# Prevalence of Early Sexual Debut Among Young Adolescents in Ten States of the United States

Sadandaula Rose Muheriwa-Matemba *, Elizabeth Anson, Holly McGregor, Chen Zhang, Natasha Crooks, Natalie M. LeBlanc

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*Article*

# Prevalence of Early Sexual Debut Among Young Adolescents in Ten States of the United States

**Sadandaula R. Muheriwa-Matemba [1,*], Elizabeth Anson [2], Holly A. McGregor [2], Chen Zhang [2], Natasha Crooks [1] and Natalie M. LeBlanc [2]**

[1] School of Nursing, University of Illinois Chicago, 845 S Damen, Chicago, IL 60612, USA

[2] School of Nursing, University of Rochester Medical Center, 255 Crittenden Blvd, Rochester, NY, 14642, USA; elizabeth_anson@urmc.rochester.edu; holly_mcgregor@urmc.rochester.edu; chen_zhang@urmc.rochester.edu; ncrooks@uic.edu; natalie_leblanc@urmc.rochester.edu

* Correspondence: smuheriw@uic.edu

**Abstract:** The young adolescents' sexual behaviors are under-investigated. In this quantitative descriptive study, we examined the 2019 Middle School Youth Risk Behavior Survey data of 66,366 young adolescents ages 10-14 from 10 states to determine the prevalence of early sexual debut among young adolescents. Complex sampling design was used to produce descriptive statistics and cross-tabulations to describe young adolescents' sexual behaviors. Early sexual debut was reported at nearly 8%, and 4% of those reporting age of first sex, had their first sexual intercourse before 13 years. Compared to the Whites, Black/African Americans (13.2% vs 5.1%, OR=4.51, 95% CI: 2.78-7.31) and Hispanic young adolescents (8.3 % vs 5.1 %, OR=1.44, 95% CI=1.13-1,84) were more likely to report having early sexual intercourse. Males were more likely to report having multiple sexual partners than females (48.1% vs 36.5%, OR = 1.68, 95% CI = 1.22-2.29) and were more likely to report using condoms during the last sex compared to their female counterparts (59.7% vs 50.8%, OR = 1.43, 95% CI = 1.06-1.94). This study suggests the need for more research on young adolescents' sexual behaviors and develop sexual health interventions that target preadolescence.

**Keywords:** early sexual debut; prevalence; young adolescents; United States

## 1. Introduction

Early sexual debut, which refers to having first sexual intercourse at 14 years old and younger, has adverse sexual and reproductive health implications on adolescent health [1,2]. Early sexual activity increases the risk of multiple sexual partners, older partners, unprotected sex, sex under the influence of substances, and sexual coercion among adolescents of all genders [3]. All these factors predispose young adolescents to early pregnancy and sexually transmitted infections (STIs), including HIV infection and human papillomavirus (HPV) [4]. Currently, half of the 20 million new STIs reported in the United States (US) annually are among people aged 15-24 years [5]. Besides, 0.2% of new STIs occur among preadolescents younger than 13 years old, and 21% of new HIV infections occur among young people 13-24 years old [6]. About 13 million HPV infections occur among Americans every year, and many cases occur among young people in their late teens or early 20s, and beginning sexual intercourse early increases the chances of developing HPV [7]. Additionally, over 4000 adolescent girls, 10-14 years old, become pregnant in the US every year [8]. Among girls 10-14 years old, their birth rate is estimated at 0.2 per 1000 [8,9], while their abortion rate is estimated at 0.4 per 1,000 [10]. Racial disparities in birth rates for young adolescents also exist as Hispanic and Black girls have higher rates (3.0 per 10,000 and 4.0 per 10,000, respectively) than White girls (1.0 per 10,000). Combined, these rates suggest that high-risk sexual behaviors may start between the ages of 10-14 years of age or way before. Therefore, more studies are needed to explore the sexual behaviors of young adolescents between the ages of 10-14 years old.

