

# Predictors of Sexual Activity in Haitian-American Adolescents

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**Abstract** This study examined the impact of individual, peer, family, school, and neighborhood level variables on sexual activity among 276 Haitian-American adolescents. Differences between those who were sexually active and those who were not were analyzed using Chi square and *t* tests. Significant factors at  $p \leq 0.1$  were entered into logistic regression for the full group and for girls-only. Half of males and 36.6 % of females were sexually active. The multivariable model revealed that adolescents were more likely to be sexually active if they reported delinquent behaviors; had sexually active friends; and were living with only one parent, friends or relatives. For girls, living with both parents was protective against sexual activity, while substance use and emotional distress were risk factors. No

language or acculturation measures were associated with sexual activity. Haitian-American adolescents may benefit from interventions that focus on gender-specific, contextual and cultural factors to prevent early sexual activity.

**Keywords** Haitian-American · Adolescent · Sexual activity · Gender · Risk

## Background

Immigrants of Haitian descent and their children represent a rapidly increasing population in the US, particularly in south Florida where they represent the second largest group of foreign born residents in the Metropolitan Statistical Area [1]. As with other immigrants throughout the US, Haitian immigrants in south Florida tend to reside in poorer urban neighborhoods. Their children, exposed to the difficulties characteristic of these environments, such as poverty and high crime rates, may be more likely to adopt the social norms and the health and risk behaviors of their immediate social reference groups and racial/ethnic peers, rather than mainstream society [2]. Unfortunately, these social reference groups may endorse normative behaviors that increase the risks of negative health outcomes, such as increased levels of substance use, early sexual activity, or inconsistent condom use. Early sexual activity places youth, particularly females, at greater risk of unintended pregnancy, delinquency, acquiring HIV or other STDs, and other negative social and psychological outcomes [3–7]. Additionally, children of immigrant families might be at increased risk for negative physical and mental health outcomes, depending on such factors as their migration experiences, family stability, social support, personal competencies, and acculturation stress [8, 9].

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Intervention and prevention efforts have been most effective when they are implemented early, target multiple risky behaviors, and involve multi-level domains [4]. Given the challenges associated with immigration and acculturation, many adolescents from immigrant families may not have access to the culturally competent sexual and other health educational services they need to cope with the risks inherent to living in an urban environment. Haitian adolescents, as an understudied population, might be best reached with interventions that take into account the risk factors, as well as the protective factors, associated with this group [10, 11].

In the literature, examination of risk and protective factors among children and adolescents generally occurs across five major domains of influence [12]. These domains include factors at the individual level such as aggressive behavior, depression (risk), self-control (protective), and gender. For example, females are at a higher risk of engaging in unprotected sex more frequently than boys [13]. At the family level, parental monitoring is generally considered protective, while lack of parental supervision leads to more risky behaviors [14]. Peer influence—the degree to which peers are involved in risky behavior—increases in significance as adolescents age [15]. Within school and community domains, poverty (few support systems, exposure to violence) and poor attachment to the school and/or community are known to increase risk behaviors [12].

Although insufficient research has been conducted on the impact of various sources of social support among Haitian and Haitian-descended adolescents, quite a few studies have been conducted on the influence of Haitian parents on the behaviors of their children. For example, the literature suggests that among Haitians, parenting style is characterized by social restriction, parental control, and differential treatment of boys and girls [16]; this style may increase the tension between parents and children, particularly when the adolescents are aware of the more lenient parenting style of non-immigrant parents in the US. Though many parents of Haitian-American adolescents believe they should be primarily responsible for talking with their children about reproduction and contraception, this desire may be in conflict with traditional Haitian mores about not discussing sex with children; adherence to more traditional thinking may therefore result in adolescents not receiving necessary protective information or services [17, 18]. In addition, Haitian and Haitian immigrant households that deviate from the two-parent household as well as those characterized by inter-parental conflict and disruption of parental monitoring were more likely to be characterized by HIV among female adolescents, higher levels of unprotected sex, marijuana use, and experimentation with alcohol [11, 19–21]. These factors in the family domain

therefore may increase the vulnerability of some adolescents to engagement in risky behaviors.

Social support and connectedness among Haitian families is often strengthened by solid ties to religion. The evidence shows that religious involvement, which is quite high among Haitians in comparison to other immigrant Caribbean Blacks, does not decline with increasing years in the US; Haitian parents also felt it their responsibility to educate their children about their religion, thereby imparting protective values [22, 23]. Peer relationships reflect another critical area of social support among Haitian-descended adolescents. Studies have shown that adolescents from minority cultures are often more vulnerable to engaging in risky behaviors; this vulnerability is related to residing in poor communities with a host of environmental risk factors [21, 24, 25]. In these communities, associating with peers with high preventive norms and low traditional gender norms has been associated with less risky sexual behavior [27].

