

Parent-Teen Relationships and Unintended Pregnancy in Early Adulthood

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ABSTRACT

Previous research addresses the association between parent-teen relationships and the risk of being pregnant mainly among adolescents. This study extends the literature by examining the effects of parent-teen relationships on unintended first pregnancy in early adulthood, a stage with relative higher rate of unintended pregnancy in the United States. Using data from both Wave I and Wave III of National Longitudinal Study of Adolescent Health, this study investigates whether the four dimensions of parent-teen relationships (including parent-teen closeness, parental monitoring, general parent-teen communication and mother-teen communication about sex) were negatively associated with unintended first pregnancy in early adulthood. Binary logistic regression analyses revealed that parental monitoring and mother-teen communication about sex were associated with decreased odds of having unintended first pregnancy in early adulthood. Parent-teen closeness and general parent-teen communication, however, had no significant influences on intendedness of first pregnancies in early adulthood.

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Unintended pregnancy is associated with a number of health problems for both mother and child, such as an increased risk of maternal mortality and negative childrearing outcomes (Ahman & Shah, 2004; Goto, Yasumura, Yabe, & Reich, 2006; Lau & Keung, 2007; Ronsmans & Graham, 2006). A growing body of research has examined factors associated with unintended pregnancies in the last two decades. Various factors have been identified including socioeconomic status, childhood abuse, intimate partner, and community characteristics (Dietz et al., 1999; Koren & Mawn, 2010; Miller et al., 2010). Clearly, parent-teen relationship is another crucial predictor of unintended pregnancy among adolescents, a group especially susceptible to such risk (Luster & Small, 1994). Using the 2002 National Survey of Family Growth, Finer and Henshaw (2006) reported that the rate of unintended pregnancies was substantially higher among women aged 18-24 than that of women from other age groups. Surprisingly, few, if any, studies have examined factors specifically related to unintended pregnancy in early adulthood.

Adolescence is a dynamic period involving dramatic and complex changes for the whole family (Lerner and Steinberg, 2004). One major change during this period is parent-teen relationships due to the demands of autonomy and independence from adolescents. Research has shown that patterns of parent-child relations during adolescence have long-term effects on parent-child relationships in early adulthood (Aquilino, 1997). Despite that peers play an increasingly important role in adolescents' lives (Knoester & Stephens, 2006; Marshal & Chassin, 2000), the effects of parents on adolescents' healthy development are still pronounced. Evidence has shown that parents exert substantial influences over adolescents' health behavior in part because close relationship to parents serves as a protective factor against the negative

influences of peers (Meadows, 2007). Studies have also indicated relationship with parents is more influential to adolescents' self-esteem, coping abilities, and psychological well-being than that with peers (Leung & Leung, 1992; Paterson, Pryor, & Field, 1995; Raja, McGee, & Stanton, 1992). Most importantly, research suggests that parent-teen relationships have long-term effects on children's social behavior and psychological well-being in early adulthood (Rossi & Rossi, 1990; Harris, Furstenberg & Marmar, 1998). Based on the literature, this study seeks to examine the association between parent-teen relationships and unintended first pregnancy in early adulthood which has been ignored in prior research.

Previous studies on the effects of parent-teen relationships on unintended pregnancy have mainly focused on adolescents (Scaramella et al., 1998). The majority of these studies have used the proximal determinants—sexual initiation/intercourse and contraceptive behavior during adolescence as the outcome variables (Longmore, Manning, & Giordano, 2001; Pearson, Muller, & Frisco, 2006). Among this line of research four dimensions of parent-teen relationships have been widely examined: parent-teen closeness, parental monitoring, general parent-teen communication and parent-teen communication about sex. However, findings from these studies are mixed. Given the prevalence of unintended pregnancies in early adulthood and the long-term effects of parent-teen relationships on children's health, this study adds to the existing literature by examining the association between parent-teen relationships and unintended pregnancies in early adulthood. Specifically, I address two research questions: (a) Do the effects of parent-teen relationships on unintended pregnancy persist in children's early adulthood? (b) Do the four dimensions of parent-teen relationships have significant effects on unintended pregnancy in early adulthood? Data used for this study are from both Wave I and Wave III of the National Longitudinal Study of Adolescent Health (ADD Health).

