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Changes in Psychological Distress after First Vaginal Intercourse in Late Adolescence

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Abstract

Introduction: Although early sexual intercourse may be associated with increased depressive symptoms, little research has examined whether first intercourse in late adolescence is associated with changes in mental health.

Methods: This paper uses 3 years of longitudinal data from previously sexually abstinent late adolescent students at a large state university in the northeastern United States ($N=144$, 53.5% male, M age=18.5 years old, 47.2% White, 26.4% Asian/Hawaiian/Pacific Islander, 20.1% Hispanic/Latino, 18.1% Black/African American) to examine whether levels of psychological distress changed after first intercourse.

Results: Students' distress decreased after first intercourse, although this effect was only significant two or more semesters after first intercourse. There were no gender differences in these associations.

Conclusions: Findings suggest first intercourse was, on average, associated with decreased psychological distress for both male and female late adolescents.

Researchers (Carpenter, 2001; Higgins, Trussell, Moore, & Davidson, 2010) and popular media (Kelly, 2010) have described first sexual intercourse as an important transition. Abstinence-only programs often teach that sexual behavior before marriage is psychologically harmful (Santelli et al., 2006), but limited research exists on sex and mental health (Vasilenko, Lefkowitz, & Welsh, 2014). Extant research has focused on sexual behavior in adolescence, finding that that an early (e.g., prior to age 16) transition to first intercourse is associated with an increase in depressive symptoms for girls, though the gender difference dissipates by young adulthood (Meier, 2007; Spriggs & Halpern, 2008; Wesche, Kreager, Lefkowitz, & Siennick, 2017).

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However, little is known about whether first intercourse in late adolescence is associated with changes in mental health. Late adolescent outcomes likely differ from earlier outcomes, as individuals who delay sex generally engage in less risky behaviors (Forste & Haas, 2002). In addition, individuals who initiate in late adolescence are off-time compared to their peers, and may feel more positive due to a sense of relief initiating a normative behavior (Vasilenko, 2021). Outcomes may be particularly positive for male late adolescents, for whom sexual behavior is an important component of masculinity (Smiler, 2013). One study of students who transitioned to first intercourse in college found that male, but not female, students felt more positive about their physical appearance after engaging in first intercourse (Vasilenko, Ram, & Lefkowitz, 2011). Thus, the transition may be more positive for male adolescents and individuals who transition later in adolescence.

Consistent with efforts to integrate risk and normative developmental perspectives (Tolman & McClelland, 2011), this study tested 1) whether first sexual intercourse in college students is associated with changes in psychological distress and 2) whether there are gender differences in these associations. Because research suggests only a short-term impact of life events (Brickman, Coates, & Janoff-Bulman, 1978; Loewenstein & Frederick, 1999), we predicted that late adolescents would experience a decrease in distress in the short, but not long term. In addition, based on prior research showing less negative outcomes for adolescent boys compared to girls (Meier 2007; Spriggs & Halpern, 2008), we predicted a greater decrease in distress for male compared to female students.

Method

Participants

Participants were from [identifier removed] a four-year longitudinal study of college students at a large university in the northeastern United States. A stratified random sampling procedure with replacement was used. We include participants who transitioned to first intercourse between Semesters 2 and 7 (S2-S7). Students' timing of first intercourse was determined by responses to the question "Have you ever had vaginal sex?" at each semester a participant had not previously reported vaginal sex (defined as "sex in which the penis penetrates the vagina"). Overall, 744 students participated in the initial semester baseline survey (65.6% response rate). Our analytic sample included 144 students who engaged in first intercourse between S2-S7 (53.5% male; $mAge$ at S1 = 18.5 $SD=0.4$; 47.2% White, 26.4% Asian/Native Hawaiian/Pacific Islander, 20.1% Hispanic/Latino, 18.1% Black/African American, with option to select multiple races; 97.9% heterosexual). The analytic sample did not differ from those who dropped out regarding gender, race/ethnicity, or S2 psychological distress ($p>.05$). Each semester starting fall of first year, participants received an email containing a secure link to a web-based survey. They received \$20-\$40 for completion.

Measures

Timing of First Sexual Intercourse.—Each semester, participants who had not previously reported vaginal sex were asked whether they had engaged in vaginal sex. We used this information to calculate three variables. First, a time index measuring time to/from

first intercourse (*TTFI*), measured in semesters, anchored time around each individual's semester of first intercourse. The semester before each individual first reported engaging in intercourse was set at 0, negative values indicated semesters before intercourse, and positive values indicated semesters after intercourse. To test whether psychological distress after first intercourse differed from an individual's overall trajectory, we created two additional dichotomous variables. One assessed short-term effects after first intercourse (*AFI1*); with the semester after first vaginal sex coded as 1 (others 0). The other assessed longer-term outcomes of sex (*AFI2+*); 2 and greater semesters after first intercourse were coded as 1 (others 0).

