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Adolescent Sexual Debut and the Effects of Self-Esteem and Depression*

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Adolescent Sexual Debut and the Effects of Self-Esteem and Depression

Adolescent sexual and reproductive behaviors typically occur within a dating or relationship context. However, we have a limited understanding of adolescent dating relationships and their impact on sexual behavior. We address four questions: (1) do self-esteem and depression influence sexual debut once important controls such as movement into dating and sociodemographic characteristics are taken into account?; (2) do the effects of self-esteem and depression on sexual debut differ according to sociodemographic background?; (3) which social psychological predictor has a greater effect on sexual debut -- self-esteem or depression?; and (4) are self-esteem and depression associated with higher odds of non-relationship sexual debut? Analyses are based on the publically released two waves of the National Longitudinal Study of Adolescent Health (Add Health) (N=9,142). We focus on the 2,750 respondents who reported, at wave one, that they had not had sexual intercourse. Using logit models, run separately for males and females, to predict sexual debut between interview waves, we find self-esteem and depression at wave one, significantly predict sexual debut at wave

two for girls but not boys. For girls, we find that depression interacts with age such that the effect of depression is greater for younger than for older adolescents, and depression interacts with race such that it significantly predicts sexual debut among White but not African-American girls. It appears that depression has a stronger impact on sexual debut than self-esteem. Finally, self-esteem and depression do not influence the odds of having first sexual intercourse with a non-romantic partner.

Adolescent Sexual Debut and the Effects of Self-Esteem and Depression

Adolescence is considered an ego-centered, full-of-changes and self-examination phase in the life course. Much of an adolescent's self-perceptions are in regard to opposite sex relationships and sexual behavior. Decisions about sex are likely affected by social psychological and contextual factors. However, most literature considers issues such as sexual behavior and self-perceptions of esteem and depression as separate objects of inquiry. Yet, as in the studies of adult development and change, a newer trend in the adolescence literature is to consider the period from a more holistic perspective -- that is, to specifically focus on how the various behaviors and choices are associated (see also Steinberg and Belsky 1996). In this paper we examine the roles of self-esteem and depression as precursors of adolescent sexual involvement.

Sexual activity during the high school years has become a statistically normative experience. In 1997, 61 percent of high school seniors reported ever having sexual intercourse (Kann et al. 1998). Prior studies on adolescent sexual behavior have focused typically on the influence of socioeconomic background, as well as the influence of significant others including parents, siblings, and peers (e.g., Brazzell and Acock 1988; East, Felice, and Morgan 1993; Gecas and Seff 1990; Hogan and Kitagawa 1985; Jaccard, Dittus, and Gordon 1998; Longmore, Manning, and Giordano forthcoming; Miller and Moore 1990; Miller, Forehand, and Kotchick 1999; Miller et al. 1997; Whitbeck, Conger, and Kao 1993). Other recent work moves beyond the social network emphasis by

focusing on the relationship or dating context in which sexual behavior occurs (Elo, King, and Furstenberg 1999; Manning, Longmore, and Giordano 2000; Miller et al. 1997; Thornton 1990). Here we add another level of complexity as we examine the impact of self-evaluative and affective processes on the pace of adolescent sexual debut.

Self variables are central in motivating behavior (Gecas forthcoming; Rosenberg 1979), particularly sexual behavior (Longmore 1998). Self-esteem and depression are associated with risk and resilience and may delay, or conversely, accelerate the pace of adolescents' sexual debut both within and beyond the confines of a dating relationship. Yet, surprisingly little research has focused on how such self-evaluations and affective states influence adolescent sexual behavior.

We use the two waves of the National Longitudinal Study of Adolescent Health (Add Health) to examine how self-esteem and depression might affect adolescent sexual debut. We address four key questions: (1) do self-esteem and depression influence adolescent sexual debut once important controls such as movement into dating and sociodemographic characteristics are taken into account?; (2) do the effects of self-esteem and depression on adolescent sexual debut differ according to sociodemographic background; (3) which social psychological predictor has a greater effect on sexual debut -- self-esteem or depression?; and (4) are self-esteem and depression associated with higher odds of non-relationship or non-romantic sexual debut? Consistent with research on adult depression (e.g., Mirowsky and Ross 1989; Seff, Gecas and Ray 1992), and adolescent depression and sexual activity (e.g., Whitbeck, Hoyt, Miller, and Kao 1992) we

examine separate models for males and females. In the next section we provide a theoretical rationale for why self-esteem and depression should influence adolescent sexual debut. We also address why effects may differ by sociodemographic background and type of relationship.

THEORETICAL BACKGROUND

Self-Esteem

One approach to understanding adolescent sexual debut is to focus on factors that may delay sexual behavior. Such variables are often called protective factors. Jessor (1998:3) states: “Conceptually, protective factors have both direct and indirect effects; they lessen the likelihood of engaging in risk behavior, or of adverse outcomes from having engaged in them, but they also can serve as moderators of or buffers against exposure to risk factors or actual involvement in risk behaviors themselves.” Recent research has examined the concept of protective factors in a wide range of adolescent risk behavior and, increasingly, to understand adolescent sexual activity.