A recent assessment of the Haitian community conducted for the Miami-Dade County Health Department in South Florida, identified the close-knit community of Haitians as a strength and source of social support—except when it came to HIV. While Haitian young people are more receptive to HIV education and testing, the report found that culturally appropriate intergenerational education and outreach were essential to removing barriers to HIV testing and related sexual health and reproductive services [28]. As in most ethnic minority communities in the US, Haitians are particularly vulnerable to the HIV epidemic. Although comprising just under 5 % of Miami-Dade's population, Haitians represent 9 % of incident HIV cases, and are characterized by late diagnosis and treatment [29–31]. The disproportionate burden of the epidemic, however, is most telling among Haitian women, who in 2010 comprised 56.5 % of new cases in Haitians, compared to black women in the county, who represented 32.7 % of new cases in blacks [29–31]. Thus, although research is limited on US Haitian youth, the prospect of HIV risk facing them suggests a significant contrast to other minority communities.

Research among Haitian parents has emphasized the importance of incorporating culturally relevant concerns, understanding the cultural context, and addressing ethnic-specific barriers [18, 27, 32]. The special challenges faced by adolescents of Haitian descent may be more effectively addressed by focusing on their culturally-specific needs as there are several unique elements, including parental strictness and monitoring, lack of knowledge, resistance to discussing sexual matters, and language barriers that may affect the chances for success of any intervention among Haitian American adolescents [17–19]. While these issues often characterize the experience of immigrant parents

from other countries, any intervention that incorporates parent education and training among Haitian parents should take the language barrier and cultural differences into consideration in the design phase. This current research explores factors within the domains previously mentioned and their association with being sexually active in a sample of Haitian-American adolescents in South Florida.

## Methods

### Participants

Two hundred and seventy-six adolescents (males = 87, females = 189) of Haitian descent living in three Miami neighborhoods were recruited for participation in a NIH/NICHHD-funded intervention, the goal of which was to culturally adapt a model of HIV risk reduction. A convenience sample of eligible participants was recruited from local middle and high schools and youth-serving organizations (YSO) in the Miami area. With the permission of the school or YSO administration, study staff made presentations about the study during school health fairs or other school events that were open to the community, or during after-school community activities. Interested adolescents were given information about the study, provided contact information and were contacted later with their parent(s) for consent/assent and enrollment. Snowball sampling also occurred as many participants recruited other participants by telling their friends about the study. To be included in the study, participants were required to be 14–17 years old (or within 1 month of ages 14–17), exhibit a broad range of risk behaviors, and born in Haiti or have parents or grandparents who were born in Haiti.

### Data Collection

Participants were assessed by trained staff on a wide range of health and risk behaviors, including knowledge, attitudes and behaviors related to HIV/AIDS, alcohol and drug use, and personality variables. All participating youth signed informed assents and their guardians signed informed consent forms prior to involvement in this study. This study was approved by the Florida International University Institutional Review Board.

### Measures

#### *Individual Factors*

Demographic variables, including age, gender, household composition, and language used at home were obtained

from the Adolescent Drug Abuse Diagnosis instrument [33]. An adapted version of the Adolescent Health Questionnaire (Add Health) yielded information on country of birth [34]. The outcome variable, sexual activity, defined as ever having engaged in oral, vaginal, or anal sex, was assessed using the problem-oriented screening instrument for teenagers (POSIT) HIV/STD risk scale [35]. HIV prevention knowledge was assessed through the AIDS Knowledge Test, an 18-item true/false measure [36]. The Religiosity subscale from Add Health, was calculated as a composite of four questions about the importance of religion to the participant, how often they prayed, and how often they attended religious services; a higher score indicated more religiosity. Acculturation was measured using the Stephenson Multigroup Acculturation Scale (SMAS) [37], a four-point scale yielding two scores: (1) ethnic culture immersion, a 17-item subscale on the participant's native culture, with higher scores indicating more ethnic immersion; and (2) dominant culture immersion, a 13-item subscale measuring immersion in the dominant culture, with higher scores indicating higher levels of acculturation. The Health Protective Sexual Communication Scale [38] included ten items and assessed frequency of verbal interactions with new partners concerning safe sex and sexual histories; a lower score indicated higher levels of communication.