Studies that explore the sexual behaviors of young adolescents, those who are 14 years old and younger, are scarce [11–14]. Instead, older adolescents, young adults, and adults have been used to

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inform the understanding of sexual behaviors and risks for early pregnancies, STIs, and HIV among young adolescents. [avazos-Rehg,Krauss[15] analyzed the High School Youth Risk Behavior Survey (YRBS) data from 1999-2007 of 9th to -12th graders aged 12-17 to determine gender and racial/ethnic differences. Results showed that Black/African-American males experienced sexual debut earlier than all other groups, and Asian males and females experienced sexual debut later than all groups. Lindberg, Maddow-Zimet and Marcell [16] also examined the high school YRBS of 2011, 2013, and 2015 and the National Survey for Family Growth data of 2006-2015 to determine the prevalence of sexual intercourse before the age of 13 years among male adolescents. In this high school sample, results revealed a national prevalence of sexual debut before age 13 of 7.6%, ranging widely among states (5% to 25%). Sexual behavior among young adolescents in these studies was mostly based on research involving the retrospective recall of high school adolescents and adults, and such recollections may be subject to recall bias [17] Excluding young adolescents from research studies and epidemiological analyses results in missed opportunities for early interventions to prevent adverse sexual health outcomes among young adolescents [18,19].

To our knowledge, this is the first study that examines sexual behaviors reported in the middle school YRBS. Researchers often avoid investigating the sexual behaviors of young adolescents in part because of the cultural sensitivity of the topic, which makes it difficult to study young adolescents systematically [11,12]. Additionally, ethical considerations with getting approval from institutional review boards pose challenges to studying this population [13,14]. Given that the onset of puberty occurs on average at age 10, and the onset of sexual maturation continues to fall to as low as 7 and 8 years, understanding how common it is for young adolescents to engage in sexual behaviors can guide when to start discussing sexual health with pre-adolescents [13,14]. Recent research also shows that the age of menarche is positively correlated with the age of first sexual intercourse [20]. Therefore, this knowledge is essential to inform the development of strategies to prevent early sexual activity and its negative consequences, such as early pregnancies and STIs, HIV, and HPV infections. In this study, we examined the prevalence of early sexual debut among young adolescents aged 10-14 years in the 2019 Middle School YRBS and described their sexual behaviors. The results are likely to inform future research and interventions, including supportive policies and programs, for young adolescents' healthy sexual development.

## 2. Materials and Methods

This study was a secondary data analysis of the 2019 Middle School YRBS from the Centers for Disease Control and Prevention (CDC). The data were downloaded from the CDC's YRBS website [21]. A multi-stage cluster sample design was used at the state level to produce representative samples of public middle school students [22]. Some states did not assess the items related to sexual behavior, and others did not give the CDC permission to include their data in the published dataset. Therefore, we limited our analysis to states that assessed adolescents' sexual behaviors. Appendix A shows that only 10 states assessed the sexual behaviors of interest in 2019 Middle School YRBS. Given our focus on young adolescents' sexual health ages 14 and younger, we further restricted our sample to exclude adolescents ages 15 and older. Students who were 10 or younger were also removed because they were not well represented in the data ($N$=254). Therefore, our analytic sample consisted of data from adolescents ages 11-14 from the 10 states that assessed sexual behaviors. The study was determined to be exempt from our office of subject protection.

### *2.1. Measures*

Our main variables of interest include four items that were used to examine sexual behavior: 1) “Have you ever had sexual intercourse?” 2) "How old were you when you had sexual intercourse for the first time?" 3) "How many people have you had sex with?" 4) "The last time you had sexual intercourse, did you or your partner use a condom? " (see Appendix B). These sexual health behaviors were assessed and reported on by a varying number of states. Of the 10 states included in our sample, one state (Hawaii) was missing "Ever sexual intercourse," and four states were missing the age of first sexual intercourse (North Carolina, North Dakota, Rhode Island, and Vermont). Five states included

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all four sexual health outcomes (Delaware, Kentucky, Maine, Maryland, and New Mexico) (see Appendix A). Sexual health behaviors were analyzed for differences by gender, age, and race.

