

# Older Sexual Partners and Adolescent Females' Mental Health

**CONTEXT:** *The physical health detriments associated with adolescent females' having older romantic partners are well documented. However, little is known about the relationship between having an older partner and females' subsequent mental health.*

**METHODS:** *Two waves of data from 1,440 participants in the National Longitudinal Study of Adolescent Health were analyzed. The sample was restricted to females in grades 7–12 who had not had sex at Wave 1 (1994–1995) and reported at least one romantic relationship by Wave 2 (1996). A lagged dependent variable approach with ordinary least-squares regression measured changes in depression and self-esteem associated with sexual and nonsexual relationships with same-age and older partners. Intimate partner violence was tested as a mediator.*

**RESULTS:** *Compared with respondents reporting a nonsexual relationship with a same-age partner, those reporting a nonsexual relationship with an older partner, sex with a same-age partner or sex with an older partner experienced greater increases in depression between surveys; mean predicted depression levels at Wave 2 ranged from 7.7 to 9.0 across these groups (possible range, 0–27). Intimate partner violence explained one-third of the difference between those who had had sex and those who had not had sex with same-age partners. Fewer associations were found for self-esteem, and differences between groups were small.*

**CONCLUSIONS:** *Health correlates of adolescent sexual behavior go beyond physical health outcomes. Future research should identify mechanisms through which relationships, especially those with older partners, are associated with declines in mental health.*

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In 1995, a U.S. study conducted by Landry and Forrest<sup>1</sup> on the older partners of adolescent mothers generated a spate of media coverage calling for policy and legal reform. The report, cited in more than 200 academic articles, documented that two-thirds of fathers of babies born to mothers aged 15–19 were at least 20 years old. Moreover, reports that the age at first sex had dropped steadily and the teenage pregnancy rate had increased from 1982 to 1995<sup>2</sup> contributed to growing concerns about a welfare system stretched thin by an increase in nonmarital childbearing. Taken together, these figures were used to advance claims that stringent statutory rape laws would protect adolescent females from predatory older males, and that changes to welfare policy would increase parental accountability. For example, a 1995 *New Orleans Times-Picayune* article quoted Senator Joseph Lieberman as saying: “The vision that we may have of two reckless teen-agers casually creating a baby is not the norm. It’s typically older men involved with teen-aged girls in a setting that is often abusive, exploitive or overpowering.”<sup>3</sup> (p. A1)

While these comments may have reflected public concern at the time, they did not accurately reflect adolescents’ partnerships. According to one study, in the early 1990s, only 18% of adolescent females reported ever having had sex with a partner three or more years their senior during middle or high school.<sup>4</sup> Other research indicated that

two-thirds of sexually active 15–17-year-olds had a current partner within two years of their age.<sup>5</sup> When age differences existed, however, females were more often the younger partner. Yet this is also true of adult partnerships; on average, women marry men who are about two years older than themselves.<sup>6</sup>

Several studies have illustrated the importance of age differentials in adolescent relationships, particularly at first sex.<sup>7,8</sup> Using data from the National Longitudinal Study of Adolescent Health (Add Health), researchers have documented the prevalence and correlates of age-disparate romantic or sexual relationships,<sup>7,9–11</sup> and the associations between such relationships and young women’s reduced odds of contraceptive use,<sup>12</sup> increased risk of pregnancy<sup>13</sup> and STDs,<sup>13,14</sup> and greater likelihood of engaging in problem behaviors such as drug use and delinquency.<sup>9</sup>

To our knowledge, no prior study has examined the mental health correlates of age-disparate sexual relationships. Other studies have found that sexually active adolescent females have a greater risk of stigma<sup>15</sup> and depressive symptoms<sup>16</sup> than do sexually active adolescent males; however, these studies did not consider partner age differences. The current analysis extends existing research to consider mental health outcomes associated with adolescent sexual relationships, with particular attention to age-disparate sexual relationships.