One such protective factor is self-esteem. Self-esteem refers to the positive or negative regard in which an individual holds himself or herself (Gecas and Burke 1995; Rosenberg 1979). There is a voluminous literature relating to self-esteem and widespread recognition of its importance for resilience and personal well-being (Gecas 1982;

Longmore and DeMaris 1997; Rosenberg 1979). In brief, self-esteem motivates behavior. Individuals attempt to maintain and/or enhance their feelings of self-esteem although it may require perceptual distortion, denial, rationalizing, minimizing the importance of negative information about the self, or the use of other defense mechanisms (Gecas forthcoming). Rosenberg (1979) suggests that the motive to achieve and maintain self-esteem is the most powerful in the entire human repertoire.

Recent reviews (e.g., Baumeister 1991; Gecas forthcoming; Hewitt 1998; Kohn 1994), however, stress that self-esteem cannot be considered a panacea that protects youth from all manner of risk. Baumeister, for example, argues that high self-esteem is more a result than a cause of successful behavior. Similarly, Gecas argues that self-esteem must be combined with other positive characteristics in order for it to have salutary effects. It is, nevertheless, intuitive that positive self-regard is generally more helpful, and thus more protective, than low self-esteem. Further, according to Pearlin and his associates (e.g., Pearlin and Lieberman 1979; Pearlin, Lieberman, Menaghan, and Mullan 1981) and others writing in the area of stress, risk and resilience (e.g., Longmore and DeMaris 1997; Mirowsky and Ross 1989; Seff et al. 1992;), dimensions of self-concept, including self-esteem, moderate the effects of stressors because they are psychological resources that individuals can draw upon to deal with problems.

In attempting to understand the mechanisms through which self-esteem might influence sexual debut, it is plausible to emphasize both positive and negative processes. On the positive side, adolescents with high self-esteem may be most able to balance

opposite-sex relationships with other interests and life goals, and also to believe that they will be capable of attracting new partner(s) if the current one does not work out. Conversely, adolescents with low self-esteem may be less likely to maintain this sense of balance/proportion, and be more likely to invest heavily in the current relationship. McDonald and McKinney (1994) examined the relationship between self-esteem and having a steady boyfriend/girlfriend among 122 high school sophomores. Results indicated that girls with the highest self-esteem were those who had gone steady in the past and were no longer doing so, while the lowest self-esteem scores were held by girls who had gone steady in the past and were still going steady. For boys, however, there was not a significant difference in self-esteem between those who were going steady and those who were not. Additionally, a review of cross-sectional findings from the National Survey of Adolescent Health (Resnick et al. 1997) show that low self-esteem is associated with several problem behaviors including suicide risk and the use of cigarettes, alcohol, and marijuana, although the analyses did not show low self-esteem to be associated with violence, age of sexual debut, or the risk of getting pregnant. We do expect, however, to find a relationship between self-esteem and sexual debut in general.

Depression

In addition to protective factors such as high self-esteem, risk factors, including depression, may affect adolescent sexual debut. Symptoms of depression include feeling

blue, feeling sad, having difficulty completing tasks, and being bothered by things that typically don't bother one's self. Although depression often accompanies low self-esteem, the two are distinct social psychological constructs that impair resiliency (Longmore and DeMaris 1997).

Depression may also be conceptualized in terms of an immobilizing process -- a negative affective state impedes the individual's ability to take appropriate independent actions that are in an individual's self-interest. As Ball-Rokeach, Rokeach, and Grube (1984:31) note, "a diffuse negative affective state leads to cognitive indecision and behavioral vacillation." In other words, depression makes effective decision-making, and therefore, effective action extremely difficult. Depression is associated with individuals not taking a proactive approach to situations experienced in their lives. Thus, a reasonable expectation is that high depression will result in a failure to delay sexual intercourse.

A limited number of recent studies have examined the impact of depression and/or self-esteem on adolescent sexual activity. Whitbeck et al. (1992) using cross-sectional data from a survey of 543 boys and girls found that depression both directly and indirectly increased the probability of sexual activity among girls, but did not influence boys' sexual activity. Similarly, Kowaleski-Jones and Mott (1998), based on a cross-sectional study of high-risk youth, report that self-esteem and depression are associated with sexual behavior among girls but not boys. Although both studies establish a connection between social psychological variables and sexual activity, one question left unanswered is the causal ordering between sexual activity and social psychological

variables. For example, does depression influence adolescents' decisions to become sexually active or is it a consequence of such involvement?

Whitbeck et al. (1993) addressed this issue of causality using data from a panel study of adolescent girls and parents. They examined the effects of parenting quality, depression, and peer behaviors on sexual activity and found that depression at time 1 had a weak direct effect on time 2 sexual activity. Although the use of panel data clarified the causal ordering among the variables, this study still leaves unanswered questions concerning depression and sexual activity among boys. Moreover, does self-esteem, along with depression, influence sexual debut? Examining self-esteem in tandem with depression is more consistent with theoretical work on adolescent behavior which increasingly has emphasized multiple variable explanations of risk behaviors (e.g., Jessor 1998).

Gender

We are also interested in whether the connections between self-esteem, depression and sexuality are gendered in important respects. For example, while adolescent female rates of sexual initiation are higher across age, ethnographic and quantitative research indicate that young women still are concerned with issues of reputation (Schlossman and Cairns 1993), and numerous demographic studies document that adolescent females experience the most direct consequences of their becoming sexually active, including

child care and lower educational attainment (Luker 1996). Further, there is work that suggests that females may be socialized to be ambivalent about sexual behavior itself, quite apart from these two consequences (Attie and Brooks-Gunn 1989). Thus, girls are taught to be sexually attractive, but not too overtly sexual. This leads us to believe that the meaning of movement into sexual intimacy is still gendered, and that emotional well-being could be linked in several ways to the decision that young girls and boys make to be sexually intimate. If young girls who are concerned about their reputation or the direct consequences of sexual activity -- or who are ambivalent about sex -- tend to have an interest in delaying sexual behavior, then being higher in depression and having lower self-esteem should have the effect of immobilizing decision-making.