### *2.2. Analysis*

Data analyses were conducted using IBM SPSS Statistics [23]. Analyses of the data from YSRB used state-level sampling weights as described in the CDC's 2019 Middle School YRBS users guide [22]. We computed descriptive statistics that included measures of central tendency to synthesize the data, and we conducted cross-tabulations to describe the sexual behaviors of young adolescents by their age, race, sex, and state. We maximized the sample size for each item by including all states in which the item was collected and reported.

## 3. Results

Table 1 shows the sociodemographic characteristics of the participants in the sample. Half of the sample was White, and the other half was divided among Black/African Americans, Hispanics, and other races. Ninety-nine percent of the adolescents were enrolled in 6th, 7th, and 8th grades, and less than 1% were ungraded or in another grade.

**Table 1.** Sociodemographic characteristics of middle school 11–14-year-old adolescents.

| Demographics | | Unweighted n | Weighted % |
|---|---|---|---|
| Age | 11 years old | 11,605 | 15% |
| | 12 years old | 21,120 | 32% |
| | 13 years old | 24,047 | 35% |
| | 14 years old | 9,594 | 17% |
| Sex | female | 32,773 | 49% |
| | Male | 33,170 | 51% |
| Grade | 6th grade | 17,892 | 31% |
| | 7th grade | 24,254 | 35% |
| | 8th grade | 23,849 | 33% |
| | Ungraded /other grade | 132 | <1% |
| Race/Ethnicity | White | 32,193 | 50% |
| | Black/African American | 7,739 | 20% |
| | Hispanic/Latino | 10,333 | 19% |
| | Other | 11,536 | 12% |

Overall unweighted *N* for the sample is 66,366. Proportions are survey-weighted, sample sizes are unweighted, and variance estimates account for the complex survey design.

### *3.1. Ever Had Sexual Intercourse*

Table 2 presents the prevalence of sexual intercourse of males/females by age at the time of assessment and by race. The prevalence of sexual intercourse was 7.5% among the whole sample. Males were twice as likely to report having had sexual intercourse than females (9.8% vs. 5.1%; OR = 2.02, 95% CI: 1.67 -2.44). As age increased, so did the prevalence of young adolescents reporting ever having had sexual intercourse. Additionally, for each age (11 to 14 years), males were between 1.74 and 2.39 times more likely to have engaged in sexual intercourse than females. As regards to race, White youth had the lowest prevalence of sexual intercourse (5.1%). Also, White males were 1.5 times more likely to report ever having sexual intercourse than White females (6.2% vs. 4.1%, OR = 1.54, 95% CI 1.17 to 2.04). Black/African American males reported the highest prevalence of having ever had sex (20.9%) and were over four and a half times more likely to report having ever had sexual

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intercourse than Black/African American females (5.5%). The situation was similar with Hispanic/Latino males.

**Table 2.** Weighted Percentages of Young Adolescents Reporting Ever Having Sexual Intercourse by Sex, Age at the Time of Assessment, and Race.

| Variable | | Reported having sexual intercourse | | | | |
|---|---|---|---|---|---|---|
| | | Unweighted Sample size | Sex (Weighted %) | | | OR / 95% CI |
| | | | Females | Males | Total | |
| Ever had sex | | 53,756 | 5.1 | 9.8 | 7.5 | 2.02 (1.67-2.44)* |
| Age at the time of assessment | 11 years | 9,200 | 1.8 | 3.8 | 2.8 | 2.15 (1.19 -3.90)* |
| | 12 years | 17,177 | 3.1 | 7.1 | 5.1 | 2.39 (1.60-3.57)* |
| | 13 years | 19,672 | 6.0 | 10.9 | 8.6 | 1.93 (1.36-2.73)* |
| | 14 years | 7,707 | 10.3 | 16.7 | 13.8 | 1.74 (1.20-2.52)* |
| Race | White | 29,572 | 4.1 | 6.2 | 5.1 | 1.54 (1.17-2.04)* |
| | Black/African American | 6,280 | 5.5 | 20.9 | 13.2 | 4.51 (2.78-7.31)* |
| | Hispanic/Latino | 8,075 | 7.0 | 9.8 | 8.3 | 1.44 (1.13-1.84)* |
| | Other | 6,555 | 7.3 | 10.0 | 8.7 | 1.42 (0.92-2.19) |

Note. *N* = 53,756; * *p* <.05, *OR* = Odds Ratio, CI = Confidence Interval. Proportions are survey-weighted, sample sizes are unweighted, and variance estimates account for the complex survey design.