Background

Parent-Teen Relationships and Adolescent Sexual Behavior

Parent-teen closeness. Parent-teen closeness (or parental support, warmth) is a primary aspect of parent-teen relationships. Drawing from social control theory, parent-teen closeness provides an atmosphere for adolescents to internalize their parents' attitudes about adolescent sexual behavior and hence serves as a protective role by discouraging teens to engage in sexual intercourse (Hirshi, 1969; Rodgers, 1999). Findings from previous research demonstrate that parent-teen closeness is linked to later onset of sexual intercourse for both daughters and sons (Miller, Norton, Curtis, Schvaneveldt, & Young, 1997; Upchurch, Aneshensel, Sucoff, & Levy-Storm, 1999). Teens having close relationship to parents are more likely to remain sexually abstinent and have lower frequency of intercourse (Benda, Diblasio, & Kashner, 1994; Jaccard, Dittus, & Gordaon, 1996). Further, parental support is associated with having fewer sexual partners and consistent contraceptive use for both male and female teens (Luster & Small, 1994). Thus, closeness to parents tends to lessen the risk of teen pregnancy.

Parental monitoring. As a main type of informal social control, parenting monitoring (or supervision) refers to parental awareness of the whereabouts of their child and what their child is doing (see Patterson & Stouthamer-Loeber, 1984). Regardless of the necessity of developing autonomy during adolescence, parental monitoring is still indispensable which serves as a critical protective factor to reduce the possibility of or even prevent teens from being exposed to deleterious effects of peers. According to self-control theory, parental monitoring is negatively associated with low self-control. People with low self-control are impulsive and have a propensity for risk-seeking (Gottfredson & Hirschi, 1990; Hay, 2001). Consistent with self-control theory, absence of parental monitoring is reported to be related to various adolescent

behavioral problems (e.g. drug use, heavy drinking, and aggression) (Bahr, Maughan, Marcos, & Li, 1998; Steinberg, Fletcher, & Darling, 1994). Moreover, adolescents perceiving less parental monitoring are more likely to have sexually transmitted disease, report no contraceptive use and have multiple sexual partners (DiClemente et al., 2001, Miller et al., 1999). In particular, parental supervision of daughters' dating activities is inversely associated with ever having intercourse and being pregnant (Hogan & Kitagawa, 1985).

Parent-teen communication. The influences of both general communication between parents and teens and sexual communication on adolescent sexual behavior have been investigated. Particularly, adolescence is a critical period for sexual socialization. According to sexual socialization theory, adolescent who communicate with their parents about sexual issues are likely to know and live up to their parents' expectations on sexual responsibility. Findings from prior studies, however, are inconclusive and mixed. For instance, Miller and her colleagues (1998) found that quality of general communication between mothers and their children was related to less frequent sexual intercourse and fewer sexual partners, but communication on sex had weak and inconsistent effects on children' sexual behavior. Evidence also shows that sexual communication reduces risky sexual behavior (Leland & Barth 1993; Pick & Palos, 1995). Therefore, both the effects of parent-teen communication and parent-teen communication about sex need further exploration.