Sociodemographic Background

Mirowsky and Ross (1989) argue that self-evaluations such as self-esteem and affective states such as depression are related to social conditions and positions in the social structure. Specifically, they contend that psychological distress is influenced by variables such as age, race, and family income. These sociodemographic variables mark the realities of individuals' lives. These same variables are also associated with adolescent sexual debut. For example, African-American compared with Anglo adolescents are more accepting of sexual intercourse at younger ages (Smith and Zabin 1993; Zabin, Hirsch, Smith, and Hardy 1984), and first intercourse occurs earlier among African-

Americans than Anglos (Alan Guttmacher Institute 1994). Males typically engage in sexual intercourse at younger ages than do females, and older adolescents are more likely to have sexual intercourse than are younger adolescents (Alan Guttmacher Institute 1994). Similarly, family structure and sociodemographic background influence sexual debut among adolescents (e.g., Dorius, Heaton, and Steffen 1993; Feldman and Brown 1993; Lauritsen 1994; Miller et al. 1997; Moore, Miller, Glei, and Morrison 1995).

Type of Relationship

While some research emphasizes the contextual importance of dating with respect to sexual debut (e.g., Longmore, Manning, and Giordano 1998; Miller and Moore 1990; Miller et al. 1997; Thornton, 1990), sexual debut with non-romantic partners is less widely studied, with a few notable exceptions. For example, Elo et al.(1999) using the 1995 National Survey of Family Growth, examined the type of relationship between a woman and her first sexual partner by age at first intercourse. They found that 30 percent of fifteen year old girls who had sex, had their first sexual experience with a friend or someone they knew but were not dating. Moreover, another six percent had their first sexual experience with individuals they were not dating. Similarly, in a study using the two waves of the National Survey of Families and Households (NSFH), Longmore et al. (forthcoming) note that a small percentage of adolescents reported having sex before dating.

The short duration of these sexual relationships may increase exposure to multiple partners and subsequently may increase the risk of exposure to sexually transmitted diseases. Much research has described this risk of exposure to sexually transmitted diseases including HIV infection (e.g., Miller et al. 1999; Overby and Kegeles 1994). Additionally, since dating is associated with more effective contraceptive use, it is possible that nondating or non-romantic sexual debut is associated with higher risk for sexually-related health problems. For example, Manning et al. (2000) examining contraceptive use among non-romantic partners, using the National Survey of Family Growth, found that nearly one-fifth of the sample had first sexual intercourse with a non-dating partner, and these individuals were less likely to use contraceptive methods. We argue whether adolescents have their first sexual experience within a dating relationship or with a non-romantic partner may be influenced by self-esteem and depression.

Contribution of the Present Study

The present analyses add to prior work by assessing the impact of social psychological predictors in boys' as well as girls' decisions to have sexual intercourse, and by including attention to the relationship context in which these behaviors occur. We distinguish between personal resources such as self-esteem and risk-promoting affective conditions such as depression that may impact these decision-making processes. We also take into account individuals' sociodemographic backgrounds. Lastly, the present study

recognizes that the impact of social psychological variables may vary because the meaning of sexual activity itself is highly gendered (Kowaleski-Jones and Mott 1998). Thus, while girls are often socialized to delay sexual initiation and experience the consequences of sexuality most directly, there is a strong cultural press for boys to increase their sexual experiences without concern for experiencing direct consequences. Following from this, we expect that the social psychological predictors, particularly those that are individual deficits such as low self-esteem and high depression would be less important predictors of movement into sexual intimacy for boys than girls.

The data for this study are from the two waves of the National Survey of Adolescent Health (Add Health). The Add Health is a recently collected, school-based, two-wave data collection effort that focuses on adolescent health behaviors. The Add Health data are appropriate for our purposes for several reasons. First, prior work has focused largely on small-scale, regional data and generally has not relied on nationally representative data sources (e.g., Kowaleski-Jones and Mott 1998; Whitbeck et al. 1992). Second, the Add Health data include comprehensive measures of adolescent dating and non-romantic relationships, sexual initiation, as well as measures of self-esteem and depression for both males and females. This allows us to move beyond prior studies by examining the type of relationships that precede sexual initiation, as well as measuring, both, a protective and a risk factor. Third, the longitudinal design of the Add Health allows causal analysis of the effects of the independent variables measured at wave one on behavioral outcomes that occurred between the interview waves. Consequently,

unlike many studies using individual level risk and protective factors, we can state a priori, a causal order between sociodemographic background, self-esteem and depression, the dating context, and sexual debut.

Hypotheses

On the basis of the theoretical arguments offered and prior research on adolescents, we propose the following hypotheses that correspond to our research questions.

Hypothesis 1a. Level of self-esteem affects sexual debut, such that those adolescents with higher self-esteem experience later sexual debut.

Hypothesis 1b. Level of depression affects sexual debut, such that those adolescents with greater depression experience earlier sexual debut.