*3.2. Age of First Sexual Intercourse*

Table 3 shows the reported age of first sexual intercourse for males, females, and total. Notably, males were nearly four times more likely to report having their first sexual intercourse at 10 years of age than females (OR = 3.78, 95% CI = 3.45-4.14). The pattern was the same for those reporting first sexual intercourse at other ages, such that males were more likely to report sexual intercourse than females from age eight and younger to age 13. Of those who ever had sexual intercourse, nearly two-thirds (65%) reported the age of first sex before the age of 13. Males were more likely to engage in sexual intercourse prior to age 13 than females (69.3% vs. 56%, OR=1.77, CI:1.19-2.63).

**Table 3.** Weighted Percentages of Reported Age of First Sexual Intercourse by Sex.

| Reported age of first sexual intercourse | Unweighted Sample size | Sex (%) | | | *OR* (95% CI) |
|---|---|---|---|---|---|
| | | Female | Male | Total | |
| Never had sex | 37,595 | 95.2 | 92.3 | 93.8 | 0.60 (0.58-0.61) * |
| 8 years old or younger | 392 | 0.7 | 1.0 | 0.9 | 1.42 (1.33-1.51) * |
| 9 years old | 162 | 0.2 | 0.5 | 0.4 | 2.72 (2.44-3.03) * |
| 10 years old | 214 | 0.3 | 1.0 | 0.6 | 3.78 (3.45-4.14) * |
| 11 years old | 319 | 0.5 | 0.8 | 0.7 | 1.68 (1.56-1.81) * |
| 12 years old | 608 | 1.0 | 2.0 | 1.5 | 2.00 (1.90-2.06) * |
| 13 years old | 863 | 2.1 | 2.4 | 2.2 | 1.13 (1.09-1.18) * |

*Note. N* = 40,153, * *p* <.05, *OR* = Odds Ratio, CI = Confidence Interval. Proportions are survey-weighted, sample sizes are unweighted, and variance estimates account for the complex survey design.

3.2.1. Age of First Sexual Intercourse by Race

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Table 4 shows the reported age of first sexual intercourse by race. Similar to findings previously described, Black/African American adolescents were more likely to report first sexual intercourse at each reported age than White, Hispanic, or other races.

**Table 4.** Weighted Percentages of Reported Age of First Sexual Intercourse by Race.

| Variable | Reported age of first sexual intercourse | Unweighted Sample Size | Race (%) | | | | *OR* of Black/African American youth vs. all other races |
|---|---|---|---|---|---|---|---|
| | | | White | Black/African American | Hispanic / Latino | Other Races | |
| Age of first sexual intercourse | Never had sex | 35,341 | 95.3 | 88.7 | 92.9 | 94.3 | 0.45 (0.44-0.46) * |
| | 8 years old or younger | 376 | 0.5 | 2.0 | 0.8 | 1.0 | 3.01 (2.82-3.22) * |
| | 9 years old | 149 | 0.2 | 0.8 | 0.5 | 0.5 | 2.67 (2.41-2.96) * |
| | 10 years old | 207 | 0.3 | 1.7 | 0.4 | 0.7 | 4.06 (3.76-4.39) * |
| | 11 years old | 304 | 0.5 | 1.0 | 0.8 | 0.6 | 1.71 (1.54-1.86) * |
| | 12 years old | 589 | 1.4 | 1.8 | 1.9 | 1.1 | 1.24 (1.17-1.32) * |
| | 13 years old | 846 | 1.8 | 4.0 | 2.6 | 1.8 | 2.08 (1.99-2.17) * |

*N* = 37,812, * *p* <.05, *OR* = Odds Ratio, CI = Confidence Interval. Proportions are survey-weighted, sample sizes are unweighted, and variance estimates account for the complex survey design.

