1998; Pagnini and Morgan 1996). Those African Americans who expect to have children after marriage, despite the existence of another acceptable option (premarital childbearing), may be a relatively select group for whom this expectation of postmarital childbearing (and its violation) is especially salient to identity and mental health. It is also possible that we were simply unable to identify conditioning effects for Hispanic and non-Hispanic whites because a small number of respondents in these groups had and expected a premarital first birth.

It is important to note that our 1979 measure of expectations precedes the sharp increase in premarital parenthood that has occurred in the past

30 years for all groups, including African Americans. It is reasonable to assume that expectations for nonmarital childbearing have increased as actual rates of nonmarital childbearing have risen and as youth increasingly take heterogeneous pathways to adulthood (Shanahan 2000). To the extent that our findings can be applied to more recent cohorts, they may suggest that the proportion of African Americans who experience negative mental health consequences of premarital parenthood might be even smaller today and in the future than indicated here. It is also possible that expectations for premarital childbearing among other race/ethnic groups may matter more for their mental health now than in the past, as nonmarital childbearing becomes increasingly normative.

Age at First Birth, Deviations from Expected Birth Timing, and Mental Health

Our second central conclusion is that, on average, deviating from one's expected age at first birth is equally, if not more, important to midlife mental health as actual age at first birth. This finding substantially expands knowledge of both the relationship between age at first birth and mental health as well as the overall effects of birth timing. Indeed, our results indicate that the mental health implications of age at first birth cannot be fully understood without also considering the magnitude of deviations from expected timing. At all ages of first birth, even later ages, which are argued to be best for mental health, those whose entry into parenthood is grossly mistimed, either early or late, are at far higher risk of mental health problems in midlife than those who meet their timing expectations.

Our results are consistent with self-discrepancy, developmental, and social stress theories, which suggest that unscheduled events and undesirable role occupancies produce stress and undermine mental health in part by undermining identity goals. Nevertheless, we acknowledge that other processes could be at work. For example, deviations from individual timing expectations may represent a violation of cultural norms that result in social isolation and diminished social support from peers and family members. Ultimately, more work is needed to more fully understand the psychosocial processes linking timing expectations to mental health outcomes.

The present study also substantially adds to past research on the psychological consequences of unintended and mistimed pregnancies, which has focused exclusively on births that occur earlier than expected, employed clinical or other non-probability samples, assessed expectations retrospectively, and measured mental health shortly after the birth. Our findings suggest that negative mental health consequences of birth mistiming—both early and late—endure into midlife and that the degree of mistiming, and not just its existence, is important. Moreover, we find new evidence of two noteworthy exceptions—for men and African Americans—to the impact of the degree of birth mistiming on mental health.

First, we find that earlier-than-expected births are not significantly associated with men's mental health—a pattern that has not been acknowledged in past research on birth mistiming because of its near exclusive focus on women. This finding is consistent with evidence that parenthood plays a greater role in shaping women's compared with men's identities (Simon 1992, 1997) and career and life course trajectories (Kaufman and Uhlenberg 2000). Similarly, to the extent that earlier-than-expected births inhibit the receipt of social support and socialization experiences that accompany more normatively timed births, women's mental health may suffer more than men's given their greater responsibilities for child care. It is also possible, however, that men experience negative mental health consequences of earlier-than-expected first birth that are not tapped by our measure of depressive symptoms. Because men and women express distress in different ways (Horwitz and Davies 1994; Umberson, Williams, and Anderson 2002), future studies that include behavioral and externalized indicators of distress (e.g., alcohol abuse, violence) more common among men may reveal similar consequences of violating birth timing expectations.

African Americans represent a second exception to the curvilinear U-shaped association of deviation from timing expectations with mental health. Deviations from timing expectations undermine African Americans' mental health only when they are later than expected, and earlier-than-expected births appear to have some positive mental health consequences. In supplementary analyses, we considered whether the measure of off-time deviation of first birth is capturing a large positive effect of later-than-expected deviations on depressive symptoms

such that earlier births have no relation to mental health. We found no evidence of this. Scholars have argued that parenthood is a fundamental marker of adulthood for low-income and African American young adults (Edin and Kefalas 2005; Luker 1996) for whom educational and career opportunities are constrained. Although we cannot directly test such a mechanism, our results are consistent with this argument. If becoming a parent is viewed as necessary to the successful transition to adulthood for many African Americans, earlier achievement of this capstone goal in reference to expectations may have mental health benefits. Clearly, this finding warrants further investigation.

Caveats

A general limitation of this study is the inability to account for potential changes in expectations between the baseline measurement and the birth of the first child. However, research indicates that fertility preferences, such as the number of children desired, are remarkably stable over the life course, at least among women (Hayford 2009). It is not unreasonable to expect similar stability in expectations for birth timing and, especially, for premarital versus postmarital childbearing. Even so, our inability to account for potential changes in expectations over time likely underestimates the importance of expectations to mental health. Timing expectations are most likely to change for those who delay childbirth; that is, the longer one goes without having a child, the greater the opportunity to change one's expectations for birth timing and also to meet those expectations. This suggests that deviations from expectations as measured in this study are likely fairly accurate for those who have births at young ages but inflated for those who delay childbirth. This is likely to produce a more conservative estimate of the effect of deviations from expected timing on mental health for those entering parenthood at older ages than would be observed if changes in expectations could modeled.