Prior empirical research reports that boys, older adolescents, and African-American adolescents have higher rates of early sexual debut; thus, it can be more readily seen as a normative behavior for these adolescents. We might expect that social psychological variables such as self-esteem and depression would be more salient predictors for youth for whom movement into sexual activity might be less normative.

Hypothesis 2a. Level of self-esteem moderates the impact of age, race, and social class background on adolescent sexual debut, such that the impact of self-esteem

is greater for younger than for older adolescents, Anglos than for African-Americans, and middle class than for lower class adolescents.

Hypothesis 2b. Level of depression moderates the impact of age, race, and social class background on adolescent sexual debut, such that the impact of depression is greater for younger than for older adolescents, Anglos than for African-Americans, and middle class than for lower class adolescents.

We also expect depression would have a greater effect on sexual debut relative to the effect of self-esteem. This expectation is based on the view that depression impairs decision-making.

Hypothesis 3. Level of depression, compared to self-esteem, has a greater effect on sexual debut.

Lastly we examine sexual debut that occurs outside of a dating or romantic relationship. We propose the following hypotheses regarding non-romantic sexual debut among adolescents.

Hypothesis 4a. Higher self-esteem decreases the odds of non-romantic sexual debut.

Hypothesis 4b. Greater depression increases the odds of non-romantic sexual debut.

Hypothesis 4c. Depression relative to self-esteem has a greater effect on the odds

of non-romantic sexual debut.

METHODS

Data

From the National Longitudinal Survey of Adolescent Health (Add Health), we use the two waves of the publicly released core sample of in-home surveys that represents approximately 12,000 adolescents enrolled in grades 7 through 12 in 1995. The second wave of data were collected one year later, and in-home interviews were completed with 88.2 percent of the students selected for re-interview. We focus on the 3,614 respondents who reported at wave one that they had not had sexual intercourse. We then eliminated 648 respondents who had missing data on whether they had intercourse by wave two and 53 respondents who did not report a date of first sexual intercourse. We selected out an additional 158 respondents who reported their first date of sexual intercourse as occurring before the wave one interview. We also eliminated four respondents who did not complete the Self-Esteem or the Depression scales. Our final sample consists of 2,750 respondents.

The loss of cases due to missing data on key variables most likely introduces some bias into empirical findings. In particular, those who fail to answer questions about Self-

Esteem or Depression probably have lower Self-Esteem and higher Depression. However, only four respondents were eliminated due to missing data on these variables.

To test the first three hypotheses, our analytical sample consists of adolescents who did not have sexual intercourse at wave one ($n = 1,234$ boys and $n = 1,516$ girls). To test Hypothesis 4, our analytical sample consists only of adolescents who experienced first sexual intercourse between interview waves ($n = 358$).

Measures

The dependent variables. The dependent variable examined in Hypotheses 1, 2, and 3 is the adolescents' reports of whether they had first sexual intercourse since the wave one interview. We base the primary analyses on adolescents who did not have sexual intercourse at wave one, and estimate whether sexual intercourse occurred between interview waves. Approximately 13 percent of the sample report first sexual intercourse between the interview waves.

The dependent variable used to test Hypothesis 4 is whether first sexual intercourse was with a romantic partner. We measure whether any non-romantic sexual activity occurred between interview waves. Approximately one-fifth, 18 percent, of the sample had first sexual intercourse with a non-romantic partner. The reported levels of non-romantic first sexual intercourse are higher for boys, 23 percent, than girls, 14 percent.

The independent variables. For ease of presentation, we group the independent variables into three categories: social psychological variables (i.e., Self-Esteem and Depression), sociodemographic variables, and type of relationship variables.

The items used to measure Self-Esteem and Depression are representative of standardized instruments used in analyses of both adolescents and adults. We measure Self-Esteem using six items. Respondents were asked the degree to which they agreed with the following items: (1) You have a lot of good qualities; (2) You have a lot to be proud of; (3) You like yourself just the way you are; (4) You feel like you are doing everything just about right; (5) You feel socially accepted; and (6) You feel loved and wanted. Items 1 and 2 are from Rosenberg's well-known Self-Esteem scale (Rosenberg 1989), and the other four items are quite comparable to those in the Rosenberg scale. A five-level response format ranging from (1) strongly disagree to (5) strongly disagree followed each item. Following procedures used by Longmore and DeMaris (1997) and Glass and Fujimoto (1994) in constructing similar social psychological scales, we constructed a Self-Esteem score for every respondent who recorded valid responses for at least 75 percent of the items (4 of 6 items). We calculated the scale score as the mean of the items, multiplied by six. In this sample, the scores ranged from 7 to 30 with 30 indicating the highest level of Self-Esteem. The mean is 25.5 suggesting relatively high Self-Esteem. The alpha reliability of the scale in the current sample is .85.

The Depression scale composed of eleven items assesses how respondents feel emotionally. Respondents were asked how often each of the following was true during

the past week: (1) You were bothered by things that usually don't bother you; (2) You didn't feel like eating, your appetite was poor; (3) You felt that you could not shake off the blues, even with help from your family and your friends; (4) You had trouble keeping your mind on what you were doing; (5) You felt depressed; (6) You felt you were too tired to do things; (7) You felt fearful; (8) You talked less than usual; (9) You felt lonely; (10) You felt sad; and (11) It was hard to get started doing things. Response categories ranged from (0) never or rarely, (1) sometimes, (2) a lot of the time, and (3) most of the time or all of the time. Items were scaled so that higher scores indicate higher Depression. As with the Self-Esteem scale, we constructed a Depression score for every respondent who recorded valid responses for at least 82 percent of the items (9 of 11 items). We calculate the Depression score as the mean of the items answered, multiplied by eleven. The mean is 5.0. In this sample the scale ranges from 0 to 25, with 25 indicating greater Depression. The alpha reliability of the scale is .79 in the current sample.