*3.3. Number of Sexual Partners*

Table 5 shows the rates of two or more partners by age of assessment and sex, as well as by race and sex among young adolescents. Analyses of age of assessment by sex revealed that males were over three times more likely than females to report multiple sex partners at ages 11 and 14. No other differences were observed. The prevalence of sex with multiple partners by race and sex revealed that Hispanic/Latino males were 1.8 times more likely than Hispanic/Latina females to report having sexual intercourse with multiple partners. In fact, Hispanic/Latino males reported the highest prevalence of having multiple partners than all other race/sex combinations.

**Table 5.** Weighted Percentage of Young Adolescents Reporting Having Multiple Sexual Partners by Age at Assessment and Race.

| Variable | Two or more sexual partners | | | | |
|---|---|---|---|---|---|
| Age at assessment | Unweighted Sample Size | Sex (%) | | | *OR* (95% CI) |
| | | Females | Males | Total | |
| 11 years | 208 | 17.2 | 43.2 | 32.2 | 3.66 (1.23-10.95) * |
| 12 years | 570 | 38.6 | 41.1 | 40.4 | 1.11 (0.56-2.21) |
| 13 years | 1,143 | 39.5 | 47.4 | 44.3 | 1.38 (0.71-2.56) |
| 14 years | 671 | 35.0 | 62.2 | 51.4 | 3.06 (1 .63-5.74) * |
| Total | 2,592 | 36.5 | 48.1 | 44.4 | 1.68 (1.22-2.29) * |
| **Race** | | | | | |
| White | 767 | 38.1 | 49.1 | 44.0 | 1.57 (0.94-2.62) |
| Black/ African American | 567 | 31.4 | 50.0 | 45.6 | 2.18 (0.76-6.26) |
| Hispanic/ Latino | 615 | 37.0 | 51.4 | 45.6 | 1.80 (1.03-3.14) * |

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| | | | | | |
|---|---|---|---|---|---|
| Other | 535 | 36.8 | 47.3 | 42.6 | 1.54 (0.81-2.94) |
| Total | 2,484 | 36.4 | 49.7 | 44.6 | 1.72 (1.25-2.37) |

* $p$ <.05, *OR* = Odds Ratio, CI = Confidence Interval. Proportions are survey-weighted sample sizes are unweighted, and variance estimates account for the complex survey design.

**Condom Use in Last Sexual Intercourse Experience**

Table 6 shows the rates of condom use during the last sexual experience by age at the time of assessment and sex and by race and sex. Analyses of the age at the time of assessment by sex revealed no differences between sex or age. Still, they did reveal an overall sex difference such that males were 1.43 times more likely than females to report condom use during last sexual intercourse. Prevalence of condom use by race and sex revealed that Black/African American females were 2.64 times less likely to report having used condoms during last sexual intercourse than Black/African American males and were 60% less likely to report having used a condom than non-Black females.

**Table 6.** Weighted Percentage of Young Adolescents Reporting Condom Use by Age at the Time of Assessment and Race.

| **Variable** | **Condom use during the last time had sexual intercourse** | | | | |
|---|---|---|---|---|---|
| **Age at assessment** | **Unweighted n** | **Sex (%)** | | | ***OR* (95% CI)** |
| | | **Females** | **Males** | **Total** | |
| 11 years | 172 | 28.7 | 43.6 | 36.9 | 1.92 (0.66-5.61) |
| 12 years | 536 | 45.1 | 54.1 | 51.3 | 1.44 (0.65-3.19) |
| 13 years | 1,271 | 54.7 | 60.3 | 58.2% | 1.26 (0.77-2.04) |
| 14 years | 788 | 53.4 | 67.1 | 61.7% | 1.78 (0.79-3.98) |
| Total | 2,767 | 50.8 | 59.7 | 56.4% | 1.43 (1.06-1.94) * |
| | | | | | |
| **Race** | | | | | |
| White | 1,220 | 55.0% | 61.1% | 58.3% | 1.28 (0.76-2.18) |
| Black/ African American | 559 | 32.3% | 55.7% | 50.0% | 2.64(1.27-5.47) * |
| Hispanic/ Latino | 558 | 58.2% | 66.4% | 63.2% | 1.42 (0.88-2.29) |
| Other | 340 | 50.3% | 59.6% | 55.4% | 1.46 (0.68-3.12) * |
| Total | 2,677 | 50.9% | 60.2% | 56.7% | 1.46 (1.07-1.98) * |

*$p$ <.05, OR = Odds Ratio, CI = Confidence Interval. Proportions are survey-weighted, sample sizes are weighted, and variance estimates account for the complex survey design.

