

Increased Body Mass Index Associated with Increased Risky Sexual Behaviors



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ABSTRACT

Study Objective: The increasing prevalence of adolescent obesity has led to consideration of the potential effect of obesity on risky sexual behaviors. In the current study we examined whether body mass index (BMI) was related to age at sexual debut, type of sexual behavior, partner number, and condom use in a population of adolescent women at high risk for obesity and risky sexual behaviors.

Design, Setting, and Participants: Cross-sectional examination of 860 sexually active, predominantly minority, adolescent women who received medical care at an urban health center from 2007 through 2013.

Intervention and Main Outcome Measures: Self-reported age at sexual debut, types of sexual intercourse, number of partners and condom use was compared with clinically assessed BMI.

Results: BMI was positively associated with number of sexual partners ($P = .001$) and history of attempted anal intercourse ($P = .002$). An inverse association was observed with age at first anal intercourse ($P = .040$).

Conclusion: In this sample of adolescent women, increased BMI was associated with riskier sexual practices at a younger age. Results of this study suggest that overweight and obese adolescents are a vulnerable population who might need targeted sexual health counseling.

Key Words: Adolescence, Overweight, Obese, Anal sex, Coitarche, Risky sexual behavior

Introduction

Early sexual debut, defined by Zimmer-Gembeck and Helfand¹ and Epstein et al,² as before the age of 15 years has been associated with riskier sexual practices, such as increased number of lifetime partners, intercourse without a condom, and anal intercourse.² These riskier practices result in increased teen pregnancy and sexually transmitted infection (STI) acquisition, inclusive of HIV.³ Early sexual debut occurs more commonly in adolescent women who are minorities and in adolescents from disadvantaged socioeconomic backgrounds.² Youth in these groups are also disproportionately affected by the negative consequences of sexual risk-taking.^{4,5}

The question of how adolescent obesity is associated with sexual debut has been met with mixed results. Several studies suggest that adolescent obesity might be associated with younger age at sexual debut because of early acquisition of an adult body habitus which thus leads to important reproductive health consequences.^{3,4} However, other studies have suggested that obesity delays age at sexual debut because obese adolescents are more often subjected

to peer-victimization, inequitable social relationships, and social ostracism compared with their healthy weight counterparts.^{6–8} According to this theory, these experiences lead to lower self-esteem, worsened body image, and less perceived sexual desirability by peers, thereby decreasing opportunities to engage in sexual relationships.⁹

Adolescent obesity has tripled over the past 30 years, with more than one-third of adolescents classified as overweight or obese.¹⁰ This increase has been particularly swift in adolescents who are of minority or socioeconomically disadvantaged backgrounds.¹⁰ It has been suggested, however, that African American and Hispanic adolescent women might not experience the same level of weight-based stigma as in other ethnic communities.^{5,11,12} Therefore, the relationship between body mass index (BMI) and sexual behavior might differ according to race with overweight and obese African American and Hispanic young women having sexual behaviors more aligned with their healthy weight peers.^{13–16} It has also been suggested that the relation between BMI and risky sexual behavior might depend on whether the individual was previously sexually active.^{6,13,14}

Although age at sexual debut traditionally refers to age at first vaginal intercourse, adolescents frequently engage in a variety of sexual practices including oral and anal intercourse, which carry varied risk of STI acquisition.¹⁷ Unprotected heterosexual anal intercourse is associated with 5–20

The authors indicate no conflicts of interest.

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times the risk of HIV acquisition compared with unprotected vaginal intercourse,^{18,19} thus necessitating the consideration of the debut for all types of intercourse in the study of adolescent sexual behaviors.

Few studies on the relation between weight status and risky sexual behaviors have considered age at sexual debut for sexual practices other than vaginal intercourse. Heterosexual anal intercourse, in particular, is an understudied and increasingly common adolescent sexual behavior.^{18,20,21} We sought to test whether BMI was related to age at sexual debut across oral, vaginal, and anal intercourse, number of sexual partners, and condom use. We chose to study a population of urban, predominantly minority adolescent women because these are at highest risk for obesity and risky sexual behaviors. On the basis of previous studies that suggested that these adolescent women might be less stigmatized by increased BMI,^{16,22} we hypothesized that BMI would be positively correlated with: (1) risky sexual behaviors, namely younger age at sexual debut across all types of intercourse; (2) increased numbers of sexual partners; and (3) inconsistent condom use.

