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Social Factors Associated with History of Sexual Assault Among Ethnically Diverse Adolescents

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Abstract

We examine the association of adolescents' self-reported sexual assault victimization with their living arrangements, parent's education, and plans for college. Participants included 1,634 ethnically-diverse and economically-disadvantaged high school students in southeast Texas. Lifetime history of forced sexual assault was reported by 8.3% of girls and 9% of boys. No association with gender, age, or parent's education was detected. However, adolescents in non-traditional households (living with one parent, grandparents, or other) were more likely to report rape than youth living with both parents. Adolescents who were one race/ethnicity were less likely to report being raped than those in the multiple race category. Sexual assault intervention programs should account for a teenager's living situation; and prevention efforts may benefit from targeting individuals in non-traditional households. The lack of an association with either gender or socio-educational status indicates that all children are at risk and that school-based programs should be broadly targeted.

Keywords

Adolescents; Sexual assault; Living arrangements; Ethnicity; Education

Despite comprising a small minority of the population, adolescents represent approximately one-third of sexual assault and rape victims (Snyder 2000). Conservative estimates are that between 4% and 10% of adolescents experience an incident of forced sex/rape (Borowsky et al. 1997; Kann et al. 1999), while over 50% experience some form of sexual coercion (Struckman-Johnson et al. 2003; Testa and Dermen 1999). A recent nationwide survey conducted by the Centers for Disease Control (2008a) found that 7.5% of high school students reported having ever been physically forced to have sexual intercourse. Similarly, Silverman et al. (2001) found that approximately 10% of teenage girls surveyed in Massachusetts had experienced sexual assault. Females generally report higher rates of sexual victimization than men (Howard and Wang 2005; Shrier et al. 1998), especially when the sexual assault is severe and coupled with physical force (Maxwell et al. 2003; Tjaden and Thoennes 2000).

Sexual assault victimization during adolescence is associated with a host of negative outcomes including poor academic performance, sexual risk taking behavior, pregnancy, substance

abuse, and interpersonal problems (Ackard and Neumark-Sztainer 2002; Snyder 2000; Wordes and Nunez 2002). Sexually abused adolescents also are more likely to suffer from a range of psychopathology including depression, PTSD, anger control problems, low self-esteem, eating disordered behavior, and suicidality, compared to their non-abused peers (Ackard and Neumark-Sztainer 2002; Burgess et al. 1995; Putnam 2003). Alarming, research also suggests that adolescent victims of sexual assault are at greater risk of being victimized by and perpetrating sexual violence in the future, compared to adolescents who have not been sexually assaulted (Marx et al. 2001; Nishith et al. 2000; Veneziano et al. 2000; Wordes and Nunez 2002).

In light of the high prevalence and devastating consequences of sexual assault, it is imperative that effective prevention and intervention programs are designed. However, to accomplish this goal, we must continue to identify factors associated with experiencing sexual assault. For example, several studies have shown alcohol to contribute to victimization and perpetration (Harrington and Leitenberg 1994; Koss and Dinero 1989; Testa 2002). Other well-established predictors of sexual assault victimization and perpetration include having rape-supportive beliefs or associating with peers who have these beliefs, number of dating and sexual partners, and a lack of knowledge about what constitutes rape (Abbey et al. 1996; Rickert et al. 2004). However, less is known about the role of various social and socio-educational factors, such as an adolescent's living situation, their parent's education, and whether or not they plan to attend college.

Given the high prevalence of adolescents living in single parent households, grandparent-headed households, or other living situations, the importance of considering an adolescent's living arrangement cannot be overstated. Indeed, 2.6 million children live with their grandparents (US Census Bureau 2006). And while the impact of this pattern of childrearing has been extensively investigated on the mental and physical health of grandparents (Thomas et al. 2000), few studies have addressed the impact of this living situation on the grandchild's behavior (Hayslip and Kaminski 2005; Solomon and Marx 1995). Using data from the National Children's Health Supplement, Solomon and Marx (1995) found that, compared to children raised by one parent, children raised by their grandparents exhibited fewer behavioral problems at school. In fact, with the exception of academic performance, children in grandparent-headed households functioned at similar levels to those raised in traditional households. This is a somewhat surprising finding, given the circumstances that often contribute to the reason children live with grandparents (e.g., death of parents, parental drug use, child abuse). Indeed, other research has found that children raised by their grandparents exhibit increased emotional and behavioral problems relative to their peer counterparts (Hayslip et al. 1998). Summing up the state of current research, Hayslip and Kaminski (2005) conclude: "...we know little about the long term consequences of either having been raised by a grandparent or about raising a grandchild later in life (p. 27)".