## 4. Discussion

This study provides one of the most recent estimates of sexual initiation and condom use among middle school adolescents ages 11-14 years. Our findings show that 7.5 percent of young adolescents report engaging in sexual activities during or before the middle school years, which has a bearing on the risk of early and unplanned pregnancies, HIV infection, and other STIs among this population. These findings highlight the need for increased efforts to initiate sexual health conversations and education early and meet the sexual and reproductive health needs of young adolescents in the US. In non-coercive contexts, adolescents make sexual and reproductive health decisions and choices based on their knowledge and availability of such choices [24]. The more knowledgeable young adolescents are, the more likely they are to take responsibility for their sexual health [25]. Comprehensive knowledge about sexuality before adolescents become sexually active is more likely to help them make informed decisions about the sexual behaviors they adopt [24].

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Sex and racial differences were also observed regarding sexual initiation. The findings showed that males had a higher likelihood of sexual initiation compared to females, with Black/African American young adolescent boys having a higher prevalence of sexual initiation compared to Whites, Hispanics, and other races. These results are consistent with the previous studies that found male Black/African Americans to experience earlier sexual debut [15] and to have elevated rates of early sexual initiation compared to other races [18]. The higher prevalence of early sexual initiation among males compared to females can be explained by the broad cultural understanding of masculinity and sex, that men should start having sex early and have sex often [16]. Studies also report that for young men of color, particularly Black males, racist stereotypes of hypermasculinity also contribute to expectations of early sexual initiation [16,26]. Although this notion is not supported by research among young adolescents [27,28], it adds to the critical need to conduct more investigations to understand how young male adolescents are being socialized to sexuality and understand factors associated with male young adolescents' sexual initiation.

Among those who reported ever having had sex, 44.4% had multiple sexual partners. Previous studies align with this finding and show that young people who engage in early sexual activities at a very young age are at a greater risk of having multiple sexual partners. This is concerning because having multiple sexual partners increases the risk of contracting HIV and other STIs. In this study, the Hispanic 14-year-old males were over three times more likely to have multiple sexual partners. This finding suggests the need to explore further the relationship between culture and sexual behavior among young adolescents. Previous studies among older Hispanic men have shown the association between Machismo (a cultural factor that reflects the expected gender role of Hispanic men) and sexual behavior [29]. Machismo, as a norm, is believed to perpetuate the message that Hispanic men should have multiple partners and should exhibit certain behaviors, such as the use of a sexual encounter to demonstrate masculinity, the need for penetrative sex, and perceptions of low sexual control [29]. [4].

In this study, just over half (56%) reported using a condom the last time they had sex. Having only slightly over half of the sexually active young adolescents use a condom is concerning, considering the growing prevalence of early pregnancies and STIs among young adolescents [8,9]. Moreover, the young adolescent females, particularly those aged 11 years in this study, were less likely to use condoms. This finding suggests the need for early conversations on condom use among girls because they have a high increased risk for early pregnancies, HIV infection, and other STIs.

We found that as age increased, condom use increased, and males had the highest prevalence of using condoms across all ages and races. Interestingly, Hispanic/Latino males had the highest prevalence of condom use among all races. Overall, the prevalence of condom use among Black/African American females was substantially lower than any other race in condom usage (2.6% lower than Black males). Therefore, condom use promotion among Black/African American young adolescents is needed.

Besides, it is also not known how well these young adolescents used condoms. Correct and consistent condom use is essential if condoms are to be effective in preventing pregnancies and STIs among young adolescents. Condom use has been documented as being 13.0% less effective in preventing pregnancy in the first year of use, which indicates that further investigation is needed among young adolescents to understand condom use practices and their sexual health needs and determine strategies to help them prevent risky sexual behaviors [30,31].