Given the physical, social and psychological development that occurs during the adolescent years, it is especially important to understand how sexual relationships are associated with psychological well-being. While physical maturation may define entry into adolescence and is largely biologically determined (average age at menarche is 12<sup>17</sup>), legal adult status (age 18) is an important marker for exiting adolescence, particularly as it relates to statutory rape laws. In some states, 18-year-olds are in violation of the law if their teenage partner is below this age threshold. Therefore, an age difference of one or two years during adolescence can be substantially more consequential than the same age difference in adulthood.

Statutory rape laws do not exist simply to frustrate teenagers and their slightly older partners. Female adolescents with older partners are more likely than their peers with same-age partners to report forced or unwanted sex, and are less likely than others to use contraceptives, although neither is the norm for most females with older partners.<sup>5</sup> Still, their elevated risk of forced and unprotected sex leaves them at heightened risk of pregnancy.<sup>5</sup> While the increased likelihood of physical health detriments among females who have sex with older partners has been documented, our extension of this research to mental health outcomes is an important step toward more fully understanding the nature of females' early sexual experiences.

We offer this analysis in the current context of evidence of persistent cultural conditions that allow, and perhaps even foster, power differentials in sexual encounters between males and females.<sup>18</sup> We assessed mental health before and after first sex, hence capturing changes in mental health, for those with same-age and older partners. While we measured these changes over a relatively short time span, they are important, as negative experiences at first sex may influence long-term mental health and subsequent relationship and sexual outcomes.<sup>19</sup>

## FRAMEWORK

In adolescence, status among peers is largely dependent on age.<sup>20</sup> In high school, for example, status and prestige in academics, extracurricular activities and social events draws a metaphorical line between underclassmen and upperclassmen.<sup>21</sup> The association with romantic partners who are older may thus be a status marker for young adolescents among their peers. Indeed, some evidence suggests adolescent females are well matched with older partners. Studies find that females are relationally competent at younger ages than males, because females' same-sex friendships are more likely than those of males to be intimate dyadic relationships, much like romantic relationships.<sup>21,22</sup> Furthermore, females mature physically about two years earlier than males.<sup>23</sup> However, significant evidence suggests that age differences contribute to status asymmetry within romantic relationships. Older partners, especially when age differences are large, often possess more life experience, have greater financial resources and are physically larger.<sup>5</sup> In these cases, the younger partner, typically female, may

have less power to resist the initiation of sexual activities. Koon-Magnin and colleagues,<sup>24</sup> for example, found that females aged 16 or younger with male partners who were not in school and were three or more years their senior were more likely than other females to engage in sexual intercourse. Younger teenagers in age-disparate relationships may also be more likely than those with same-age partners to engage in intercourse while under the influence of drugs or alcohol, and may not feel efficacious enough to engage in safer sex practices, such as contraceptive use.<sup>5,7,25–27</sup>

In addition to being vulnerable to negative reproductive health consequences stemming from unsafe sex practices, adolescents in age-disparate relationships may experience relatively large declines in mental health after initiating sexual intercourse. Past research has suggested that intercourse with older partners, particularly among younger adolescents, is more likely than intercourse with same-age partners to be nonconsensual or unwanted.<sup>8,28,29</sup> If adolescents are ambivalent about or opposed to the initiation of sexual activity, they may experience a range of negative emotions—*anxiety, depression or difficulty connecting with others.*<sup>30</sup> These findings suggest that the stress associated with having an older sex partner—not simply having an older romantic partner—may be uniquely associated with decreased emotional well-being among adolescent females. Power differentials associated with gender,<sup>31,32</sup> coupled with the reality that younger partners are disproportionately female, may lead to females' heightened risk for negative mental health outcomes. Therefore, a status asymmetry hypothesis suggests that female adolescents who report first sex with an older partner will be more vulnerable to negative mental health consequences than females with same-age partners, but also more vulnerable than females who have nonsexual romantic relationships, whether their partners are same-age or older.