Despite that previous studies has mainly focused on the association between parent-teen relationship and risky sexual behavior among adolescents, they are still of great importance for understanding how parent-teen relationship might affect unintended pregnancy in early adulthood. Studies have documented that close attachment to parents may endure beyond adolescence (Allen, Hauser, Bell, and O'Connor, 1994; Fraley and Davis, 1997) and adolescents

who have close relationship with parents tend to report better psychological health and more positive self-concept in adulthood (Roberts & Bengtson, 1996; Snarey, 1993) in that perceived support from parents is associated with better self-esteem and self-efficacy of adolescents, which foster an growing sense of self-efficacy through successfully handling new and challenge tasks (Gecas & Mortimer, 1987). As self-esteem is related to one's feelings of control over environment (Tedeschi & Norman, 1985), adolescents with close relationship to parents may be more likely to be aware of potential risks and to protect themselves from such risks even in adulthood. Thus, parent-teen relationship is likely to prevent young adults from experiencing unintended pregnancy due to internalized parental attitudes about sex and high self-esteem.

Taken together, the literature provides a basis to argue that parent-teen relationships are negatively associated with unintended pregnancy among young adults. Specifically, I will test the following hypotheses:

Hypothesis 1: Parent-teen closeness is negatively associated with unintended first pregnancy in early adulthood.

Hypothesis 2: Parental monitoring during adolescence is inversely linked to unintended first pregnancy in early adulthood.

Hypothesis 3: Parent-teen communication is negatively associated with unintended first pregnancy in early adulthood.

Hypothesis 4: Mother-teen communication about sex is inversely related to unintended first pregnancy in early adulthood.

METHOD

Data

The data for this study were drawn from both the Wave I and Wave III of the public-use dataset of Add Health. Add Health is a nationally representative sample of adolescents in grades 7 through 12 in the United States, collecting data on respondents' social, economic, psychological and physical well-being. In 1995(Wave I), adolescents were administered an extensive survey during in-home interview and their parents, usually their resident mothers, completed a questionnaire. During 2001 and 2002, Wave III data were collected when the sample was aged 18-26. The public-use dataset contain 6504 respondents at Wave I and 4,882 respondents at Wave III. 1403 respondents experienced pregnancy or were pregnant at Wave III interview. For the purpose of this study, the sample was limited to 1051 respondents who had first pregnancy at age 18 years or older. Listwise deletion was utilized to deal with missing values on all variables (including weight variables) and the sample size was further confined to 697 respondents. The Add Health data set is of great advantage for this study in that it is nationally representative and contains extensive information about relationships between parents and adolescents and pregnancies, intendedness of pregnancies and contraceptive use in early adulthood.

Measures

Unintended pregnancy. The dependent variable is based on responses from the Wave III interview. Respondents were asked to report detailed information about completed pregnancies and current pregnancies. For each completed and current pregnancy, respondents were asked: "please think back to the time just before you/your partner became pregnant. Did you want to have a child then?" (0=no, 1=yes). Responses to the question were reverse-coded. Also,

respondents were asked to indicate the year and month when each pregnancy ended or was expected to end. Therefore, first pregnancies were identified according to the time of ending each pregnancy.

Parent-teen closeness. Parent-teen closeness is measured using questions from the Wave I interview that asked respondents to report: “How close do you feel to your mother?” Adolescents responded to the question on a 5-point Likert scale from “not at all (1)” to “very much (5).” Respondents were asked the same question about their fathers. A measure of parent-teen closeness was created by combining the two questions. For those who have both fathers and mothers, the scores were averaged (Manlove, Ryan, & Franzetta, 2007).

Parental monitoring. The measure of parental monitoring is a summative index derived from seven dichotomous items reported by adolescents. Sample items include, “Do your parents let you make your own decisions about: the time you must be home on weekend nights”, “the people you hang around nights”, and “the time you go to bed on week nights.” (0=no, 1=yes). Answers to each item were reverse coded.

Parent-teen communication. The measure of parent-teen communication is based on adolescents’ answers to the following item at Wave I: “You are satisfied with the way your mother and you communicate with each other.” (1=strongly agree, 2=agree, 3=neither agree nor disagree, 4=disagree, 5=strongly disagree). Respondents were also asked to rate their satisfaction with communication with their fathers by a similar question. Answers to satisfaction with fathers and mothers were combined and averaged for those who had both parents.