Psychological Distress.—At S2-S7, the K6 brief screening assessed psychological distress (Kessler et al., 2002). Participants rated six items on a five point scale (none of the time to all of the time) about their feelings in the past 30 days (S2 $M=1.1$, $SD=0.8$), with good reliability (α .85 - .90 across semesters).

Covariates.—We controlled for demographics with dichotomous (0/1) variables. Specifically, we included gender (female = 1), and three measures of race/ethnicity (Hispanic/Latino, Black/African American, Asian/Hawaiian/Pacific Islander, with white as the reference group). Finally, we included an indicator of semester (2–7) as a time-varying control to disentangle effects of development time from time from first intercourse.

Results

We used a multiphase growth curve model (Raudenbush & Bryk, 2002) person-centered around the semester prior to first intercourse, similar to prior work (Vasilenko et al., 2011). This model estimated pre-intercourse trends in psychological distress and examined how the transition to first intercourse was associated with deviations from this trajectory. Semesters (Level 1) were nested within people (Level 2). At Level 1, we estimated the changes in level of distress relative to timing of first intercourse (*TTFI*), and whether there were differences in this trajectory at 1 semester (*AFI1*) and more than 1 semester (*AFI2+*) after first intercourse, controlling for semester. At Level 2, we included parameters testing the moderating effect of gender and including covariates.

Results are presented in Table 1. Psychological distress increased over time prior to first intercourse (γ_{20}). Students' level of distress the semester after first intercourse (γ_{30}) did not significantly differ from their individual trajectories across semesters, however their level of distress was significantly lower 2+ semesters after first intercourse (γ_{40} ; see also Figure 1). There were no gender differences in these associations (γ_{31} , γ_{41}).

Discussion

College students reported decreased psychological distress after engaging in first sexual intercourse, and, contrary to predictions, these patterns did not differ by gender. These findings contrast with prior work which found a negative impact of an early transition to first intercourse for girls, and no significant changes for boys (Meier, 2007; Spriggs & Halpern, 2008). Thus, on average, the transition to first intercourse may be associated with

poorer mental health for female adolescents who have sex early, but less psychological distress for both male and female late adolescents. These differing results could be due to greater maturity in cognitive, communication, and relationship skills and/or the college context where sex is more normative and acceptable (Lefkowitz, 2005). Results differ from prior work that found that male, but not female, college students experienced more positive body image after first intercourse (Vasilenko et al., 2011). The differences between these two studies suggests that sexual behavior may be similarly associated with general mental health for male and female students, but body image may be particularly gendered and thus differentially associated with sexual behavior.

Contrary to predictions, we found no significant decrease in distress in the semester immediately after first intercourse, but a decrease in subsequent semesters. Individuals may experience more change after time for reflection and more experience with sex, and perceptions may vary by time and relationship with partner (Smiler, Ward, Caruthers, & Merriweather, 2005; Sprecher, Barbee, & Schwartz, 1995). In addition, there may be differential power to detect effects between these two periods, as the decrease in distress the semester after first intercourse approached significance. Regardless, findings suggest that, on average, individuals feel less distressed months or years after first intercourse. This decrease may not be due to changes in how individuals view themselves after first intercourse *per se*; instead, they may feel less distressed at times when they are sexually active, consistent with research suggesting that sexual behavior is an important component of marital satisfaction (Impett, Muise, & Peragine, 2014).

There are several limitations. We cannot prove causality, as a third factor such as relationship with a romantic partner could explain observed associations. Our focus was on transitions to intercourse during college; research should examine this transition earlier in adolescence, later in young adulthood, and in different contexts. Focusing on vaginal intercourse limited our sample to heterosexual behavior; research should explore other sexual behaviors, and transitions to sexual behavior in sexual minority youth. The relatively small number of transitioners may have limited our ability to detect small effects. Finally, individuals have different reasons for delaying sex (Forste & Haas, 2002; Sprecher & Treger, 2015), which could impact their mental health, and future studies should examine this variability.

Despite these limitations, this paper contributes to knowledge about sexual behavior and mental health. First, it uses longitudinal data, allowing us to understand changes associated with sexual behavior, rather than comparing sexually active and abstinent individuals. Second, it extends knowledge on first intercourse and mental health in late adolescence, a period about which relatively little is known. Our findings suggest that for college students, sexual behavior may contribute to less negative mental health outcomes.