Severe relationship conflict may indicate power differentials in adolescent relationships. Studies have found that rates of intimate partner violence are positively associated with sexual activity,<sup>33</sup> indicating that adolescent sexual relationships are more likely than nonsexual romantic relationships to include violence.<sup>34</sup> Moreover, intimate partner violence may be more prevalent in age-disparate partnerships.<sup>35,36</sup> For example, relationship conflict may occur if an older partner selectively chooses a younger adolescent to attain greater power and control in their relationship. Thus, younger partners may experience declines in mental health if, for example, their partner is controlling over their time and relationships with peers.<sup>37</sup> In this way, having an older partner may introduce physical or emotional abuse into a relationship, and this experience of intimate partner violence may mediate the direct relationship between age-disparate relationships and negative mental health outcomes. Therefore, an intimate partner violence mediation hypothesis suggests that such violence will mediate the relationship between being in a sexual relationship—especially one with an older partner—and

decreased levels of mental health. Past research, predominantly cross-sectional, has been inadequate in distinguishing between these possibilities.<sup>27</sup> Studies that utilize longitudinal data often focus exclusively on reproductive health consequences, such as pregnancy or STDs, rather than mental health outcomes,<sup>4,9,13</sup> or fail to consider age-disparate relationships.<sup>38</sup>

## METHODS

### Sample

Our analyses draw data from Add Health, a nationally representative longitudinal study of more than 20,000 adolescents in grades 7–12, which began during the 1994–1995 school year (Wave 1). Interviews were conducted in person using audio computer-assisted self-interview protocols for sensitive subject matter, including sexual history. Follow-up interviews were conducted in 1996 (Wave 2). Our analytic sample includes 1,440 female participants who had never had sex at the Wave 1 interview, had valid information on sexual and romantic partnerships, had had at least one heterosexual relationship by Wave 2 and for whom sample weights were available.

### Measures

•**Dependent variables.** We include two measures of mental health. The first, depression, was measured by asking respondents nine questions from the Center for Epidemiologic Studies Depression Scale<sup>39</sup> at both survey waves. Questions asked how frequently over the past week respondents had felt depressed, not been able to shake the blues, felt sad, felt disliked, felt just as good as others (reverse-coded), felt that everything was an effort, enjoyed life (reverse-coded), been bothered by things that did not normally bother them and had trouble keeping their mind on what they were doing. Response options ranged from 0 (rarely or never) to 3 (most or all of the time), yielding a score range of 0–27; mean depression scores were calculated. While our measure is not a clinical diagnosis of depression, but rather a measure of depressive affect, we refer to this outcome as depression for brevity.

Our second outcome, self-esteem, included four items: the extent to which respondents felt they had a lot to be proud of, felt they were doing everything just about right, liked themselves just the way they were and felt they had a lot of good qualities. Responses ranged from 1 (strongly disagree) to 5 (strongly agree); mean self-esteem scores were calculated.

•**Key independent variables.** We determined whether respondents had ever had sex with the following question: “Have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his penis into a female’s vagina.” Respondents were asked this question at both waves. Our analytic sample was restricted to those who answered no to this question at Wave 1 so that we could assess mental health prior to the initiation of sexual activity and mental health changes related to the transition to first sex with same-age and different-age partners.

We included all romantic, “liked” and sexual relationships with a male partner at Wave 2 as possible contexts for first sex. Respondents were asked to report up to three “special romantic relationships” that had occurred since Wave 1. They were also asked if they had ever held hands with someone, kissed someone, or told someone they liked or loved him. Those who indicated having done all three with the same person were deemed to have had a “liked” relationship and were asked the same set of questions as those with romantic relationships. We assessed age differences by using respondents’ reports of their own age and their partner’s age at the start of the relationship. In cases where respondents reported multiple partners since the baseline interview, we used information from their first sexual relationship (where applicable) or most recent relationship for nonsexual partners.

Because it is relatively uncommon for female adolescents to be much older than their partners,<sup>40</sup> we considered two groups: females who were more than one year younger than their partners, and those who were the same age (within 12 months) as their partner or older than him. In supplemental analyses, we tested a more stringent conceptualization of age-disparate relationships and examined data on females who were more than two years younger than their partner. Results of these analyses were similar to those presented here, although significant differences were slightly larger. Therefore, our findings should be considered somewhat conservative. To test our hypotheses, we created four dummy variables of relationship type: same-age nonsexual partner, same-age sexual partner, older nonsexual partner and older sexual partner.