Our ability to control for baseline differences in mental health status was also limited by the data. The primary measure available was a retrospective assessment of mental illness diagnosis prior to 1979 and does not specifically capture depressive symptoms or clinical depression at baseline. Because recollections of diagnoses may be imperfect and because not everyone with a mental illness seeks or has access to professional treatment, the

measure used here may not fully control for selection effects. To partially address this limitation, we included a baseline control for locus of control, a measure that is highly correlated with depressive symptoms. Supplemental analyses indicated that the exclusion of both of these variables had no effect on the results. Nevertheless, without a measure of depressive symptoms at baseline, we cannot definitively eliminate selection as an alternative explanation of our results.

Conclusion

In all, the findings presented in this study suggest that the long-term mental health consequences of particular pathways to parenthood are highly dependent on individuals' earlier expectations for how their life courses would unfold. On average, when young or premarital parenthood is

foreseeable and expected, mental health is less likely to be undermined. That is not to say, however, that life course expectations completely negate any negative effects of single parenthood or the economic disadvantages and stress that often accompany early and premarital births. Future qualitative and survey research should explore the mechanisms through which expectations for parenthood and their violation shape mental health decades later. We have argued that identity discrepancy and role captivity likely play a role but that additional processes, including the effect of violated expectations on access to social support and other opportunities and resources, may also be important. Finally, a focus on life course expectations may also prove useful in clarifying the mental health consequences of other important life course transitions, such as marriage, employment, and retirement.

Appendix. Correlation Matrix of All Variables in Analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Depressive symptoms (logged)	—													
2. Age at first birth	-.11*	—												
3. Premarital first birth	.11*	-.32*	—											
4. Off-time deviation of first birth	-.05*	.82*	-.22*	—										
5. Expects first birth prior to marriage	.02	-.11*	.22*	.06*	—									
6. Prior mental illness (1979)	.06*	-.00	-.01	-.01	-.01	—								
7. Locus of control	-.10*	.15*	-.12*	.05*	-.08*	-.01	—							
8. Female	.12*	-.11*	-.01	-.07*	-.11*	.04*	-.02	—						
9. African American	.05*	-.16*	.45*	-.08*	.30*	.01	-.08*	-.04*	—					
10. Hispanic	-.01	-.09*	-.03*	-.06*	-.03*	-.08	-.08*	.01	-.34*	—				
11. Age (1979)	-.05*	.19*	-.11*	.05*	-.06*	.20	.20*	-.03*	-.03*	-.03	—			
12. Poverty 1978-1979	.04*	-.19*	.26*	-.08*	.15*	-.14	-.14*	-.01	.27*	.15*	-.09*	—		
13. Single mother	.02	-.07*	.19*	-.02	.09*	-.06	-.06*	.01	.21*	.03*	-.08*	.29*	—	
14. Mother-stepfather	.02	-.07*	.02	-.05*	.02	-.03	-.03	.00	.01	.01	-.06*	.02	-.12*	—
15. Other family structure	.03*	-.08*	.08*	-.06*	.10*	-.04*	-.05*	-.01	.14*	-.01	-.01	.08*	-.13*	-.08*

*p < .05.

FINANCIAL DISCLOSURE/FUNDING

This research was supported in part by Grant No. R01HD054866 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). The content is solely the responsibility of the authors and does not necessarily represent the official views of NICHD or the National Institutes of Health.

NOTES

- Adoptions are excluded from the analysis because the National Longitudinal Survey of Youth lacks complete information on the timing of adoptions, making it impossible to determine whether their timing or sequencing was expected. No separate question on expectations for adoptions was included in the survey. Of course, for many parents, adoption represents a fulfillment of expectations to become a parent. However, because only about 2 percent of the U.S. child population is adopted, this exclusion is unlikely to seriously bias our results.
- Of the 1,459 respondents not included, 533 reported race/ethnicities other than African American, Hispanic, or non-Hispanic White, while the remaining respondents ($n = 926$) had already had their first child or were expecting their first child within nine months.
- We found no evidence of multicollinearity among age at first birth, premarital births, timing expectations, and sequencing expectations. Variance inflation factor values were less than 5, and tolerance values were greater than .2.
- U.S. Department of Health and Human Services Poverty Income Guidelines, 1978 U.S. Social Security Administration (2009).
- Although supplemental analyses indicate age variations in deviations from expected timing, the smallest deviations were found for those age 14 and 15, while the greatest deviations were found for those age 19 and 20. This suggests that younger respondents' expectations are not less reliable than older respondents'.
- We found that the previously documented curvilinear (U-shaped) association of age at first birth among women with depressive symptoms becomes linear when deviations from expected timing are included in the model, suggesting that any increase in depressive symptoms at later ages at first birth for women are explained by deviations from expected timing. For this reason, we model the effect of age at first birth on depressive symptoms, net of deviations from timing expectations, linearly.

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