The sociodemographic variables. The analyses include several background variables that could potentially confound relationships between the explanatory variables of primary interest and the dependent variable. Failure to control for potentially confounding variables may result in an inflated estimate of the impact of some independent variables on adolescent sexual initiation. For these reasons, we include the following in the models: age, race/ethnicity, family type, family income, and mother's education. The response categories for race/ethnicity included White, African-American, Hispanic, and Others. Family type is measured as two biological parent family, step-

parent family, single parent family, and other. We control for economic well-being using logged family income and mother's education.

Statistical Analysis

The multivariate analyses are based on logistic regression models. Our analytical strategy is to first estimate models that include the zero-order effects of the social psychological variables, measured at wave one separately, on sexual onset between the interview waves. The second model adds dating and the background variables. These models are estimated separately for boys and girls, and are used to test hypotheses 1a and 1b regarding effects of Self-Esteem and Depression, respectively, on adolescent sexual debut (Tables 2 and 3). We then examine the interaction of, first, Self-Esteem and then Depression, with age, race/ethnicity, and family income and mother's education (a proxy for social class) via a series of models presented in Table 4. These models are used to test Hypotheses 2a and 2b regarding the differential effects of Self-Esteem and Depression conditional on sociodemographic background.

Next, we estimate logistic effects of both Self-Esteem and Depression on adolescent sexual onset between the interview waves. These models are used to test our Hypothesis 3 regarding which social psychological variable has the stronger effect on sexual debut (Table 5).

We also examine the logistic regression estimates of the odds of non-romantic first sexual intercourse among those adolescents who had sexual intercourse between the interview waves. These models test Hypotheses 4a-4c. The first two models present the zero-order effects of Self-Esteem and Depression. The third model examines the effect of Self-Esteem, Depression, dating, and the background variables. Because of the smaller sample size, these models combine boys and girls (Table 6).

RESULTS

Univariate Descriptions

Descriptive statistics for all variables in the analyses are shown in Table 1. About 13 percent of the sample had their first sexual experience between the two interview waves, with more girls (14.3 percent) than boys (11.4 percent) experiencing sexual debut. The sample mean of 25.5 on the Self-Esteem scale suggests that Self-Esteem is relatively high, and it is also consistent with individuals' bias toward high Self-Esteem (Gecas 1982; forthcoming). Boys report having significantly higher Self-Esteem (25.3) than do girls (23.9). The sample mean of 5.0 on the Depression scale suggests that on average, adolescents report relatively low Depression; however, girls report greater Depression (5.4) than do boys (4.5), and this difference between boys and girls is statistically significant.

With respect to dating, about 21 percent of the sample was currently dating at the wave one interview, with a greater percentage of girls (23 percent) than boys (19 percent) currently dating. Although they were not currently dating at the wave one interview, almost one-third of the sample had ever dated, with a greater percentage of boys (32.4 percent) than girls (27.2 percent) reporting that they had ever dated. Almost half of the sample (49.3 percent) had never dated at the wave one interview, with a greater percentage of girls (49.8 percent) than boys (48.7 percent) reporting that they had never dated.

Table 1 About Here

Multivariate Analyses

Table 2 presents the logistic regression estimates of the effects of Self-Esteem, dating, and background variables, for boys and girls separately, on sexual onset between interview waves. Model 1 shows that the zero-order effect of Self-Esteem is not related significantly to adolescent sexual debut for boys. However, for girls, the zero-order effect of Self-Esteem shown in Model 3 is related significantly to sexual debut. Girls with higher Self-Esteem, measured at wave one, had lower odds of experiencing sexual debut between the interview waves. Moreover, this effect is significant after including dating and the background variables in the model (Model 4). This suggests that higher Self-

Esteem delays sexual debut for girls but not for boys, thus providing partial support for Hypothesis 1a.

Table 2 About Here

Several of the other variables in the models predict sexual debut in ways that are consistent with previous research. Currently dating and having ever dated significantly increase the odds of sexual debut between interview waves for both adolescent boys and girls. For both boys and girls, older adolescents are more likely to experience sexual debut between the interview waves than are younger adolescents. However, with respect to type of family structure, only the category ‘other’ (which includes all living arrangements except living with biological parents, step-parents, and single-parents) significantly increases the odds of sexual debut for boys. For girls, living with step-parents, a single-parent, and other living arrangements significantly increase the odds of sexual debut between the interview waves. For girls, mother’s educational attainment decreases the odds of sexual debut between the interview waves. Lastly, race, does not significantly predict sexual debut net of the other variables in the model.

Table 3 shows the logistic regression estimates of the effects of Depression on Sexual Debut between the interview waves. Similar to Self-Esteem, the zero-order effect of Depression is not significant for boys (Model 1), but is significant for girls (Model 3). Greater Depression, for adolescent girls, increases the odds of sexual debut between the

interview waves. These findings provide partial support for Hypothesis 1b that Depression would increase the likelihood of sexual debut.