•**Mediator variable.** We assessed whether associations between changes in mental health and the four relationship types were mediated by intimate partner violence. We expected some mediation, but consistent with our status asymmetry hypothesis, we reasoned that intimate partner violence would be more likely in age-disparate relationships because the older partner holds more power and exercises it in disagreements. Being a victim of intimate partner violence, in turn, is likely to be associated with decreases in mental health (among other negative outcomes). Our intimate partner violence measure was a scale that assessed whether the male partner had ever insulted the respondent, called her names or disrespected her in front of others; sworn at her; threatened her with violence; pushed or shoved her; or thrown something at her that could cause injury. The scale ranged from 0 to 5; higher scores indicate a greater number of abusive or negative behaviors.

•**Controls.** To account for other variables that may be associated with changes in mental health, relationship type and sexual activity, we included numerous control measures (drawn from Wave 1) in our models, including age (categorized as 14 or younger, 15–16, or 17 or older), race and ethnicity (white, black, Hispanic, Asian or other) and family structure (living with two biological or adoptive parents, a single such parent, a stepparent and a biological or adoptive parent, or other). We also included a measure

of parent's education (less than high school, high school completion or GED, some college or college degree); when both parents' educational attainment was reported, we used the greater of the two values. Finally, our measure of annual household income was based on parents' reports during Wave 1 interviews; the natural log of this measure was used in regression analyses. We used multiple imputation in STATA, combined with the *svy* suite of commands, to account for cases missing data on family income (21% of our sample) in our main analyses.

### Analysis

We first calculated weighted descriptive statistics for our sample of adolescent females. We then estimated a series of ordinary least-squares regression models assessing correlates of depression and self-esteem, using the STATA *svy* command to adjust for the stratified sampling design, while controlling for prior mental health. Thus, our outcome variables, measured at Wave 2, can be interpreted as changes in levels of depression and self-esteem. This lagged endogenous variable approach helps to control for stable individual-level characteristics that might affect sexual relationships, age-disparate partnerships and changes in mental health, and is an appropriate technique for longitudinal data collected at two time periods.<sup>41</sup> As a robustness check, we tested mean differences across relationship types using an analysis of variance model and post-hoc tests of differences between categories to examine whether preexisting differences in mental health were associated with our key relationships.

Our analyses tested the hypotheses as follows. We first determined the direct association of same-age and age-disparate relationships with changes in mental health. Then, adopting the logic of Hayes and Preacher,<sup>42</sup> we used the SPSS *mediate* macro to determine whether the inclusion of intimate partner violence significantly reduced any observed direct association.<sup>43</sup> We tested the associations between the multicategorical variable and intimate partner violence, and between intimate partner violence and subsequent mental health outcomes, net of other independent and control variables. Because we found evidence that the assumption of homogeneity of regression was violated,<sup>42</sup> we constructed four additional mediational models, each of which compared two categories of the relationship variable. After obtaining the direct and indirect associations, we used STATA and SPSS to formally test for mediation using the Sobel test.<sup>44</sup> Employing the results from the multivariate models, we then generated predicted levels of Wave 2 depression and self-esteem for each relationship category while holding all other variables at their mean values or modal categories.

## RESULTS

### Sample Characteristics

Forty-seven percent of respondents were 14 or younger at Wave 1, 38% were aged 15–16 and 15% were 17 or older (Table 1). Some 73% were white, 13% Hispanic, 9% black, and 5% Asian or of some other background. Six in 10

**TABLE 1. Selected characteristics of females in grades 7–12 in 1994–1995, and at follow-up in 1996, National Longitudinal Study of Adolescent Health**