The POSIT or Problem-Oriented Screening Instrument for Teenagers, is a well-validated 139-item, yes–no self-report inventory used to assess problems and needs in common areas of life along ten scales. Higher scores, in general, indicate a greater number of problems in that area. All ten POSIT scales have been tested in clinical (substance abusers, juvenile offenders) and nonclinical (adolescents receiving routine pediatric care) populations and been found to be reliable for screening adolescent problems. They have also been used in research studies with adolescents in and outside the US. Internal consistency varies among the scales, with Cronbach's alpha coefficient ranging from .45 to .79 in the pediatric sample, with Aggressive Behavior/Delinquency ( $\alpha = .79$ ), Substance Use/Abuse ( $\alpha = .77$ ), Mental Health Status ( $\alpha = .74$ ), Peer Relations ( $\alpha = .74$ ), and Educational Status ( $\alpha = .71$ ) having the highest alphas, and Family Relations ( $\alpha = .60$ ), Vocational Status ( $\alpha = .55$ ), Social Skills ( $\alpha = .46$ ), Physical Health Status ( $\alpha = .45$ ), and Leisure/Recreation ( $\alpha = .40$ ) having lower alpha scores. A number of items contribute to more than one problem area scale. From the POSIT, all ten subscales were calculated and used in the analyses: substance use/abuse included 17 items on the effect of drugs and alcohol on the participant's moods, health, and relationships; mental health status included 22 items on the participant's energy levels, impulsivity, and attention span; aggressive behavior/delinquency included

16 items on the participant's temper, language, bullying, noise level, and violence; leisure/recreation included 12 items on free time, hobbies, team sports, and TV; and educational status included 26 items on attention in class, reading and spelling ability, and learning style.

#### Peer Factors

The Peer Relationship subscale from the POSIT included ten items addressing whether parents approved of friends, whether friends were typically older than the participant, and whether friends skipped school. This subscale was used to determine friends' involvement in delinquent activities.

#### Family Factors

The Family Relationship subscale from the POSIT assessed positive (parents agree about how to manage the adolescent) and negative (parents yelling and screaming) aspects of family interactions. Of 11 total items in the subscale, three were negative and eight were positive.

#### School and Neighborhood Factors

School and Neighborhood Factors were assessed using Add Health variables, including feeling "close to people at school," "happy in (your) neighborhood," and "having trouble getting along with teachers."

#### Analysis

Chi square and *t* test analyses for all participants, split by gender, were conducted on the five domains—individual, peer, family, school and neighborhood—to identify differences between those participants who were sexually active and those who were not. Two multivariable logistic regressions (for all participants and for girls only) to predict sexual activity included variables significant at the  $p < 0.10$  level in initial difference tests.

## Results

### Characteristics of the Study Population

Approximately 32 % of the sample was male and 68 % female; 65 % ( $n = 179$ ) of the participants were born in the US, 17 % ( $n = 46$ ) were born in Haiti, and 9 % ( $n = 26$ ) in the Bahamas (Table 1). Approximately two-thirds reported speaking Creole at home while the rest spoke English. Approximately half of the males ( $n = 42$ ) and 36.6 % of the females ( $n = 64$ ) were sexually active,

with vaginal intercourse being reported by around 39 % ( $n = 108$ ); oral sex was reported by 15.6 % ( $n = 43$ ) of participants, while 3.6 % reported having anal intercourse ( $n = 10$ ). Eight percent had used drugs in the past 30 days. In terms of family structure, 58.3 % ( $n = 148$ ) were living with two parents, 36.2 % ( $n = 92$ ) with one parent or relatives, and 5.5 % ( $n = 14$ ) with friends. Few participants (2.7 %) reported having been sexually abused.

#### Chi Square and *t* Tests

#### Overall Sample

The average age of sexually active participants (15.74;  $SD = 1.081$ ) was higher than those who were not sexually active [ $15.35$ ;  $SD = 1.19$ ;  $t(257) = -2.69$ ,  $p < 0.01$ ]. Males ( $n = 84$ ) were more likely to be sexually active than females [ $n = 175$ ;  $\chi^2(1) = 4.23$ ,  $p < 0.05$ ]. The mean age of sexually active female participants (16.05;  $SD = 1.015$ ) was higher than the age of sexually active male participants [ $15.26$ ;  $SD = 1.014$ ;  $t(104) = -3.90$ ,  $p < 0.001$ ]. Participants living with two parents were less likely to be sexually active than those living with one parent, or with friends [ $\chi^2(2) = 17.6$ ,  $p < 0.001$ ]. Participants who were sexually active were more likely to report higher scores of mental distress [ $t(243) = 2.4$ ,  $p < 0.05$ ] and were more likely to report higher scores of aggressive behavior [ $t(255) = 2.25$ ,  $p < 0.02$ ]. In contrast, participants who were more religious [ $t(252) = -2.3$ ,  $p < 0.05$ ] and those who had fewer communications about sexual issues [ $t(241) = 4.2$ ,  $p < 0.0001$ ] were less likely to be sexually active.