Also, Black females were nearly three times less likely to use condoms compared to males and other races. The finding that Black females were less likely to use condoms is consistent with what Szucs, Lowry [30] reported among Black students who showed lower condom use during last sexual intercourse. This finding points to the need for improving young adolescents' access to comprehensive sexual health education and resources to enhance their knowledge and skills to prevent early sexual debut, early pregnancies, HIV infections, and other STIs.

Based on these findings and the racial and ethnic disparities in sexual initiation, engaging multiple sexual partners, and using condoms among young adolescents, understanding and addressing structural racism and subsequent barriers that contribute to the observed differences is

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critical. Opara, Weser [32] found that gendered racism can have an impact on Black/African American adolescents' decisions on sexual behavior and that Black/African American adolescent girls report being targeted by males and face a lot of challenges navigating pressure to have sex due to gendered stereotypes [32]. Thus, elevating and intensifying sexual health disparities and equity research to address the adverse sexual health outcomes among Black/African American adolescents to find ways of meeting their sexual and reproductive health needs is essential. Also, research and intervention efforts would be better served if they addressed adolescents holistically. Holistic care would include care that is developmentally sensitive and culturally tailored to meet the needs of young Black /African American adolescents. The high prevalence of sexual debut for young Black /African American female adolescents is alarming as early sexual debut increases the risk for STIs, HIV, and sexual violence. Findings indicate the need to better protect young Black/African American female adolescents [33]. Protection includes developing interventions to address stereotype messaging and structural factors (i.e., racism, discrimination, sexual violence, and adultification) at the individual, interpersonal, community, and societal levels [34].

It was noted with concern that only 10 states in the US had data on sexual behavior for young adolescents, and one state assessed the prevalence of oral sex. In addition, only 254 Middle school students aged 10 and younger had data about sexual behavior in this survey. These findings show that engagement in sexual health research in this population is suboptimal, consistent with the previous studies that showed a lack of research studies among young adolescents and that research on sexual behavior is focused on older adolescents and adults and solicitation on early sexual debut [13,14]. Considering the challenges of recall bias in such studies, the results of this study suggest the need for targeted efforts to increase sexual health research among young adolescents to better understand their experiences and find better ways of helping them prevent risky sexual behaviors.

**Limitations**

This study is not without limitations. The Middle School YRBS did not define sexual intercourse. As such, there is a possibility that some young adolescents might not have understood the question, leading to inconsistencies in reporting. Future studies exploring sexual behavior among young adolescents need to define the meaning of sexual intercourse to make sure every young adolescent understands the question. The study did not explore factors associated with the development of sexual behaviors in young adolescents. Further analyses are required to identify factors that might have been associated with the onset of sexual behaviors in young adolescents. Such information is necessary to inform the timing of interventions that can help reduce early sexual initiation among young adolescents. Also, some adolescents reported that their first experience of sexual intercourse was at the age of 8 years or younger, but the information was not available to determine the prevalence of coerced sexual activities or sexual abuse among young adolescents mostly associated with sexual experience around this age group. Therefore, there is a need for further investigations to determine the prevalence of sexual violence involving young adolescents and determine strategies to reduce it. Future research should account for this factor using quantitative and qualitative methods, as not all components of a complex developmental process can be described by quantitative methods alone. Despite these limitations, this study provides valuable information on the prevalence of early sexual initiation and condom use that is foundational to further research and interventions for reducing early sexual debut and preventing early pregnancies, HIV infection, and other STIs.

## 5. Conclusions

The Middle School YRBS analysis has revealed the prevalence of early sexual debut among young adolescents. The results show that young adolescents are engaging in sexual activities early, but their sexual behaviors and their sexual health needs are under investigated. This study suggests that to prevent the development of risky sexual behaviors in young adolescents, there is a need for further research and early sexual health interventions. Understanding the prevalence and the experiences of racism that undergirds racial differences in the sexual practices of young adolescents can move all healthcare providers, families, parents and youth agencies closer to the goal of protecting young adolescents and empowering them with the knowledge, attitudes, and optimal

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skills to make informed decisions about their sexual health. Adolescents can avoid risky sexual behaviors at the onset and cease the risky behaviors they might have initiated at an earlier stage of their growth and development. Waiting to teach children about sexual health until later ages can result in additional pregnancies, HIV infections, and other STIs that could otherwise be prevented.