Characteristic	% or mean (N=1,440)
<b>Age</b>	
≤14	47
15–16	38
≥17	15
<b>Race/ethnicity</b>	
White	73
Black	9
Hispanic	13
Asian	3
Other	2
<b>Family structure</b>	
Two biological/adoptive parents	59
One biological/adoptive parent	25
Stepparent and biological/adoptive parent	12
Other	4
<b>Parent's education</b>	
<high school	8
High school/GED	31
Some college	29
College	32
<b>Mean household income (range, \$0–425,000)</b>	45,213 (1,912)
<b>Mean depression score</b>	
Wave 1 (range, 0–20)	7.99 (0.11)
Wave 2 (range, 0–22)	8.36 (0.11)
<b>Mean self-esteem score</b>	
Wave 1 (range, 1–5)	3.96 (0.02)
Wave 2 (range, 1.5–5)	4.04 (0.02)
<b>Relationship type at Wave 2</b>	
Same-age nonsexual partner	42
Older nonsexual partner	13
Same-age sexual partner	28
Older sexual partner	17
<b>Mean intimate partner violence score at Wave 2 (range, 0–5)</b>	0.31 (0.01)

Notes: All figures are weighted percentages unless indicated otherwise; numbers in parentheses are standard errors. Except where indicated, measures are drawn from Wave 1 surveys.

females lived with two biological or adoptive parents, one-third had at least one parent who had graduated from college and the mean household income was about \$45,000 per year (in 1993 dollars).

Females' self-reported depression increased from a mean score of 7.99 at Wave 1 to 8.36 at Wave 2. Self-esteem scores remained stable between waves, at 3.96 and 4.04, respectively. By the second interview, 42% of respondents had had a same-age partner and had not had sexual intercourse, while 13% had had an older partner with whom they had not had sex. Twenty-eight percent of females had had sex with a same-age partner, and 17% had been sexually active with an older partner. The mean level of intimate partner violence was very low—0.31 on a scale of 0–5.

### Regression Findings

•**Depression.** As expected, depression at Wave 1 was strongly correlated with depression at Wave 2 (coefficient, 0.4; Table 2, model 1). Among respondents in same-age relationships, those who had had sex reported a greater

**TABLE 2. Coefficients (and standard errors) from ordinary least-squares regression analyses assessing associations between Wave 2 depression and self-esteem scores and selected characteristics**

Characteristic	Wave 2 depression		Wave 2 self-esteem	
	Model 1	Model 2	Model 3	Model 4
<b>Wave 1 depression</b>	0.40 (0.04)***	0.38 (0.04)***	na	na
<b>Wave 1 self-esteem</b>	na	na	0.51 (0.03)***	0.50 (0.03)***
<b>Relationship type</b>				
Same-age nonsexual partner (ref)	na	na	na	na
Older nonsexual partner	0.33 (0.29)*,†	0.33 (0.29)†	-0.06 (0.05)	-0.06 (0.05)
Same-age sexual partner	0.70 (0.27)*,†	0.54 (0.28)†	-0.05 (0.04)	-0.04 (0.04)†
Older sexual partner	1.36 (0.28)***	1.28 (0.28)***	-0.17 (0.06)**	-0.17 (0.06)*
<b>Intimate partner violence</b>	na	0.38 (0.15)*	na	-0.03 (0.03)
<b>Age</b>				
≤14	0.26 (0.21)	0.21 (0.21)	-0.07 (0.04)	-0.06 (0.04)
15–16 (ref)	na	na	na	na
≥17	-0.67 (0.28)*	-0.66 (0.27)*	0.02 (0.04)	0.02 (0.04)
<b>Race/ethnicity</b>				
White (ref)	na	na	na	na
Black	0.81 (0.31)**	0.82 (0.31)**	0.14 (0.05)**	0.14 (0.05)**
Hispanic	-0.15 (0.30)	-0.14 (0.30)	-0.04 (0.07)	-0.04 (0.07)
Asian	-0.11 (0.50)	-0.10 (0.49)	-0.09 (0.10)	-0.09 (0.10)
Other	0.07 (1.01)	0.02 (0.96)	-0.04 (0.16)	-0.03 (0.16)
<b>Family structure</b>				
Two biological/adoptive parents (ref)	na	na	na	na
One biological/adoptive parent	-0.48 (0.30)	-0.46 (0.30)	-0.04 (0.05)	-0.04 (0.05)
Stepparent and biological/adoptive parent	0.08 (0.26)	0.12 (0.26)	-0.00 (0.06)	-0.00 (0.06)
Other	0.28 (0.59)	0.28 (0.58)	-0.12 (0.09)	-0.12 (0.09)
<b>Parent's education</b>				
<high school	0.91 (0.68)	0.94 (0.68)	-0.12 (0.08)	-0.12 (0.08)
High school/GED (ref)	na	na	na	na
Some college	0.03 (0.24)	0.05 (0.24)	-0.11 (0.05)*	-0.11 (0.05)*
College	0.34 (0.27)	0.40 (0.27)	-0.06 (0.05)	-0.06 (0.05)
<b>Logged household income</b>	0.04 (0.18)	0.04 (0.18)	0.02 (0.03)	0.02 (0.03)
<i>Constant</i>	5.13 (0.77)***	4.98 (0.76)***	2.07 (0.16)***	2.10 (0.17)***