The difference in mean scores on the total peer relationship subscale was not significant between sexually active and non-sexually active participants; however, when examining risky behaviors only, sexually active participants reported that their friends were also sexually active more often than not [ $\chi^2(1) = 21.2$ ,  $p < 0.0001$ ]. Likewise, sexually active participants were more likely to have friends who brought drugs to parties [ $\chi^2(1) = 5.1$ ,  $p < 0.05$ ], or engaged in other delinquent behavior [e.g. stealing;  $\chi^2(1) = 3.9$ ,  $p < 0.05$ ].

Reports of positive family relationship dynamics were significantly lower for the sexually active group compared to the non-sexually active group [ $t(248) = 2.8$ ,  $p < 0.005$ ]; fewer sexually active adolescents reported that their parents always knew where they were [ $\chi^2(1) = 8.32$ ,  $p < 0.01$ ], their parents paid attention to what they did [ $\chi^2(1) = 6.9$ ,  $p < 0.01$ ], or their parents agreed about how to handle them [ $\chi^2(1) = 10.6$ ,  $p < 0.01$ ]. Alternately, more sexually active participants reported that their parents had frequent arguments involving yelling and screaming [ $\chi^2(1) = 3.6$ ,  $p < 0.10$ ], and often spent a night away from home when parents did not know where they were [ $\chi^2(1) = 5.6$ ,  $p < 0.05$ ].

**Table 1** Number, percentage, mean and standard deviation (SD), classified by various predictors of “Sexual Experience” among all participants

	Sexually active N (%) Mean ± SD	Not sexually active N (%) Mean ± SD	$\chi^2(df)$ <i>t(df)</i>
<i>Individual</i>			
Age	15.741 ± 0.08	15.35 ± 1.19	2.7 (257)***
Gender			
Male	42 (50.6)	41 (49.4)	4.72 (1)**
Female	64 (36.4)	112 (63.6)	
Country of birth			
US	63 (36.4)	110 (63.6)	5.71 (3)
Haiti	20 (44.4)	25 (55.6)	
Bahamas	14 (58.3)	10 (41.7)	
Other/DK	9 (52.9)	8 (47.1)	
Language spoken at home			
Creole	64 (40.0)	96 (60.0)	0.02 (1)
English	38 (40.9)	55 (50.1)	
Acculturation 1	50.08 ± 10.25	50.21 ± 9.47	−1.04 (253)
Acculturation 2	51.25 ± 6.51	52.05 ± 5.70	−0.10 (255)
Household composition			
With 2 parents	43 (29.1)	105 (70.9)	17.6 (2)****
With 1 parent or relatives	49 (53.3)	43 (46.7)	
With friends	9 (64.3)	5 (35.7)	
Religiosity	13.03 ± 2.9	14 ± 2.9	−2.3 (252)**
Knowledge of sexual facts	12.9 ± 2.4	13.1 ± 2.3	−0.73 (257)
Past sexual abuse			
No	99 (39.6)	151 (60.4)	5.9 (1)**
Yes	6 (85.7)	1 (14.3)	
Past 30 day drug use			
No	95 (40.1)	142 (50.9)	0.82 (1)
Yes	11 (50.0)	11 (50.0)	
Substance abuse	0.88 ± 2.3	0.63 ± 1.6	1.02 (255)
Mental health status	7.47 ± 4.9	6.01 ± 4.5	2.4 (243)**
Aggressive behavior/delinquency	5.35 ± 3.2	4.38 ± 3.5	2.25 (255)**
Leisure/recreation	6.9 ± 2.3	6.9 ± 2.1	0.31 (255)
Educational status	10.6 ± 3.8	10.2 ± 3.7	1.03 (255)
Sex communication	15.07 ± 8.03	11.45 ± 5.49	4.2 (241)****
<i>Peer</i>			
Peer relationships			
Scale	3.6 ± 1.9	3.2 ± 1.8	1.5 (255)
Friends sexually active			
No	12 (17.4)	57 (82.6)	21.2 (1)****
Yes	93 (49.2)	96 (50.8)	
Friends bring drugs to parties			
No	90 (38.8)	142 (61.2)	5.1 (1)**
Yes	14 (63.6)	8 (36.4)	
Friends stolen			
No	45 (34.4)	86 (65.6)	3.9 (1)**
Yes	58 (46.4)	67 (53.6)	
<i>Family</i>			
Adult supervision at parties			
No	47 (53.4)	41 (46.6)	9.4 (1)***
Yes	56 (33.5)	111 (66.5)	