Mother-teen communication about sex. Adolescents were not asked whether they communicated with their parents about sex at Wave I. However, the parent questionnaire included six items tapping the extent to which parents discussed sex with their adolescent.

Parents were asked: “How much have you and your child talked about his/her having sexual intercourse and a) the negative or bad things that would happen if he got someone/she got pregnant; b) the dangers of getting a sexually transmitted disease; c) the negative or bad impact on his/her social life because he/she would lose the respect of others; d) the moral issues of not having sexual intercourse?” and “how much have you talked to your child a) about birth control, b) about sex?” Answers to each question ranged from 1 “not at all,” to 4 “a great deal.” The six items were then combined into a scale (ranging from 4-24) that has a Cronbach’s alpha of .89. Given that ninety-six percent of parents completing the questionnaire were mothers or other female caregivers (4%; e.g., grandmother or aunt), respondents whose father or other male relatives answered these questions were excluded from the analyses and the scale was named mother-child communication about sex (Henrich, Brookmeyer, & Shrier, 2006).

Control Variables

Prior research has indicated that several factors may confound the relationship between parent-teen relationship and unintended pregnancies and hence were added as control variables in the analyses (Pearson, Muller, & Frisco, 2006; Rodgers, 1999). These factors include gender, race, family structure, parent’s education, family income, age at first pregnancy, marital status before first pregnancy, and contraceptive use before first pregnancy. All these factors except the last three were drawn from Wave I interview. Parent’s education was measured by father’s education if adolescents had a father at Wave I. For those who did not have a father, mother’s education was used. The measurement of parent’s education made use of the reports from both parents and children. If the parent questionnaire was not administered (or if the response was missing), the parent’s education level reported by the adolescents served as a substitute. Parent’s

education is an ordinal variable ranging from (1) 8th grade or less, (2) more than 8th grade, but did not graduate from high school, (3) high school graduate, (4) completed a GED, (5) business, trade or vocational school after high school, (6) college but did not graduate, (7) graduate from a college or university, (8) professional training beyond a 4-year college or university. Marital status before first pregnancy was obtained by comparing the time (year and month) at first pregnancy with the time (year and month) at marriage. Contraceptive use before first pregnancy was measured by the question: “Before your partner/you got pregnant, were you or she/you using any kind of birth control when you had sex with each other?” (0=no, 1=yes).

Table 1 displays means and percentages, and addresses which variables affect unintended pregnancies at the bivariate level. Variables from Wave I and Wave III are reported separately.

Analytic Plan

Logistic regression, rather than linear regression, was used in this study because the dependent variable (unintended pregnancies) was a dichotomous variable and the relationship between parent-teen relationships and unintended pregnancy was assumed to be non-linear. The model used for this study can be specified as follows:

$$\begin{aligned} \ln \left\{ \frac{\Pr(y=1|X)}{1-\Pr(y=1|X)} \right\} &= \ln \Omega(X) = \beta_0 + \sum_{k=1}^k \beta_k X_k \\ &= \beta_0 + \beta_1 x_{ageprg} + \beta_2 x_{female} + \beta_3 x_{black} + \beta_4 x_{other} + \beta_5 x_{famstr} \\ &\quad + \beta_6 x_{paredu} + \beta_7 x_{faminc} + \beta_8 x_{maristatus} + \beta_9 x_{Contrause} \\ &\quad + \beta_{10} x_{ptclose} + \beta_{11} x_{parmont} + \beta_{12} x_{ptcom} + \beta_{13} x_{ptcomsex} \end{aligned}$$

where y represents the outcome variable (unintended pregnancies). β_0 is the constant and β_k is

the coefficient for X_k . To account for the complex sampling design, sample weights were applied and standard errors were adjusted using Stata 11 (Stata Corp, College Station, TX).