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . †In post-hoc adjusted Wald test, differs from coefficient for females who had had sex with an older partner at  $p < .05$ . Notes: Measures for which no reference group is shown are continuous. na=not applicable. ref=reference group.

increase in depression at follow-up than those who had not (0.7). Moreover, compared with females in nonsexual same-age relationships, those in age-disparate relationships reported a greater increase in depression whether they had had sex or not (1.4 and 0.3, respectively). Using post-hoc tests, we found that females who had had sex with older partners reported the greatest increase in depression among all females in the analysis. Changes in depression were also associated with age and race or ethnicity. Compared with 15–16-year-olds, females who were 17 or older experienced a greater decrease in depression (-0.7), and blacks experienced a greater increase than whites (0.8).

Intimate partner violence was associated with an increase in depression (coefficient, 0.4; model 2). Furthermore, in the model including this measure, two coefficients for relationship types lost significance, and one was reduced, suggesting initial support for the intimate partner violence mediation hypothesis. The associations of changes in depression with age and with race or ethnicity were virtually unchanged from model 1.

Our mediation tests using two relationship categories at a time showed that intimate partner violence had an indirect association with changes in depression at Wave 2 in the model comparing females who had had sex and those

who had not had sex with a same-age partner (coefficient, 0.2—Table 3). Such violence accounted for nearly one-third of the total association shown in model 1 in Table 2 (0.22/0.70=0.31). We did not find any indirect associations for sex with an older partner relative to any of the other relationship categories. Thus, our intimate partner violence mediation hypothesis is only partially supported.

•**Self-esteem.** Reported levels of self-esteem at the two survey waves were strongly correlated (coefficient, 0.5—model 3 in Table 2). After we controlled for this lagged dependent variable, no difference in changes in self-esteem was found between females who had had a sexual relationship and those who had had a nonsexual relationship with a same-age partner. Post-hoc tests revealed no difference in self-esteem change between those who had had sex with a same-age partner and those who had had sex with an older partner. This null finding is inconsistent with the status asymmetry hypothesis. Females who had had sex with an older partner reported a greater decrease in self-esteem at Wave 2 than those who were in a nonsexual relationship with a same-age partner (-0.2); this was expected, given that these two groups are, respectively, the most and the least at risk for negative mental health outcomes.<sup>9,15,16</sup> Finally, compared with whites, blacks reported a greater

**TABLE 3. Coefficients from models assessing intimate partner violence as a potential mediator of the association between relationship type and depression at Wave 2**

Model	Direct association between relationship type and violence	Direct association between violence and depression	Indirect association between relationship type and depression via violence <sup>†</sup>	Direct association between relationship type and depression
Same-age sexual partner vs. same-age nonsexual partner	0.45***	0.48**	0.22*	0.51
Older sexual partner vs. same-age nonsexual partner	0.19**	0.23	0.04	1.24***
Older sexual partner vs. same-age sexual partner	-0.24	0.38	-0.09	0.68*
Older sexual partner vs. older nonsexual partner	0.15*	0.34	0.05	0.87*

\*p<.05. \*\*p<.01. \*\*\*p<.001. †Calculated by multiplying the preceding direct associations. Notes: Models controlled for age, race or ethnicity, family structure, parents' education, family income and prior depression. Significance indicators refer to results of Sobel tests.

increase in self-esteem (0.1), and compared with females whose parents had no more than a high school education, those whose parents had attended some college reported a greater decrease in self-esteem (-0.1).