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**Institutional Review Board Statement:** The study was determined to be exempt by the University of Rochester IRB on September 16, 2022; protocol # STUDY00007439. However, the parent studies were conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of each school in each state. .

**Data Availability Statement:** Data for this study can be accessed by submitting a request to the Health Scientist for the Centers for Disease Control and Prevention, Division of Adolescent and School Health National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. However, this data can also be freely accessed from the CDC website at: https://urldefense.proofpoint.com/v2/url?u=https3A__www.cdc.gov_healthyyouth_data_yrbs_data.htm&d=DwIFAg&c=4sF48jRmVAe_CH-k9mXYXEGfSnM3bY53YSKuLUQRxhA&r=GZ37rpMfxo2oBc5XG2VCOft0xLQg9PaNIVRw6wmKcVI&m=SMNIWJISdheHnuiIFOSOBEwjaLb2miEFuhGLu4DdioQ&s=IMfX--SY5Gts6mgt_I6RpKG4aB7xUAh7ThCmiswaX9A&e=.

## Appendices

**Appendix A.** States that Assessed Sexual Behaviors and Survey Items.

| State | q34 ever had sexual intercourse | q35 how old were you when you have sexual intercourse for the first time | q36 how many people have you had sex with? Have sex with 2 or more persons | qn37 used a condom during last sexual intercourse |
|---|---|---|---|---|
| Delaware (DE) n=1,134 | X | X | X | X |
| Florida (FL) | | | | |
| Hawaii (HI) n=6,443 | | X | X | |
| Kentucky (KY) n=1,605 | X | X | X | X |
| Maine (ME) n=5,115 | X | X | X | X |
| Maryland (MD) n=27,098 | X | X | X | X |
| New Mexico (NM) n=4,805 | X | X | X | X |
| North Carolina (NC) n=2,676 | X | | | |
| North Dakota (ND) n=2,317 | X | | | X |
| Pennsylvania (PA) | | | | |
| Rhode Island (RI) n=1,559 | X | | | |
| Vermont (VT) n=13,868 | X | | | X |

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| | | | | |
|---|---|---|---|---|
| Virginia (VA) | | | | |
| West Virginia (WV) | | | | |
| **Number of States** | 9 | 6 | 6 | 7 |

**Appendix B.** The 2019 Middle School Youth Risk Behavior Survey Variables of Interest.

| Q#/Code Used | Question | Question label | Analytic Coding |
|---|---|---|---|
| Q1 | How old are you? | Age | 1 =10 years old or younger<br>2 =11 years old<br>3=12 years old<br>4=13 years old<br>5=14 years old |
| Q 2 | What is your sex? | Sex | 1 = Female<br>2 = Male |
| Q3 | In what grade are you? | Grade | 1= 6th grade<br>2=7th grade<br>3=8th grade<br>4=ungraded or other grade |
| Q4 | 4-level race variable from race and ethnicity questions | Race4 | 1= White<br>2= Black or African American<br>3= Hispanic or Latino<br>4= All other races |
| **Sexual Behavior** | | | |
| Q34. | Have you ever had sexual intercourse? | Ever sexual intercourse | Yes= 1<br>No = 0 |
| Q35. | How old were you when you had sexual intercourse for the first time? | Sex before 11 years | 1= Never had sex<br>2= 8 years old or younger<br>3=9 years old<br>4=10 years old<br>5=11 years old<br>6=12 years old<br>7=13 years old or older |
| | Ever had sex | | Yes=1<br>No =0 |
| Q 36 | With how many people have you ever had sexual intercourse? | Multiple sex partners | 1=Never had sex<br>2= 1 person<br>3= 2 people<br>4=3 people<br>5= 4 people<br>6=5 people<br>7=6 or more people |
| | Had sexual intercourse with two or more persons | Multiple sex partners | Yes=1<br>No= 0 |
| Q37 | The **last time** you had sexual intercourse, did you or your partner use a condom? | Condom use | 1= I have never had sexual intercourse<br>2= Yes<br>3= No |

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