**Table 1** continued

	Sexually active N (%) Mean ± SD	Not sexually active N (%) Mean ± SD	$\chi^2(df)$ $t(df)$
Parents know where you are			
No	42 (53.8)	36 (42.6)	8.32 (1)***
Yes	62 (34.6)	117 (65.4)	
Parents pay attention			
No	38 (53.5)	33 (46.5)	6.9 (1)***
Yes	66 (35.5)	120 (64.5)	
Parents yelling and screaming			
No	62 (36.5)	108 (63.5)	3.6 (1)*
Yes	42 (48.8)	44 (51.2)	
Spend the night away			
No	75 (36.8)	129 (63.2)	5.6 (1)**
Yes	29 (54.7)	24 (45.3)	
Handle you			
No	48 (53.9)	41 (46.1)	10.6 (1)****
Yes	55 (32.9)	112 (69.1)	
Family relationship	3.35 ± 2.8	4.08 ± 2.6	2.1 (203)**
<i>School</i>			
Have you had trouble getting along w/your teachers			
No	76 (37.4)	127 (62.6)	3.6 (1)*
Yes	27 (51.9)	25 (48.1)	
Close to people at your school			
No	57 (36.8)	98 (63.2)	2.8 (1)*
Yes	46 (47.4)	51 (52.6)	
Feel like you are part of your school			
No	62 (37.1)	105 (62.9)	2.8 (1)*
Yes	41 (48.2)	44 (51.8)	
<i>NBHD</i>			
Happy in neighborhood?			
No	51 (42.9)	68 (57.1)	0.5 (1)
Yes	50 (38.5)	80 (61.5)	

Scale includes items listed

*p* values for independent *t* test for difference in mean or Chi square test for difference in proportion

\*  $p \leq 0.10$ ; \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; \*\*\*\*  $p \leq 0.001$

There were no differences between sexually active and non-sexually active participants who reported that they felt close to people at school [ $\chi^2(1) = 2.8, p < 0.10$ ], felt that they were a part of their school [ $\chi^2(1) = 2.8, p < 0.10$ ], or who reported having trouble with teachers [ $\chi^2(1) = 3.6, p < 0.10$ ]. Acculturation, language spoken at home, and being happy in their neighborhood were not associated with being sexually active.

#### Girls Only Subsample

Among sexually active girls, almost 62 % of those born in the Bahamas were sexually active, compared with 31 % of those born in the US and 38 % of those born in Haiti [ $\chi^2(3) = 8.6, p < 0.05$ ; See Table 2]. The average age of

sexually active girls was 16.05 (SD = 1.015), compared to 15.42 (SD = 1.167) for girls who were not sexually active [ $t(174) = -3.59, p < 0.001$ ]. Girls who were living with two parents, compared with those who were living with one parent or with non-parents, were less likely to be sexually active [ $\chi^2(2) = 12.9, p < 0.01$ ]. Girls who were sexually active had higher scores on mental distress [ $t(166) = 4.2, p < 0.01$ ], aggressive behavior [ $t(173) = 3.2, p < 0.05$ ], and substance use [ $t(173) = 1.8, p < 0.06$ ]. In addition, sexually active girls reported more communication with new partners about sexual issues than those not sexually active [ $t(159) = 2.9, p < 0.01$ ]. Acculturation, language spoken at home, and being happy in their neighborhood were not associated with sexual activity for girls.

**Table 2** Number, percentage, mean and standard deviation (SD), classified by various predictors of “Sexual Experience” among female participants