We observed no direct association between intimate partner violence and changes in self-esteem (model 4). Given this finding, and the lack of support for the status asymmetry hypothesis, we did not proceed with formal mediation tests. However, compared with females who had not had sex with a same-age partner, those who had had sex with an older partner still experienced a greater decrease in self-esteem (coefficient, -0.2). In post-hoc tests, the inclusion of intimate partner violence revealed a difference in reported self-esteem between those who had had sex with a same-age partner and those who had had sex with an older partner. However, further analysis indicated that a difference in the mean level of intimate partner violence helps explain these findings. The racial and parental education associations found in model 3 remained significant in model 4.

### Predicted Mental Health Outcomes

Using coefficients from associations with depression (from model 2) and self-esteem (from model 4), we calculated that females who had had sex with an older partner had a higher level of depression at Wave 2 (9.00) than did those who had had sex with a same-age partner (8.27) or who had had a nonsexual older or same-age partner (8.05 and 7.73, respectively—Table 4). Notably, however, differences in predicted depression scores were relatively small.

We found fewer differences in predicted levels of self-esteem across relationship types. Females who had had older sexual partners had a lower mean level of self-esteem (4.01) than did those who had had same-age sexual or nonsexual partners (4.14 and 4.18, respectively). However, the differences were quite small; furthermore, as shown in Table 2, the self-esteem decrease associated with having had an older sexual partner rather than a same-age one was not statistically significant until the intimate partner violence measure was included. Among females who had had same-age partners, self-esteem changes did not differ between those who had had sex and those who had not.

As a test of robustness, we examined whether the associations between relationship type and changes in depression or self-esteem were largely driven by preexisting differences in mental health. If females who have sex with older part-

ners have poorer mental health before first sex, it may be difficult to observe decreases in mental health below a minimum threshold. At the same time, small decreases in mental health when it is already quite low may be particularly harmful, launching females into a more serious depressive disorder. Although we controlled for prior mental health in our models, understanding differences in adolescents' baseline measures of mental health could provide clarity about the unique risk of having sex with an older partner.

Differences in Wave 1 mental health scores among the four relationship types were small, but in some cases were statistically significant (not shown). Females who experienced first sex during our analytic period had a higher level of baseline depression than did those who did not have sex in this period, though differences were small and aggregate depression scores left sufficient room on the scale to move up without the threat of "ceiling" effects. We found no preexisting differences between females who had had sex with an older partner and those who had had sex with a same-age partner.

Finally, females reporting nonsexual relationships with same-age partners had a significantly higher level of Wave 1 self-esteem than did females in the other three groups, though these differences were small. However, no difference was found in Wave 1 self-esteem among the other groups. As we saw for depression, there was sufficient room for self-esteem to move up or down without hitting a ceiling or floor.

### DISCUSSION

In this study, we tested two hypotheses regarding associations between age-disparate relationships and mental health. Our status asymmetry hypothesis predicts that adolescent females with older sexual partners will register

**TABLE 4. Predicted depression and self-esteem scores, by relationship type**

Relationship type	Depression	Self-esteem
Older sexual partner	9.00	4.01
Same-age sexual partner	8.27***	4.14*
Older nonsexual partner	8.05*	4.12
Same-age nonsexual partner	7.73*	4.18*

\*Different from score for older sexual partner at p<.05. \*\*Different from score for same-age nonsexual partner at p<.05. Notes: Scores were predicted using coefficients from models 2 and 4 in Table 2. Depression scores ranged from 0 to 22, and self-esteem scores from 1.5 to 5.

greater declines in mental health than females with same-age sexual partners or those with older or same-age romantic (but not sexual) partners. We found support for this hypothesis, though with some nuance across our two dependent variables.