Table 3 About Here

Other findings in the models are consistent with findings in the empirical literature. For both adolescent boys and girls, currently dating and having ever dated, as well as age, increase the odds of sexual debut between the interview waves (Model 2 and Model 4 respectively). For girls, however, type of family structure also affects the odds of sexual debut, such that living with step-parents, a single-parent, or other living arrangements, relative to living with biological parents, increases the odds of sexual debut between interview waves. Also, for girls, mother's education attainment decreases the odds of sexual debut between waves.

Next we ran the logistic estimates of the effects of interactions of individual level variables on sexual onset net of other predictors. However, since none of the findings were significant for boys, we present these analyses only for girls. Table 4 presents six models all of which control for the effects of age, race/ethnicity, mother's education, family income, type of family structure, and dating status. We are interested in whether Self-Esteem or Depression interact with age, race/ethnicity, or family income. Model 1 shows that the main effect of Self-Esteem on girls' sexual debut is negative; that is, girls with higher Self-Esteem have lower odds of sexual debut between the two interview

waves. (Conversely, girls with lower Self-Esteem have higher odds of sexual debut between the interview waves). The positive interaction between Self-Esteem and age further suggests that high Self-Esteem among older adolescents has less of an effect on decreasing the odds of sexual debut relative to its effect for younger adolescents. In other words, the protective effect of Self-Esteem in delaying sexual debut is greater for younger girls than older girls net of the other variables in the model.

Table 4 About Here

Model 2 shows the main and interaction effects for Self-Esteem and race/ethnicity. In this model although the main effect is significant, none of the interaction effects are significant. This suggests that Self-Esteem has differential effects on girls' sexual debut between interview waves that are conditional on race/ethnicity. Model 3 shows the main and interaction effects for Self-Esteem and family income. In this model neither the main nor the interaction effects are significant net of the control variables. This might suggest that the effect of high Self-Esteem in delaying sexual debut between interview waves does not differ by family income, our proxy for social class. With respect to Hypothesis 2a, Self-Esteem interacts with age and race/ethnicity but not family income thus providing partial support for our expectation that the effects of Self-Esteem differ according to sociodemographic background. The effects of Self-Esteem differ for younger than older adolescents, and for African-American relative to White adolescents.

Models 4, 5, and 6 present comparable analyses substituting Depression for Self-Esteem. In model 4, Depression has a main effect and also interacts with age, net of the control variables. High Depression increases the odds of sexual debut between the interview waves for girls. The interaction effect suggests that High Depression, however, has less of an effect on older girls, and conversely, a greater effect on younger girls.

Model 5 presents the main and interaction effects for Depression and race/ethnicity. The main effect and the interaction between Depression and being African-American are significant, net of the control variables. The negative interaction suggests that although Depression increases the odds of sexual debut for girls, it has less of an effect for African-American than White girls.

Model 6 presents the main and interaction effects for Depression and income. Similarly to the results regarding Self-Esteem, the effects do not significantly differ net of the control variables. These findings provide partial support for Hypothesis 2a. The effects of Depression differ for younger versus older adolescents, and for African-American relative to White adolescents.

Table 5 shows the logistic regression estimates of the effects of both Self-Esteem and Depression on sexual onset between interview waves. The findings support the hypothesis that Depression has a greater effect than Self-Esteem on sexual debut. In the table, the first two columns show that although in the hypothesized direction, the coefficients are not significant for boys. For girls, however, Self-Esteem does not significantly affect the odds of sexual debut net of Depression and the dating and

background variables. This suggests that Depression, a risk factor, may be more important than Self-Esteem, a protective factor, in understanding girls' sexual debut. Further analyses indicate that there is not a statistically significant interaction between Self-Esteem and Depression suggesting that the effects of Depression do not vary by level of Self-Esteem (Table not shown).

Table 5 About Here

Finally, Table 6 shows the logistic regression estimates of the odds of non-romantic first sexual intercourse for the combined sample of boys and girls who had sexual intercourse between interview waves. We hypothesized the following: higher Self-Esteem decreases the odds of non-romantic sexual debut; greater Depression increases the odds of non-romantic sexual debut; and Depression relative to Self-Esteem has a greater effect on the odds of non-romantic sexual debut.

Table 6 About Here

We do not, however, find support for our hypotheses. In the zero-order models (Models 1 and 2), Self-Esteem and Depression do not significantly increase the odds of non-romantic sexual debut between the interview waves. Moreover, while the estimates for Depression and Self-Esteem are in the predicted direction (Model 3), they are not significant. In fact, few of our variables predict non-romantic sexual debut. Those

variables that are predictive of non-romantic sexual debut between the interview waves include having ever dated, being male, and reporting a racial/ethnic identity other than African-American or Hispanic. Specifically, having ever dated, relative to having never dated, decreases the odds of non-romantic sexual debut between interview waves. This suggests that some dating experience decreases the odds of non-romantic first sexual intercourse between the interview waves. Boys, compared to girls, have greater odds of engaging in non-romantic sexual intercourse.

CONCLUSION

A central premise of this paper is that decisions about sexuality and other health behaviors are likely influenced by individual, social and contextual factors. In this paper, we assess whether the individual level variables Self-Esteem and Depression significantly impact sexual debut once sociodemographic predictors and dating context are introduced as controls. Such individual predictors appear to be more important for female in contrast to male, White versus African-American, and for younger versus older adolescents. In addition, when logistic regressions include both individual level predictors, Self-Esteem is no longer significant. Thus, although many positive benefits of Self-Esteem have been suggested, here we find that the conceptual and empirical link between low Self-Esteem and Depression may be most pivotal.