In addition to considering living arrangements, it may be important to examine whether socio-educational variables are associated with an adolescent's likelihood of being sexually assaulted. Bergman (1992) found an inverse relationship between grade point average (predictor of college attendance) and sexual assault; specifically, as students' grades increased, their likelihood of having been sexually victimized decreased. In a study of rural and suburban high school students, Maxwell et al. (2003) found that students with no plans to attend college were over 6 times more likely to report a history of being sexually assaulted than students who planned to attend college. While students who attend college are provided with substantial resources to help cope with childhood sexual assault and prevent revictimization (e.g., counseling, support groups, awareness campaigns), students not attending college may lack these benefits. Thus, if sexual assault rates among students not planning on attending college

are equal to or higher than students planning to attend college, then we must do a better job of providing resources to these individuals (Maxwell et al. 2003).

The purpose of the present study is twofold. First, we examine the lifetime prevalence of forced physical sexual assault victimization in an ethnically diverse, low-income sample of male and female adolescents and compare them to national rates. Second, we investigate the association of self-reported sexual assault victimization with students' living arrangements, their parent's education, and their plans for college. This is one of a few existing studies to consider socio-educational variables, and among the first to consider the role of living arrangements in examining sexual assault victimization.

Method

Sample and Procedure

Participants included 1,634 students (53% female) attending a high school in Southeast Texas who responded to a question on sexual assault victimization. The school enrolls students who are typically from low-income families (nearly 49% of the students are classified as economically disadvantaged; Texas Education Agency 2008) and ethnically-diverse (current sample included 40% Hispanic, 29% African American, and 26% white). The voluntary questionnaire was administered in the Spring of 2007 during mandatory English classes to all children enrolled ($n=2,356$) and present on the day of administration, yielding a response rate of 75%. The response rate was reduced to 69% upon removal of 136 participants who had missing ($n=123$) or invalid ($n=13$) data. No information is available on the number of students who were not present or who chose not to participate.

Several steps were taken to ensure confidentiality, including emphasizing the anonymous nature of the questionnaire, instructing students to avoid placing identifying marks on the questionnaire, and instructing teachers to blindly place the questionnaires in sealed envelopes. Data were processed by the Office of Biostatistics of the University of Texas Medical Branch at Galveston (UTMB). Summary reports were prepared for the school district to meet specific program planning and evaluation needs. Copies of the electronic data for this report were released to the author by the school district. This study received approval from the Institutional Review Board of UTMB.

Measures

The full questionnaire was adapted from the Youth Risk Behavior Survey (YRBS), and included items on experiences with violence, perceptions of health, and risky behavior. The focus of the present study is on adolescents' history of being sexually assaulted, living situation, parent's education, and plans to attend college. *Sexual assault victimization* was assessed by asking students the following yes/no question: "Have you ever been physically forced to have sexual intercourse when you did not want to?"

Living arrangements was assessed by asking students who they live with. Participants could endorse "both parents," "one parent," or "grandparent." All other responses (e.g., relatives, friends) were coded as "other." If two or more responses were marked, we used the following guideline: both parents and any other was considered both parents; mother or father, and any other was considered one parent; and grandparent and any other was considered grandparent. Co-parenting was eliminated from consideration. All remaining combinations were coded as other, which could include living alone, or with other relatives, friends, or foster care.

Questions on the *grade of school their mother and father completed* were combined to indicate either both, one, or neither parent completed high school. If either question was unmarked, the result was treated as unknown. If the question on *whether or not the students planned to attend*

college was unmarked, it was recoded as a third category: unknown. This variable was then collapsed to two categories (i.e., yes and no or unknown).