Compared with changes in self-esteem, changes in depression were more strongly associated with age differences and the sexual nature of relationships. Among females who had had sex with their partners, those with an older partner experienced a greater increase in depression, and among females who had had a same-age or older partner, those who had had sex had a greater increase in depression than those who were not sexually active. Therefore, it appears that among all adolescent females in our sample, having sex was associated with greater increases in depression. Furthermore, females who had had sex with an older partner were predicted to have a lower level of self-esteem than were those who had had sex with a same-age partner, though this finding was not robust across regression models.

The intimate partner violence mediation hypothesis suggests that such violence will mediate associations between sexual relationships, especially those with older partners, and changes in mental health. Intimate partner violence was significantly related to changes in depression, and it mediated the contrast between sexual and nonsexual same-age relationships; however, it did not explain the greater increase in depression reported by females who had had sex with an older partner. Moreover, such violence does not explain differences in self-esteem. Therefore, we consider the intimate partner violence mediation hypothesis to be partially supported for depression and not supported for self-esteem. This leaves open the question of what other mechanisms may be responsible for links between age-disparate sexual relationships and the mental health of adolescent females. Perhaps the lower probability of contraceptive use<sup>5</sup> or the higher probability of sex under the influence of alcohol<sup>25–27</sup>—each of which is associated with having an older partner—leads to more worry or regret among females, which is plausibly linked to greater depression.

### Limitations

Our study has a number of limitations. First, to isolate the temporal ordering of sex and mental health, we focused exclusively on first sex. As a novel experience, first sex may be particularly salient for mental health, yet later sexual experiences and their partnership context may also be correlated with mental health. In addition, we did not measure whether associations between first sex and mental health dissipate over time. And while we attempted to establish a clear temporal ordering between sexual activity with an older partner and change in our dependent variables between interview waves, we cannot rule out the possibility that our key associations were influenced by unmeasured variables.<sup>45</sup>

Our study is further limited by consideration of only penile-vaginal intercourse. Add Health does not include information on experiences of oral sex. Given that oral sex

is known to be associated with more severe power differentials than penile-vaginal sex,<sup>18</sup> an examination of the mental health correlates of age-disparate relationships with oral sex could be particularly telling.

Finally, the data on which this study is based are 20 years old. The culture of adolescent relationships may have changed considerably over this time, as the Internet and social networking have offered new contexts for relationship development. Yet many of the key dimensions in our study have changed little in the last 20 years; for example, age at first sex has remained nearly the same.<sup>46</sup> However, depression levels have increased for adolescent females over the past two decades.<sup>47</sup> Therefore, if our findings of a modest increase in depression associated with sex with an older partner hold for contemporary cohorts, today's adolescent females are starting from a higher base level of depressive symptoms, and even small increases could be more consequential. Future research should attempt to replicate our findings with more recent data.

### Conclusions

Taken together, our findings suggest a need to more closely examine the context of age-disparate sexual relationships. Alternative measures of status asymmetry are needed to further probe the mental health implications of such relationships for adolescent females. For example, differences in perceived popularity between sexual partners may be a better proxy for status asymmetry. Moreover, data that include relationship information from both partners may provide more reliable and nuanced information about disparities in power and control based on age, gender and other relationship contexts.

Future research should also explore the mental health correlates of having sex in different types of relationships for adolescent males. While there is good reason to focus on the mental health of adolescent females, given persistent sexual double standards that suggest disparate emotional costs of and rewards for having sex,<sup>15,16,32</sup> other evidence indicates that adolescent males, too, may struggle in romantic and sexual relationships.<sup>22</sup>

Finally, our results suggest that focusing exclusively on physical and reproductive outcomes, particularly with respect to age and context of first sex, underestimates the potentially harmful outcomes related to other dimensions of health and well-being that may be associated with adolescent females' having age-disparate partnerships. Our findings point to the need to include discussions of status asymmetry and intimate partner violence in sex education curricula. This study also suggests that researchers should consider, and educators should incorporate, a broad range of potential health outcomes—physical, mental, emotional and reproductive—in their work on adolescent sexual health.

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