Table 1 Descriptive Statistics for Variables (N=697)

Variables	Overall		Unintended Pregnancies	
	Range	Mean	No (37%)	Yes (63%)
<i>Wave III</i>				
Age at first pregnancy	18-26	20.65(1.74)	21.09	20.38***
Marital status before first pregnancy (1=married)	0-1	.15(.36)	.30	.06***
Contraceptive use before first pregnancy (1=yes)	0-1	.45(.50)	.39	.49*
<i>Wave I</i>				
<i>Gender</i>				
Male	0-1	36.73%	39.78%	35.39%
Female	0-1	63.27%	60.22%	64.61%
<i>Race</i>				
White	0-1	63.99%	63.22%	61.64%
Black	0-1	26.54%	25.34%	28.54%
Others	0-1	9.47%	11.44%	9.82%
Family structure (1=two biological parents)	0-1	.49(.50)	.53	.47
Parent's education	1-8	4.22(2.13)	3.78	4.47***
Family income (in thousand)	0-999	39.16(55.25)	37.67	40.05
Parent-teen closeness	1-5	4.38(.80)	4.38	4.38
Parental Monitoring	0-7	1.75(1.54)	1.86	1.68
Parent-teen communication	1-5	3.92(1.01)	3.93	3.91
Mother-teen communication about sex	4-24	18.35(4.76)	18.83	18.07*

Note: ^a Standard deviations are reported in parentheses.

*p<.05; **p<.01; ***p<.001.

RESULTS

Descriptive Analyses

Because this study seeks to examine the effects of parent-teen relationships on unintended first pregnancy in early adulthood, the sample used for the present study consists only of 697 respondents who experienced pregnancy in early adulthood. Of these respondents, 63% (n=438) reported that their first pregnancies in early adulthood were unintended. At the bivariate level, parent-teen relationships correlates associated significantly with unintended pregnancies in early adulthood only included mother-teen communication about sex. Adolescents whose mothers communicated with them about sex were less likely to have unintended first pregnancies in early adulthood. Parent-teen closeness, parental monitoring, and general parent-teen communication, at the bivariate level, however, were not associated with unintended first pregnancies in early adulthood. Particularly, the means of closeness to parents were the same between adolescents who did and who did not report unintended first pregnancies.

Respondents who were married before first pregnancies were much less likely to experience unintended first pregnancies at the bivariate level. However, respondents who reported contraceptive use before first pregnancy were slightly more likely to had unintended pregnancy in early adulthood ($r=.10$, data not shown).

Demographic correlates associated with unintended first pregnancy in early adulthood included parent's education and age at first pregnancy. The mean age for those who experienced unintended first pregnancies was 21.09; whereas the mean age for those who did not was 20.38. Respondents whose parents had higher education were more likely to report unintended first pregnancies in early adulthood compared to those whose parents had lower education.

Table 2 Binary Logistic Regression of Unintended First Pregnancy on Parent-teen Relationships

Variables	Odds Ratios	Standard Errors	95% Confidence Intervals
Age at first pregnancy	.83†	.05	.80-1.01
Female	1.52*	.29	1.03-2.23
<i>Race</i> ^a			
Black	.88	.23	.52-1.49
Others	1.09	.32	.62-1.94
Family structure (1=two biological parents)	.74	.16	.49-1.12
Parent's education	1.25***	.07	1.11-1.39
Family income (in thousand)	1.03	.00	.99-1.00
Marital status before first pregnancy (1=married)	.16***	.04	.09-.27
Contraceptive use before first pregnancy (1=yes)	1.34†	.23	.95-1.89
Parent-teen closeness	1.07	.18	.77-1.49
Parental Monitoring	.83**	.05	.73-.95
Parent-teen communication	.93	.12	.72-1.19
Mother-teen communication about sex	.93**	.02	.89-.97
Design-based F ^b		7.55***	
<i>df</i>		13	
Number of Cases		697	

Source: National Longitudinal Study of Adolescent Health.

^a Referent category is "white."