	Sexually active N (%) Mean $\pm$ SD	Not sexually active N (%) Mean $\pm$ SD	$\chi^2(df)$ $t(df)$
<i>Individual</i>			
Age	16.05 $\pm$ 1.01	15.41 $\pm$ 1.17	3.6 (174)****
Country of birth			
US	36 (30.5)	82 (69.5)	8.6 (3)**
Haiti	9 (37.5)	15 (62.5)	
Bahamas	13 (61.9)	8 (38.1)	
Other/DK	6 (50)	6 (50)	
Language spoken at home			
Creole	33 (33)	67 (67)	0.67 (1)
English	27 (39.1)	42 (60.9)	
Acculturation 1	50.87 $\pm$ 10.50	50.55 $\pm$ 9.76	0.2 (173)
Acculturation 2	51.16 $\pm$ 6.67	52.09 $\pm$ 5.61	−1 (171)
Household composition			
With 2 parents	27 (25.5)	79 (74.5)	12.9 (2)***
With 1 parent or relatives	27 (49.1)	28 (50.9)	
With friends	7 (63.6)	4 (36.4)	
Religiosity			
Scale	13.43 $\pm$ 2.8	14.22 $\pm$ 2.7	−1.9 (172)*
Knowledge of sexual facts			
Scale	13.28 $\pm$ 2.44	13.30 $\pm$ 2.01	−0.1 (174)
Past sexual abuse			
No	58 (34.3)	111 (65.7)	10.8 (1)***
Yes	6 (100)	0 (0)	
Past 30 day drug use			
No	54 (34.6)	102 (65.4)	2.4 (1)
Yes	10 (52.6)	9 (47.4)	
Substance abuse	1 $\pm$ 2.5	0.5 $\pm$ 1.1	1.8 (173)*
Mental health status	9.3 $\pm$ 4.4	6.3 $\pm$ 4.4	4.2 (166)****
Aggressive behavior/delinquency	6.1 $\pm$ 2.89	4.4 $\pm$ 3.51	3.2 (173)**
Leisure/recreation	7.2 $\pm$ 2.1	6.8 $\pm$ 2.1	1.2 (173)
Educational status	11.8 $\pm$ 3.5	10.2 $\pm$ 3.5	2.9 (173)**
Sex communication	13.79 $\pm$ 7.31	11.06 $\pm$ 4.59	2.9 (159)***
<i>Peer</i>			
Peer relationships			
Scale	3.9 $\pm$ 1.9	3.2 $\pm$ 1.8	2.4 (173)**
Friends sexually active			
No	5 (10.4)	43 (89.6)	19.5 (1)****
Yes	59 (46.5)	68 (53.5)	
Friends bring drugs to parties			
No	56 (35.0)	104 (65.0)	3.62 (1)*
Yes	7 (63.6)	4 (36.4)	
Friends stolen			
No	26 (30.6)	59 (69.4)	2.3 (1)
Yes	37 (41.6)	52 (58.4)	
<i>Family</i>			
Adult supervision at parties			
No	28 (50.9)	27 (49.1)	7.3 (1)***
Yes	35 (29.7)	83 (70.7)	

**Table 2** continued

	Sexually active N (%) Mean ± SD	Not sexually active N (%) Mean ± SD	$\chi^2(df)$ $t(df)$
Parents know where you are			
No	27 (56.3)	21 (43.8)	11.5 (1)***
Yes	36 (28.6)	90 (71.4)	
Parents pay attention			
No	26 (53.1)	23 (46.9)	6.1 (1)***
Yes	37 (29.6)	88 (60.4)	
Parents yelling and screaming			
No	29 (27.1)	78 (72.9)	9.97 (1)***
Yes	34 (50.7)	33 (49.3)	
Spend the night away			
No	42 (30.2)	97 (69.8)	10.7 (1)***
Yes	21 (60.0)	14 (40.0)	
Handle you			
No	35 (55.6)	28 (44.4)	16 (1)****
Yes	28 (25.2)	83 (74.8)	
Family relationships			
Scale	2.8 ± 2.8	4.2 ± 2.6	3.26 (119)****
<i>School</i>			
Had trouble getting along w/teachers			
No	46(33.6)	91(66.4)	1.5 (1)
Yes	16(44.4)	20(55.6)	
Feel close to people at school			
No	32(45.7)	38(54.3)	4.8 (1)**
Yes	30(29.4)	72(70.6)	
Feel like you are part of school			
No	28(48.3)	30(51.7)	5.7 (1)**
Yes	34(29.8)	80(70.2)	
<i>NBHD</i>			
Happy in neighborhood			
No	33 (40.2)	49 (59.8)	1.2 (1)
Yes	28 (67.8)	59 (32.2)	

Scale include items listed

$p$  values for independent  $t$  test for difference in mean or Chi square test for difference in proportion

\*  $p \leq 0.10$ ; \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; \*\*\*\*  $p \leq 0.001$

Peer relationship scores (reporting deviant behaviors among peers) were higher among sexually active girls than non-active girls [ $t(173) = 2.4, p < 0.05$ ]. Additionally, for sexually active girls, the percentage who reported that their friends were sexually active was significantly higher than those who reported that their friends were not sexually active [ $\chi^2(1) = 19.5, p < 0.01$ ].

Positive family dynamic scores were significantly lower among the sexually active group than among those not sexually active [ $t(119) = 3.26, p < 0.01$ ]. Girls who reported specific positive family dimension items were more likely to be among those not sexually active. These girls reported adult supervision at parties [ $\chi^2(1) = 7.3,$

$p < 0.01$ ], parents always knowing where they were [ $\chi^2(1) = 11.5, p < 0.01$ ], parents who paid attention to them [ $\chi^2(1) = 6.1, p < 0.01$ ], and parents who agreed about how to handle them [ $\chi^2(1) = 16.0, p < 0.01$ ]. In contrast, participants who reported that their parents had frequent arguments [ $\chi^2(1) = 9.97, p < 0.01$ ] and those who reported that they often spent a night out without their parents knowing their whereabouts [ $\chi^2(1) = 10.7, p < 0.01$ ] were more likely to be sexually active.