Statistical Analysis

National estimates of the YRBS along with information reflecting its complex sampling design are published elsewhere (Centers for Disease Control and Prevention 2008a). The local data estimates can be treated as a simple random sample, and the usual standard error of the percentage can be estimated. Initially, we compared the student responses in our survey to the national data using Wald tests (Lohr 1999). The focal questions of this report (sexual assault victimization and living arrangements) are addressed with cross tabulations against the other variables. Because several variables could jointly affect the associations with sexual assault, logistic regressions are used to estimate adjusted odds ratios. In addition, interactions affecting the associations with living arrangements were examined on an exploratory basis. For all analyses, variables were deemed statistically significant if their *p*-values were less than or equal to 0.05. The interpretations rely on 95% confidence intervals derived from Wald statistics. All computations were conducted with SAS version 9.1 (SAS Institute Inc 2004).

Results

As shown in Table 1, 8.6% of the students reported having ever been physically forced to have sexual intercourse, which is comparable to the national rate of 7.8%. Although the local rates by grade and by race did not differ significantly from the national estimates, girls reported significantly less (8.3%), and boys significantly more (9%) sexual assault than did students nationally (11.3% and 4.5%, respectively). Further, whereas the national sample evidenced within-variable differences for gender, grade, and race/ethnicity, the local sample exhibited significant differences only for race. Specifically, students who identified themselves as non-Hispanic multiple race were significantly more likely than the other four groups to report a history of sexual assault victimization.

The estimates for the variables unique to this study (i.e., not collected at the national level) are shown in Table 2. Although not statistically significant, the rate of sexual assault victimization generally increased with age. Although parent's education was not associated with sexual assault, students who planned to attend college were significantly less likely to report a history of victimization than their peers who were not planning to attend college. Living arrangements were strongly associated with sexual assault. As students moved further away from traditional households, the more likely they were to report a history of victimization: living with both parents (5%); one parent (10.1%); grandparents (14%); and other living arrangements (20%).

To account for potential confounders, we estimated a logistic regression model containing gender, age, race/ethnicity, parent's education, plans to attend college, and living arrangements. The *p*-value for the test of each variable, as well as the odds ratios (OR) and 95% confidence intervals (CI) compared to the reference level, are shown in Table 3. Examination of the confidence interval reveals whether an OR is statistically significant: If the CI includes 1.0, then the obtained OR is not statistically significant, whereas a confidence interval not containing 1.0 indicates that the OR is statistically significant. Even after controlling for potential confounders, living situation was significantly associated with history of sexual assault victimization. Further, examination of the ORs and CIs for each of the living situations reveals that each was associated with significantly increased odds of victimization (ORs 2.50–5.54), relative to those who lived with both parents. In addition, race/ethnicity continued to be associated with sexual assault victimization when controlling for confounders. As in the adjusted analysis, non-Hispanic multiple race participants had significantly higher odds of victimization compared to non-Hispanic white participants. The variable, plans to attend

college, was no longer significantly associated with sexual assault when controlling for potential confounders.

Because of the large association between living arrangements and sexual assault, we deemed it necessary to explore possible interaction effects. Therefore, we ran a logistic model including the interaction of living arrangements with each of the other variables. Interactions were then deleted in a backwards fashion beginning with the largest *p*-value. All interactions were deleted, leaving the original model intact. The change in likelihood ratio was 22.506 with 33 degrees of freedom, confirming the non significance of the interaction terms.

Discussion

Among this sample of low-income, ethnically diverse high school students, plans to attend college, living arrangements, and race/ethnicity were associated with sexual assault victimization. Contrary to expectations, differences in parent's education, gender, and age were unrelated to whether or not an adolescent had experienced sexual assault. The adjusted college plans variable was also non significant.

Living Arrangements

Compared to children living with both parents, those living with one parent were 2.5 times more likely to report a history being forced into sexual intercourse. Further, adolescents living with their grandparents were 3.18 times more likely, and those living with another relative or a nonrelative were 5.54 times more likely to report a history of sexual assault victimization than were adolescents living with both parents. Given the substantially large number of children living in nontraditional households, and the fact that we know surprisingly little about the health and behavior of these children (Hayslip and Kaminski 2005), this is an important finding with substantial implications. According to a 2006 US census survey, over 2.6 million children live in a grandparent headed household and over one million live with their grandparents with no parent present. In addition, tens of thousands of children are raised by one-parent, another relative, or a non relative. Thus, it is essential that sexual assault intervention programs account for teenagers' living situation. Moreover, high school administrators, teachers, and counselors could provide focused attention to students living in non-traditional households, as well as being a resource for their guardians. Future research should build on these and previous findings (Rickert et al. 2004) to obtain a better understanding of children living in non-traditional households.