^b Estimation correcting for survey design effects render other indicators of model fit, including pseudo R-square, inappropriate.

†p<.10; *p<.05; **p<.01; ***p<.001.

Multivariate Analyses

Table 2 presents the effects of parent-teen relationships on unintended first pregnancy in early adulthood using binary logistic regression. Among the four dimensions of parent-teen relationships, both parental monitoring and mother-teen communication about sex were shown to be significantly related to unintended first pregnancy in early adulthood. Adolescents who reported higher levels of parental monitoring were less likely than their peers who were not well monitored by their parents to have unintended first pregnancies in early adulthood. For each unit increase in parental monitoring, the odds of having unintended first pregnancy in early adulthood decreased by a factor of .83, holding all other variables constant ($p < .01$). In other words, a unit change in parental monitoring decreased the probability of having unintended first pregnancy in early adulthood by .04, holding other variables at their mean (see Table 3). As reported at the bivariate level, respondents whose mothers communicated with them about sex during adolescence had lower odds of having unintended first pregnancies in early adulthood. Specifically, for a unit increase in mother-teen communication about sex, the odds of having unintended first pregnancy in early adulthood decreased by a factor of .93, holding all other variables constant ($p < .01$). To put it another way, a unit change in mother-teen communication about sex reduced the probability of having unintended first pregnancy in early adulthood by .02, holding all other variables constant. Therefore, these results lent support to Hypotheses 2 and 4. Contrary to expectations, however, closeness to parents and satisfaction with communication with parents had no significant effects on unintended first pregnancy in early adulthood. Thus, Hypotheses 1 and 3 were not supported in this study.

Consistent with bivariate results, marital status before first pregnancy and age at first pregnancy were negatively associated with unintended first pregnancy in early adulthood. For a

Table 3 Discrete Changes in the Predicted Probabilities of Unintended First Pregnancy.

Variables ^a	Change in predicted probability
Age at first pregnancy ^b	-.04
Female ^c	.10
Parent's education ^d	.05
Marital Status before first pregnancy ^c (1=married)	-.43
Contraceptive use before first pregnancy ^c (1=yes)	.07
Parental monitoring ^d	-.04
Mother-teen communication about sex ^d	-.02

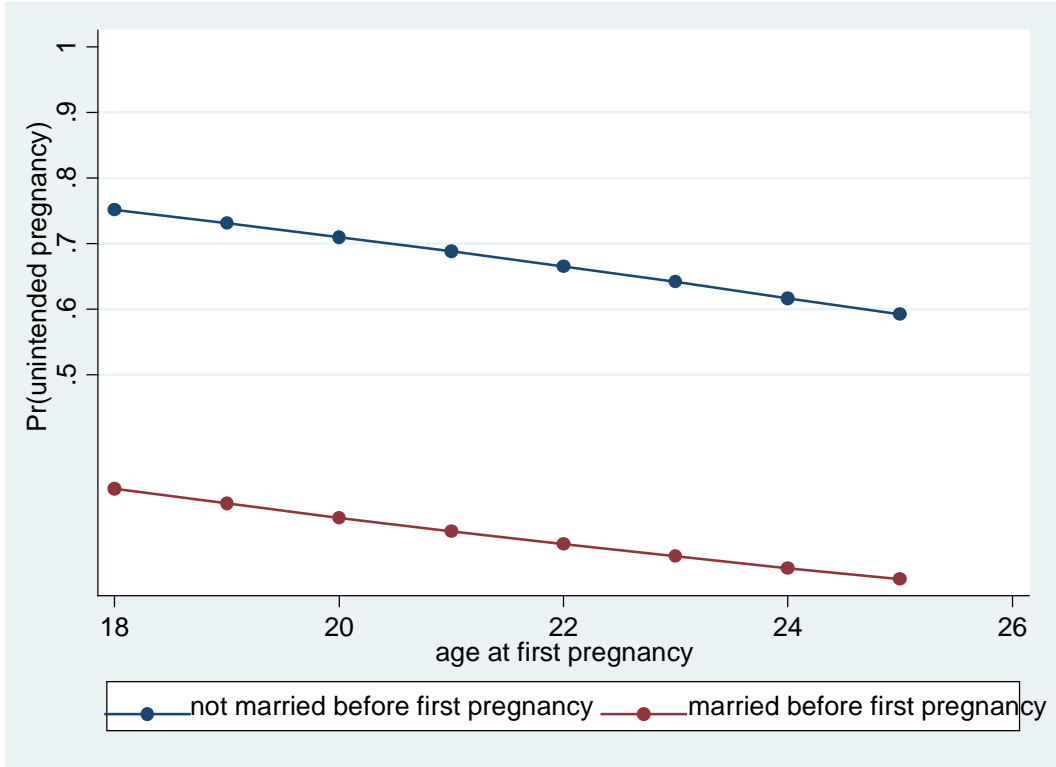
Note: ^a Only variables that were significant in the binary logistic regression were presented.