Although it is generally appropriate to consider sexual debut a risk health behavior, these data suggest some of the limitations of this problem-oriented view. When

socialization pressures inched a strong press toward sexual experimentation (as occurs with males more often than with females, among older, in contrast to younger adolescents), individual level "deficit" type variables may not be very important in distinguishing which adolescents become sexually active. Conversely, among females and younger adolescents, who as subgroups may have more inclination to "delay" sexual intimacy, these kinds of variables appear to be more salient as predictors. The significant race by Depression and race by Self-Esteem interactions are also suggestive of this general notion -- in that level of Depression and Self-Esteem appeared to be a more significant predictors of sexual debut for White than African-American adolescents. This would be consistent with the known group-level differences in the percentage of African-American and White females having intercourse at each age. Our findings with regard to sexual intimacy that occurs outside a dating context should be considered preliminary because of the small sample size, and primarily underscore the need for more research on these contexts.

There is considerable interest in policies and programs designed to meet the mental health needs of adolescents. This paper demonstrates that in addition to improving adolescents' psychological well-being, such efforts could also influence the timing of sexual debut and perhaps movement into risky sexual behaviors. This is particularly true for those adolescents we typically regard as being at "low-risk" of initiating sexual intercourse, and thus, may sometimes not consider when designing policies and programs geared toward sexual education and empowerment.

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Table 1. Distribution of Variables

	TOTAL <u>Percent/Mean</u>	BOYS <u>Percent/Mean</u>	GIRLS <u>Percent/Mean</u>
Sexual Activity*			
Sex between waves	13.0	11.4	14.3
Never had sex	87.0	88.6	85.7
Social Psychological Variables			
Self-Esteem* 7-30	25.5	25.3	23.9
Depression* Range: 0-25	5.0	4.5	5.4
Dating*			
Currently dating	21.2	19.0	23.0
Ever dated	29.5	32.4	27.2
Never dated	49.3	48.7	49.8
Background			
Age*	14.7	14.8	14.6
Gender			
Male	44.8		
Female	55.2		
Race/Ethnicity*			
White	67.0	69.7	64.9
Black	12.3	9.9	14.3
Hispanic	12.1	11.0	12.9
Others	8.6	9.4	7.9
Family type*			
Bio-parents	65.1	66.2	64.2
Step-parents	9.6	10.9	8.5
Single-parent	19.9	17.2	22.1

Other	5.4	5.7	5.1
Logged family income	3.7	3.7	3.7
Missing income*	18.8	17.3	20.0
<hr/>			
Mother's education*			
<12 years	14.9	13.4	16.2
12 years	32.2	31.9	32.5
13-15 years	18.1	17.1	19.0
16+ years	30.4	32.0	29.1
Missing	4.3	5.7	3.2

Source: National Longitudinal Study of Adolescent Health

N=2750, N for boys = 1233, N for girls = 1517

* Denotes significant difference between boys and girls

Table 2. Logistic Regression Estimates of the Effects of Self-Esteem for Boys and Girls on Sexual Onset Between Interview Waves

Self-Esteem	BOYS				GIRLS			
	Model 1		Model 2		Model 3		Model 4	
	β	s.e.	β	s.e.	β	s.e.	β	s.e.
-0.01	(.03)	-0.01	(.03)	-0.05**	(.02)	-0.03***	(.02)	
Dating								
Currently dating		1.56***	(.25)			1.57***	(.20)	
Ever dated		1.14***	(.24)			1.11***	(.20)	
(Never dated)								
Background								
Age		0.31***	(.06)			0.27***	(.05)	
Race/Ethnicity								
(White)								
Black		0.12	(.33)			-0.11	(.25)	
Hispanic		-0.04	(.31)			0.07	(.25)	
Other		-0.15	(.37)			0.15	(.29)	
Family type								
(Bio-parents)								
Step-parents		0.30	(.30)			0.54*	(.26)	
Single-parent		0.60	(.25)			0.61**	(.20)	
Other		1.20*	(.58)			1.22***	(.37)	
Family income		-0.16	(.13)			0.03	(.12)	
Missing income		0.33	(.25)			-0.10	(.21)	

Mother's education					
<12 years	-0.16	(.31)		-0.09	(.24)
(12 years)					
13-15 years	-0.38	(.29)		-0.10	(.22)
16+ years	-0.35	(.24)		-0.66**	(.22)
Missing	-0.83	(.64)		-1.32*	(.56)
-2 Log likelihood	876.604		777.36	1237.50	1092.85

Source: National Longitudinal Study of Adolescent Health

N for boys =1234, N for girls = 1516

Note: Omitted category in parentheses

*p<.05, **p<.01, ***p<.001

Table 3. Logistic Regression Estimates of the Effects of Depression for Boys and Girls on Sexual Onset Between Interview Waves