Because the questionnaire was limited to a single item on the occurrence of lifetime sexual assault, it is impossible to determine the identity of the perpetrator, or whether the sexual assault was related to child abuse or dating violence. With that in mind, we offer several possibilities to explain why children further removed from a traditional household were more likely to have experienced forced sexual intercourse. First, if the sexual assault was perpetrated by a parent or immediate family member, then that may explain why the child is no longer living with his/her parents or is only living with one parent (i.e., parents divorced secondary to revelation of sexual assault). The design of this study makes it impossible to determine whether living arrangements is a risk factor or result of sexual assault. Longitudinal research is needed to further examine this relationship. Second, being introduced to new or multiple living arrangements could increase the risk of sexual assault by increasing the number of potential perpetrators. Third, the relationship between living arrangements and sexual assault may be indirect. That is, the reason the child is no longer living with his/her parents (e.g., incarcerated parents, parental drug use, child physical abuse, death of parents) may lead to psychological problems, and delinquent behavior, such as substance use or risky sexual behavior, all of which have been associated with an increased risk of sexual assault (Shrier et al. 1998; Testa and Parks 1996).

Finally, it could be that the surrogate parents lack sufficient resources to raise these children. For example, custodial grandparents may find it difficult to balance the demands of raising grandchildren with the demands of older age (e.g., retirement, reduced income, health problems). This situation is complicated by the fact that children in these households may exhibit a heightened prevalence of emotional and behavioral problems (Hayslip et al. 1998). Additional resources should be allocated to non-traditional households to enhance the social and psychological functioning of the surrogate parents and the children they care for (Thomas et al. 2000). In fact, regardless of whether non-traditional living arrangements are a risk factor for or result of sexual assault, providing resources (educational, counseling) to non-traditional households could serve to prevent the occurrence or ameliorate the effects of sexual assault.

Education

We did not find a relationship between our socio-educational measures and sexual assault victimization among adolescents. Although victims of sexual assault were less likely to plan on attending college than their non-victimized counterparts, this association became smaller when other variables were included in the equation. This finding is contrary to that of Maxwell et al. (2003), who found that victimized adolescents were 6 times less likely to plan on attending college. However, differences between the two studies should be interpreted with caution. The present sample of adolescents is unique in that they and their peers are granted 2 years free tuition to the local community college; thus, whereas access to college may have impacted the Maxwell et al. study, it was likely a less important factor in the current study. Regardless, it is imperative that future research continue studying the relationship between sexual assault victimization among adolescents and intentions to attend college. As articulated by Maxwell et al., a substantial amount of resources and attention is targeted at college students. However, adolescents who choose not to attend college may be as, or more, likely to have a history of sexual assault than those who go on to college. Thus, additional attention through research and community outreach should be directed toward these adolescents and young adults to prevent revictimization and to help them cope with erstwhile victimization.

Race/Ethnicity

Unlike the present study where African-American and Hispanic participants comprised 68% of the sample, most existing research on sexual assault victimization is limited to primarily white samples. When race/ethnicity has been included, results have been mixed. For example, whereas Abbey et al. (1996), and Rickert et al. (2004) found higher proportions of forced sexual assault among African-Americans, other studies have found no such differences (Maxwell et al. 2003; Muram et al. 1995; Peipert and Domagalski 1994). Consistent with the latter studies, our current findings indicate no significant differences between the three major race/ethnicity groups. However, adolescents of multi-ethnic descent were substantially more likely to report experiencing sexual assault than their counterparts. Although the relatively small sample size of this group makes it difficult to draw conclusions, the robustness of this finding warrants additional attention.

Gender

Boys and girls did not significantly differ in their reported prevalence of sexual assault victimization. With few exceptions (Foshee 1996), this is contrary to previous research showing that girls are two to three times more likely to be sexually assaulted than are boys (Centers for Disease Control and Prevention 2008a; Howard and Wang 2005; Shrier et al. 1998). In examining the regional data of the YRBS (Centers for Disease Control and Prevention 2008b), we noted similar victimization rates for males and females in the cities of Chicago (11.3% for both genders), Houston (10.3% and 9.8%, respectively), and Los Angeles (5.7% and 5.6%, respectively). It is possible that sexual assault of male adolescents is a local

phenomenon that is obscured at the national level. In fact, in three preceding surveys administered to adolescents in this area over the past 8 years, the prevalence of sexual assault victimization has ranged from a low of 8.1% and a high of 11.4% for girls, and from a low of 8.1% and a high of 10.6% for boys. It may also be that the ongoing nature of surveys administered in this area has re-assured the adolescents about the confidentiality of the results, allowing us to obtain candid responses from the boys. The large sample size suggests that the absence of a difference between boys and girls in the reporting of sexual assault is unlikely to be a statistical anomaly.