More girls who were not sexually active reported they felt close to people at their school [ $\chi^2(1) = 4.8, p < 0.05$ ], or that they were part of their school [ $\chi^2(1) = 5.7, p < 0.05$ ]. There were no significant findings in the



girls-only subsample in terms of sexual activity by neighborhood factors.

Multivariable Logistic Regressions

Overall Sample

In the multivariable analysis, older participants (OR = 1.6,  $p < 0.002$ ), those who reported that their friends were sexually active (OR = 2.96,  $p < 0.01$ ), those who were not living with both parents (OR = 2.64,  $p < 0.004$ ), and those who had more new partner sex communication (OR = 1.11,  $p < 0.0001$ ) were more likely to be sexually active (Table 3). Female participants were less likely to be sexually active than males (OR = 0.42,  $p < 0.03$ ).

Girls Only Sub-sample

Girls who were older (OR = 2.0,  $p < 0.001$ ), who reported that their friends were sexually active (OR = 3.44,

$p < 0.03$ ), or who were not living with both parents (OR = 2.7,  $p < 0.02$ ) were more likely to be sexually active. In addition, girls with greater emotional distress (OR = 1.15,  $p < 0.005$ ) and who reported more communication with new partners about sexual issues (OR = 1.14,  $p < 0.008$ ) were more likely to be sexually active (Table 4).

Discussion

Very little published research has been conducted on Haitian-American youth, therefore comparisons of the current study findings were made with other populations in the US, and among Caribbean youth and youth from other countries. This study revealed that individual, peer and family factors were associated with adolescents' likelihood of being sexually active. Those adolescents who were older and reported greater emotional distress were more likely to be sexually active. Several studies examining the relationship among individual-level factors and high risk behaviors among Caribbean and Haitian youth have found that psychosocial factors, including anger/rage, self-efficacy and communication, were associated with engagement in risky behaviors [26, 39].

Mental health and relationship factors have emerged in previous research as predictors of risky behavior among US, Haitian youth. High levels of internalizing symptoms, notably depression and post-traumatic stress disorder, have been found in Haitian immigrant students in a Boston sample [40]. Also, in our previous work examining the usefulness of the Millon Adolescent Clinical Inventory (MACI) in community samples, we found a significant high pathology cluster in the Haitian youth of the current study, with related problems in mental health and family and peer relationships [41]. Yet, the relatively small number of studies among these adolescents highlights the need for further research to validate the current findings and how they may be translated into intervention strategies.

Haitian adolescents who had friends who were sexually active were more likely to be sexually active and, in the bivariate analyses, those whose friends engaged in delinquent behaviors were more likely to be sexually active. Many studies have found strong associations between the engagement of peers and the engagement of the adolescent in risky or deviant behaviors [42–44]. Not only do these studies support the powerful influence of peers on an adolescent's behaviors, the literature also suggests that in some cases, the strength of peer influence may in fact reverse the protective effects of positive family and school-based relationships [45].

In the bivariate analyses, adolescents with positive family dynamics (such as parental supervision and attention) were less likely to be sexually active, while those

**Table 3** Odds ratios for logistic regression model, predicting “Sexual Activity” for overall sample

Characteristics	Odds ratio (95 % CI)	<i>p</i> value
Age	1.6 (1.18, 2.15)	0.002
Gender		
Female verses male	0.42 (0.20, 0.85)	0.03
Communication about sex	1.11 (1.04, 1.2)	0.0001
Currently living with		
Mother only	3.10 (1.54, 6.20)	0.001
Father only	3.54 (0.90, 13.86)	0.07
Both versus else	2.64 (1.37, 5.13)	0.004
Family relationship	1.04 (0.91, 1.18)	0.54
Mental health	1.07 (0.99, 1.16)	0.07
Friends sexually active	2.96 (1.31, 6.66)	0.01

Family relationship and mental health are dichotomized based upon POSIT subscales

**Table 4** Odds ratios for logistic regression model, predicting “Sexual Activity” among girls

Characteristics	Odds ratio (95 % CI)	<i>p</i> value
Age	2.0 (1.31, 3.1)	0.001
Communication about sex	1.14 (1.04, 1.30)	0.008
Currently living with parents		
Both verses else	2.7 (1.14, 6.60)	0.02
Substance abuse	1.14 (0.86, 1.5)	0.36
Mental health	1.15 (1.04, 1.3)	0.005
Friends sexually active	3.44 (1.15, 10.3)	0.03

Family relationship and mental health are dichotomized based upon POSIT subscales

whose parents engaged in loud arguments were more likely to be sexually active. In the full model, a significant relationship emerged among those adolescents living with both parents and not being sexually active. Similar observations were made among a sample that included Blacks of Caribbean heritage in the UK, where low family support predicted engagement in high risk sexual behaviors [46]. Studies from the US, and other countries have found that good family relationships including support, cohesion, and closeness to parents, protected against engagement in sexual behaviors and alcohol use [44, 45, 47–49]. Parental monitoring has also been strongly associated with reduced levels of engagement in risky behaviors [50].