^b The unit change \pm sd1/2 is used; ^c The unit change 0→1 is used.

^d The unit change \pm 1/2 is used. All variables were held at their means.

standard deviation increase in age at first pregnancy, the odd of having unintended first pregnancy in early adulthood decreased by a factor of .83($p < .10$), holding all other variables constant. For individuals married before first pregnancy, the odds of having unintended first pregnancy was 84% smaller compared to those unmarried with $p < .001$ (data not shown). Further, Figure 1 shows the predicted probabilities of having unintended first pregnancy by marital status before first pregnancy and age at first pregnancy. The predicted probabilities of having unintended first pregnancy decrease as age at first pregnancy increases, regardless of marital status before first pregnancy. However, individuals who were married before first pregnancy have lower probabilities of having unintended pregnancy at each level of age relative to those who were unmarried before first pregnancy.

Figure 1. Predicted Probabilities of Unintended First Pregnancy by Marital Status Before First Pregnancy and Age at First Pregnancy.



DISCUSSION

The effects of parent-child relationships have been a focus of a great deal of sociological research. It has been well documented that parent-teen relationships influence adolescents' psychological and behavioral outcomes (Ackard et al. 2006; Hines, 1997; Peterson & Zill, 1986). Life-course scholars also suggest that parent-teen relationships affect children's health outcomes in early adulthood (Rossi & Rossi, 1990). Considering these literatures together, the objective of this article was to determine whether and what dimensions of parent-teen relationships had effects on unintended first pregnancy in early adulthood. It was hypothesized that the four dimensions of parent-teen relationships would be inversely associated with unintended first pregnancy in early adulthood.

The analyses reveal that parent-teen closeness and satisfaction with parent-teen communication do not have significant influences on unintended first pregnancy in early adulthood. The lack of significant effects for unintended first pregnancy may be due to the single measurement of closeness and satisfaction with parent-teen communication. Supplemental analyses using an index of parent-teen closeness (Manlove, Ryan, & Franzetta, 2007; Pearson, Muller, & Frisco, 2006) also showed that the effect of parent-teen closeness on unintended first pregnancy in early adulthood was not significant. Although prior research has primarily found that closeness to parents reduces adolescents' risky sexual behavior (Benda, Diblasio, & Kashner, 1994; Jaccard, Dittus, & Gordaon, 1996; Pearson, Muller, & Frisco, 2006), such findings are far from consistent across studies (Christopher, Johnson, & Roosa, 1993; Henrich et al., 2006; Rodgers, 1999; Upchurch et al., 1999). As indicated by Henrich et al. (2006), perhaps the relationship between parent-teen closeness and lessened sexual risk behavior depends on the availability of supportive friendships. Therefore, future research may take into consideration the interaction between parental and peer influences. Regarding parent-teen communication, an alternative index measuring actual communication with parents about personal problems, dating someone, grades and other thing in school (Manlove, Ryan, & Franzetta, 2007) was included in the logistic model as a substitution of subjective measurement of satisfaction with parent-teen communication. Still, the results showed that the effect of parent-teen communication on unintended first pregnancy in early adulthood was not significant. Thus, this further indicates that there are no significant effects of parent-teen closeness and parent-teen communication on unintended first pregnancy in early adulthood.