Depression	BOYS				GIRLS			
	Model 1		Model 2		Model 3		Model 4	
	<u>B</u>	<u>s.e.</u>	<u>B</u>	<u>s.e.</u>	<u>B</u>	<u>s.e.</u>	<u>B</u>	<u>s.e.</u>
Currently dating	0.04	(.02)	0.02	(.02)	1.56***	(.25)	1.49***	(.20)
Ever dated					1.14***	(.24)	1.01***	(.21)
(Never dated)								
Dating								
Age			0.30***	(.06)			0.26***	(.05)
Race/Ethnicity								
(White)								
Black			0.10	(.33)			-0.18	(.25)
Hispanic			-0.05	(.31)			0.03	(.25)
Other			-0.20	(.37)			0.08	(.30)
Family type								
(Bio-parents)								
Step-parents			0.29	(.30)			0.52*	(.26)
Single-parent			0.58	(.25)			0.55**	(.20)
Other			1.15	(.57)			1.14**	(.38)
Family income			-0.16	(.13)			0.02	(.12)
Missing income			0.34	(.25)			-0.09	(.21)

Mother's education				
<12 years	-0.17	(.31)	-0.14	(.24)
(12 years)				
13-15 years	-0.36	(.29)	-0.11	(.22)
16+ years	-0.33	(.24)	-0.65**	(.22)
Missing	-0.79	(.64)	-1.28*	(.57)
-2 Log likelihood	873.2	776.9	1202.2	1076.77

Source: National Longitudinal Study of Adolescent Health

N for boys =1234, N for girls = 1516

Note: Omitted category in parentheses *p<.05, **p<.01, ***p<.001

Table 4: Logistic Regression Estimates of the Effects of Interactions of Social Psychological Variables on Sexual Onset for Girls Net of Other Predictors^a

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	β	s.e.										
Social Psychological												
Self-Esteem	-0.04*	(.02)	-0.06*	(.02)	-0.03	(.02)			0.08***	(.02)	0.10***	(.02)
Depression											0.07***	(.02)
Interactions												
Esteem*Age	.03*	(.01)										
Esteem*Black			0.12*	(.06)								
Esteem*Hispanic			0.05	(.05)								
Esteem*Other			0.09	(.07)								
Esteem*Income					0.00	(.00)						
Depress*Age							-0.03*	(.01)				
Depress*Black									-0.15**	(.05)		
Depress*Hispanic									.00	(.05)		
Depress*Other									-0.08	(.05)		
Depress*Income											0.00	(.00)
-2 Log likelihood	1088.5		1087.57		1091.4		1070.3		1066.9		1075.1	

Source: National Longitudinal Study of Adolescent Health.

N = 1516

*p<.05, **p<.01, ***p<.001

^aThe other variables in the model include: age, race/ethnicity, mother's education, family income, family type, and dating status

Table 5. Logistic Regression Estimates of the Effects of Self-Esteem and Depression for Boys and Girls on Sexual Onset Between Interview Waves

	BOYS		GIRLS	
	β	s.e.	β	s.e.
Self-Esteem	0.02	(.03)	0.02	(.02)
Depression	0.03	(.03)	0.08***	(.02)
Dating				
Currently dating	1.55***	(.25)	1.49***	(.20)
Ever dated (Never dated)	1.14***	(.24)	1.01***	(.21)
Background				
Age	0.30***	(.06)	0.26***	(.05)
Race/Ethnicity (White)				
Black	0.10	(.33)	-0.20	(.25)
Hispanic	-0.04	(.31)	0.03	(.25)
Other	-0.18	(.37)	0.10	(.30)
Family type (Bio-parents)				
Step-parents	0.30	(.30)	0.53*	(.26)
Single-parent	0.59*	(.25)	0.55**	(.20)
Other	1.18*	(.57)	1.14**	(.38)
Family income	-0.16	(.13)	0.02	(.12)
Missing income	0.35	(.25)	-0.09	(.21)
Mother's education				
<12 years	-0.17	(.31)	-0.14	(.24)
(12 years)				
13-15 years	-0.37	(.29)	-0.13	(.22)
16+ years	-0.34	(.24)	-0.66**	(.22)
Missing	-0.79	(.63)	-1.29*	(.57)
-2 Log likelihood	776.36		1076.27	

Source: National Longitudinal Study of Adolescent Health

N for boys =1234, N for girls = 1516

Note: Omitted category in parentheses

*p<.05, **p<.01, ***p<.001

Table 6. Logistic Regression Estimates of Nonromantic First Sexual Intercourse

	Model 1		Model 2		Model 3	
	β	s.e.	β	s.e.	β	s.e.
Self-Esteem	0.01	(.03)			-0.05	(.04)
Depression			-0.03	(.03)	-0.01	(.04)
Dating						
Currently dating					-0.82*	(.38)
Ever dated					-0.84*	(.38)
(Never dated)						
Background						
Age					-0.17	(.11)
Male					1.18***	(.33)
Race/Ethnicity						
(White)						
Black					0.40	(.42)
Hispanic					-0.92	(.55)
Other					-2.21*	(1.07)
Family type						
(Bio-parents)						
Step-parents					-0.22	(.49)
Single-parent					-0.55	(.39)
Other					-0.13	(.79)
Family income					-0.39	(.21)
Missing income					0.15	(.41)
Mother's education						
<12 years					0.56	(.46)
(12 years)						
13-15 years					0.92	(.43)
16+ years					0.22	(.45)
Missing					-0.35	(1.03)
-2 Log likelihood	323.53		322.52		286.52	

Source: National Longitudinal Study of Adolescent Health

N = 358

Note: Omitted category in parentheses

*p<.05, **p<.01, ***p<.001