In this population girls were less likely to be sexually active than boys, and if sexually active, their mean age was older. The family relationships variable was the only variable in the mixed gender analysis that was also associated in the girls-only analysis with a lower likelihood of being sexually active. Among Haitians, cultural traditions discourage open discussion of sex with girls, while sexual activity is promoted among boys. These traditions may hinder the initiation of protective behaviors among females [17]. However in the US, girls are often more likely to speak to parents about risky behaviors; communication and family cohesion is associated among girls with protection from risky behaviors [51, 52].

Cultural mores among Haitian parents that discourage open communication about sex, as well as difficulties with the language and culture of their adopted country may make it challenging for interventions directed toward a broad range of immigrant parents/adolescents to be effective with Haitian parents. While these issues face many immigrant parents, for example research demonstrating an association between the differential speed of acculturation among parents/adolescents and delinquent behavior of immigrant Hispanic youth, studies have shown that family-centered prevention interventions that are tailored for the cultural realities of ethnic youth may reduce sexually risky behaviors among adolescents [53–57].

Haitian parents have expressed culturally related concerns about peer relationships and adolescent sexuality, and generally attempt to enforce strict measures as a means of control [14–16]. These measures however, may not be particularly effective given the social context in which their adolescents are being raised. Parents, therefore may engage in help-seeking behaviors, though these have generally been directed primarily towards family, rather than professionals, potentially reducing the effectiveness of corrective actions [27, 32]. Adapting and targeting interventions to address these needs requires that clinicians, particularly non-Haitian clinicians, should be knowledgeable enough of the culture to provide culturally competent care [58]. Given Haitian parents' concerns, interventions may be more effective if they

address the acculturative differences and normative expectations within the US context; finding common ground with parents' existing beliefs and traditions on parenting, religion, and peers, and using this connection to encourage practices that take their current context into consideration, may improve the effectiveness of interventions. Among Haitian-descended youth, programs should therefore consider targeting social norms, norms which have been influenced by cultural practices, level of acculturation of parents and adolescents, and the extent of the adolescents' engagement with other adolescents from similar cultures [26]. Incorporating these elements of culture will more likely have relevance, and will resonate more strongly with these adolescents.

Certain limitations of this study are important to note when interpreting the reported outcomes. The sample size was small and recruited from one large metropolitan area, reducing the ability to generalize findings. Convenience and snowball sampling of participants also may result in a lack of representativeness of Haitian adolescents in heightening the similarities between the participants. These findings may be most applicable to the group of Haitian adolescents that volunteered to participate in the study—those who are in school and/or engaged in community services. Baseline data was used, which, while informative and contributing to the literature on Haitian Americans, does not allow for assessing temporal relationships or causation. Measurement issues should also be taken into account. The non-significant difference in mean scores for the total “peer relationship” subscale may have occurred because the subscale includes both prosocial (parents approve of your friends) and anti-social (friends cut school a lot) aspects of peer relationships. Neither school nor neighborhood factors were significant in this study; however, in the literature these factors have been associated with risky behaviors, including alcohol use and general delinquency [59, 60]. It is possible that this relationship was not found due to measurement issues not fully capturing the impact of the domain. Finally, it should be noted that the “sexual communication” question indicates that sexual activity is already taking place among many; however it is also possible this question may measure the protective nature of communication about sex with partners.

Haitian-American youth represent a unique subpopulation in the US. In other countries, research has shown that while youth of Caribbean heritage may exhibit higher levels of risky sexual behaviors compared to the majority culture or compared to youth from the US, studies show that these youth also report high rates of other protective behaviors [46, 61]. Culturally-adapted interventions have been successful in reducing the rates of early sexual activity and frequency of risky sex [43, 62]. Findings from this study suggest that an understanding of cultural dynamics as well as gender-specific messaging may be

important components to reduce sexual activity among Haitian American adolescents. Further, gender-specific interventions, particularly those encouraging parental communication may enhance parents' influence upon their children's protective behaviors [45, 63].

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