Parental monitoring, as expected, is associated with decreased odds of having unintended first pregnancy in early adulthood. This is consistent with other studies that found parental

monitoring decreased the possibility of engaging in risky sexual behavior among adolescents (Hogan et al., 1985; Huebner & Howell, 2003; Luster & Small, 1994; Rodgers, 1999). It is possible that individuals who had parents who monitored them during adolescence had higher levels of self-control which persisted into early adulthood. Unfortunately, the Add Health does not contain measurement of self-control at Wave III, leaving this possibility to be tested in future research. This finding extends the negative association between parental monitoring and risky sexual behavior from adolescence into early adulthood.

Consistent with sexual socialization theory, respondents whose mothers talked a lot with them about sex are less likely to experience unintended first pregnancies in early adulthood. This is in accordance with other studies which indicate communication with parents about sex is associated with lower probability of having sex at early ages, being pregnant and higher probability of using contraception (Leland & Barth, 1993; Pick & Palos, 1995). It is worth noting that the frequency and openness of communication about sex do not necessarily reduce sexual risk behavior (Pearson, Muller, & Frisco, 2006; Rodgers, 1999). What really matters is parents' attitudes toward teen sex. Studies have shown that parents' disapproval of teen sex is associated with decreased frequency of intercourse among sexually active teens and lower risk of being pregnant (Jaccard, Dittus, & Gordaon, 1996; Resnick et al., 1997). Due to the nature of the measurement of mother-teen communication about sex in this study, it suggested that mothers' conservative attitudes toward teen sex were negatively associated with unintended first pregnancy in early adulthood.

Some limitations of this study include that the influences of others (i.e., peers, partners, and siblings) during both adolescence and early adulthood were not taken into consideration. The occurrence of unintended pregnancy in early adulthood is determined by a complex array of

antecedents. Given that peers and romantic partners become increasingly important regarding individuals' health behavior during the transition to early adulthood (Bearman & Bruckner, 2001, Gaughan 2006; Umberson, 1992), a useful avenue for future research would be to measure the relative influence of "significant others" on unintended pregnancy in early adulthood.

Additionally, researchers have indicated that the relationships between parents and children may differ by parent's gender. Traditionally, mothers, as the primary caregiver, are more likely to act towards their children in an affective or expressive way; whereas, fathers mainly provide more instrumental support. Studies reveal that children are more likely to feel closer to their mothers when growing up (Shek, 2007; Starrels, 1994; Stephens, 2009). Even though closeness to mother and closeness to father were measured separately in Add Health, many respondents in this study did not have fathers (for instance, parents were divorced). Thus, considering parent's gender would significantly reduce the sample size and limit the study to include respondents with both parents. However, it will be fruitful for future study to examine the effects of mother-teen relationship and father-teen relationship on unintended first pregnancy in early adulthood separately.

Despite these limitations, this study sheds new light on the effects of parent-teen relationships on unintended pregnancy. Results reveal that parental monitoring and mother-teen communication about sex have negative effects on unintended first pregnancy in early adulthood; whereas the influences of parent-teen closeness and satisfaction with parent-teen communication are not significant. One significant contribution of this study is that it provides further basis for future research to explore the association between parent-teen relationships and children's health in later life, due to the long-term effects of parent-teen relationships on children's reproductive

health uncovered in this study. In addition, the findings of this study deserve future research and policy attention. Although it may be beneficial for parents to develop warm and close relationships with adolescents, parental monitoring and communication about sex are of critical importance regarding intendedness of first pregnancy in early adulthood.

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