Materials and Methods

Participants

Data were analyzed from 860 female participants enrolled between October 1, 2007 and March 1, 2013 in a parent study of human papilloma virus (HPV) infection after vaccination in inner city, minority adolescent women. Inclusion criteria for the parent study were being a female who had previously engaged in vaginal or anal intercourse. Subjects needed to have previously received the quadrivalent HPV vaccine at another facility or, if unvaccinated or incompletely vaccinated, be willing to complete the series of 3 doses of the vaccine. All subjects were recruited from patients who presented to an inner city adolescent health center in an urban metropolis for routine health care. Written informed consent was collected from all participants before enrollment. This study was approved by the institutional review board, with a waiver of parental consent for those younger than the age of 18 years as detailed in the parent study.²³ Subjects in the parent study did not differ significantly from the adolescent health center's general patient population.²³ For subjects who received the HPV vaccine as a part of the study, vaccination was a part of the routine health care they received at the center. They were not counseled specifically on avoiding high-risk sexual behaviors. All subjects, however, as patients of the center received comprehensive reproductive health care that included education on sexual risk reduction by qualified adolescent health providers.

Participants in this study were female and aged 12 to 21 (mean = 17.7 ± 1.4) years. BMI ranged from 15.6 to 55.1 (mean = 26.3 ± 6.2). Fifty percent (434/860) of subjects had a BMI greater than 25 and 22.2% (191/860) of subjects had a BMI greater than 30. Subjects self-identified their racial and/or ethnic group and were allowed to choose more than 1 category. Those who selected more than 1 group were classified as mixed race. Thirty-one percent (259/835) of

participants were black, 21.1% (176/835) of participants were Hispanic, 43.8% (366/835) identified themselves as mixed race, and 4.1% (34/835) reported white or other race. Low socioeconomic status, defined as having qualified for free or reduced lunch within the past year, was reported by 37.7% (320/849) of participants (Table 1).

Design

This study was a secondary cross-sectional analyses using baseline data from an ongoing prospective study of HPV incidence and persistence in women who received quadrivalent HPV vaccine. Enrolled subjects completed self-reported questionnaires that contained questions about demographic characteristics, risk behaviors for HPV acquisition, vaccination schedule at the time of baseline visit, and indicators of psychosocial functioning. An a priori power analysis was conducted for the parent study to ensure adequate power. All baseline data available by the time of this cross-sectional analysis were included. Although the parent study was not powered to examine the associations reported in this study, a post hoc power analysis indicated adequate power (>0.8) to detect the observed associations between BMI and age of sexual debut, and sexual risk behaviors reported herein.

Measures

Height

Height was measured to the nearest 1 mm using a direct reading stadiometer as a part of routine clinical visits and

Table 1
Descriptive Statistics of the Sample

| Parameter | n | % |
|--|-----|------|
| Age (mean = 17.7 ± 1.4), years | | |
| 13 | 1 | 0.1 |
| 14 | 15 | 1.7 |
| 15 | 50 | 5.8 |
| 16 | 101 | 11.7 |
| 17 | 176 | 20.5 |
| 18 | 226 | 26.3 |
| 19 | 261 | 30.3 |
| 20 | 29 | 3.4 |
| 21 | 1 | 0.1 |
| Race/ethnicity | | |
| White | 8 | 1 |
| Black | 259 | 31 |
| Hispanic | 176 | 21.1 |
| Mixed | 366 | 43.8 |
| Other | 26 | 3.1 |
| Socioeconomic status | | |
| Qualified for free or reduced lunch, yes | 320 | 37.7 |
| BMI (mean = 26.3 ± 6.2) | | |
| < 18.5 | 26 | 3 |
| 18.5-24.99 | 400 | 46.5 |
| 25-29.99 | 240 | 27.9 |
| 30-34.99 | 108 | 12.6 |
| 35-39.99 | 54 | 6.3 |
| ≥40 | 32 | 3.7 |
| Participation in intercourse | | |
| Vaginal | 860 | 100 |
| Oral given | 669 | 77.8 |
| Oral received | 764 | 88.8 |
| Oral given and received | 654 | 76 |
| Anal attempted | 348 | 40.7 |
| Anal completed | 194 | 22.9 |

BMI, body mass index (calculated as [weight (kg)/height (m²)]).

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