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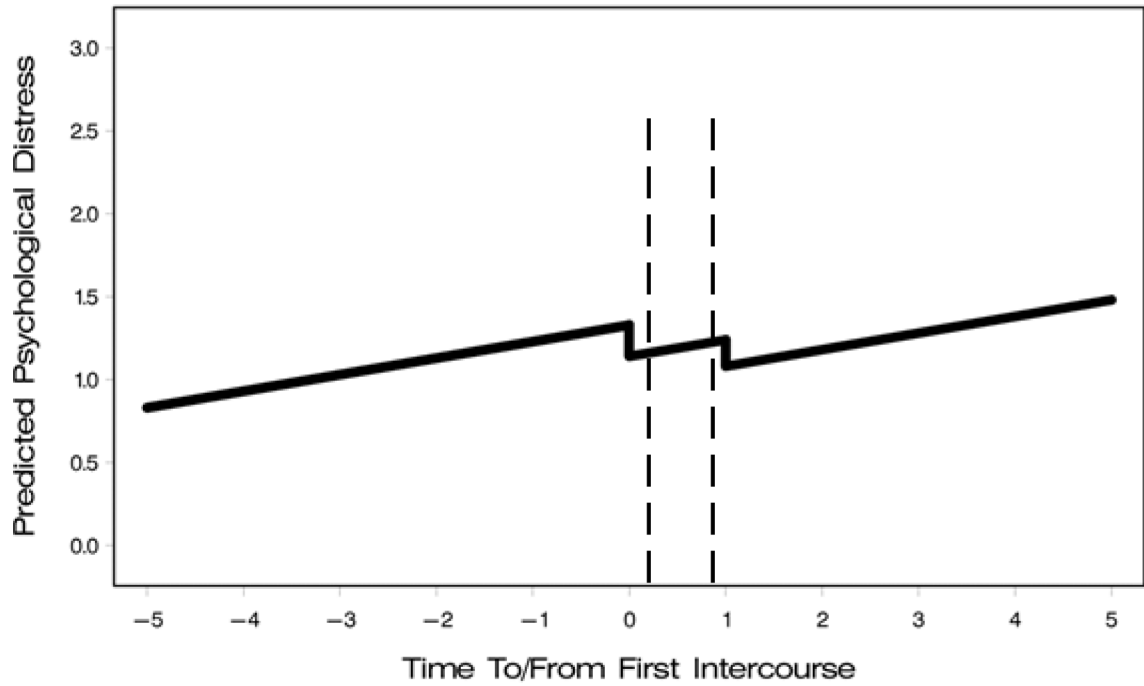


Figure 1. Multiphase growth curve model showing predicted changes in psychological distress centered at individuals' semester of first intercourse. Dotted lines indicate the period in which first intercourse took place. Times prior to 0 represent a trajectory of distress prior to first intercourse, and times after 0 represent shifts from this trajectory after first intercourse (1 semester and 2+ semesters after).

Table 1:

Multiphase growth curve model testing changes in psychological distress after first sexual intercourse, centered around semester before first sexual intercourse reported

	Psychological Distress	
	<i>B</i>	<i>SE</i>
Fixed Effects		
Intercept, γ_{00}	1.33 ^{***}	0.21
Female, γ_{01}	0.03	0.15
Hispanic/Latino, γ_{02}	-0.10	0.13
Black/African American, γ_{03}	0.29 [*]	0.13
Asian/Hawaiian/Pacific Islander, γ_{04}	0.21 ⁺	0.11
Semester (Linear), γ_{10}	-0.03	0.03
TTFI, γ_{20}	0.10 [*]	0.04
AFI1, γ_{30}	-0.19 ⁺	0.11
AFI2+, γ_{40}	-0.35 [*]	0.15
TTFI*Female, γ_{21}	-0.02	0.05
AFI1*Female, γ_{31}	0.12	0.16
AFI2+*Female, γ_{41}	0.20	0.22
Random Effects		
Variance Intercept, σ_{u0}^2	0.22 ^{***}	0.04
Covariance of Intercept and TTFI, σ_{u0u1}	0.01	0.01
Variance of TTFI, σ_{u1}^2	0.01 [*]	0.00
Residual Variance, σ_r^2	0.38 ^{***}	0.02

Note. TTFI refers to the number of semesters to/from an individual's first report of first intercourse. AFI1 indicates whether a measurement occasion is 1 semester after an individual's report of first intercourse (1), all other semesters (0). AFI2+ indicates whether a measurement occasion is 2 or more semesters after an individual's report of first intercourse (1), all other semesters (0). β =estimated coefficients, *SE*= standard error.

⁺ $p < .10$

^{*} $p < .05$

^{**} $p < .01$

^{***} $p < .001$.