There is a tendency to think of sexual assault as a female problem. However, the high prevalence of victimization among boys in the current sample, along with previous research showing that victimized boys have increased rates of suicide attempts (Howard and Wang 2005; Olshen et al. 2007), suggests that intervention programs should equally target both genders. Further, boys with a history of sexual assault are more likely to be involved in teenage pregnancy than are boys without such a history (Pierre et al. 1998; Shrier et al. 1998). Therefore, programs targeting boys who have experienced sexual assault may have the added benefit of reducing unwanted pregnancies. At the very least, additional research is needed to deepen our understanding of sexual assault victimization among adolescent boys.

Limitations

The primary limitations of this study are the cross-sectional nature of the design, use of self-report, and the inclusion of an outcome variable referring to an event without an anchor in time (i.e., “Have you *ever* been forced to have sexual intercourse when you did not want to”). Unlike living arrangements and college plans, which refer to current events, sexual assault victimization could have occurred in high school or in childhood. As noted above, it is not possible to disentangle whether the child is more vulnerable because of current living arrangements or because of prior removal from an abusive situation. While these statistical models help to understand the association structure of these data, they do not reduce the need for future research that will explicitly account for the time sequence, particularly for the relationship between living arrangements and history of sexual victimization.

Conclusions

The current study extends previous research by examining the relationship between sexual assault victimization, living arrangements, and socio-educational variables among a low-income, ethnically-diverse sample of adolescents. Although a single cross-sectional study cannot be definitive, the present findings suggest several steps. First, it is clear that we need to continue examining national and local data to determine the underlying risk of sexual assault to girls *and* boys. Given the severe consequences, we cannot overlook the opportunity for early interventions to remediate the effects. Second, the strong relationship we identified between adolescents’ living situations and reported history of experiencing sexual assault should be examined further. For example, a prospective study of adolescents transitioning into a nontraditional household could illuminate the temporal sequencing of the two variables. Further, resources could be specifically targeted to adolescents living in no-traditional households. Finally, the lack of an association with either gender or socio-educational variables indicates that all children are at risk and that school based programs should be broadly targeted. Moreover, given the prevalence of sexual assault victimization at around 8% at the local and national level, these programs need to be implemented in a timely manner.

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Table 1

Comparison of sexual assault victimization by gender, grade, and race/ethnicity for current sample and national sample

	Sample		US		Wald test	
	% Yes	n	% Yes	SE ^a	df=1	p-value
Total	8.6	1,634	7.8	0.4	1.0721	0.3005
Gender? ^b						
Male	9.0	749	4.5	0.4	16.1553	0.0001
Female	8.3	841	11.3	0.7	6.2909	0.0121
Grade? ^c						
Nine	8.8	497	6.6	0.6	2.4509	0.1175
Ten	7.4	503	8.2	0.8	0.3196	0.5718
Eleven	7.6	357	8.5	0.7	0.3297	0.5659
Twelve	12.1	273	8.3	0.6	3.3929	0.0655
Race/ethnicity? ^d						
Non Hispanic white only	6.9	418	7.0	0.5	0.0056	0.9404
Non Hispanic black only	9.3	464	10.5	0.9	0.5480	0.4592
Hispanic any race	7.8	643	8.8	0.8	0.5687	0.4508
Non Hispanic Asian and Pacific islanders only	12.3	57	not available			
Non Hispanic multiple race	23.8	42	not available			

^a available at CDC at <http://apps.nccd.cdc.gov/yrbss/SelectLocyear.asp?cat=1&Quest=Q22>

Pearson Chi-squares comparing groups within current sample

^b $\chi^2 = 0.1946$ df=1, $p=0.6592$

^c $\chi^2 = 5.7091$ df=3, $p=0.1267$

^d $\chi^2 = 15.6945$ df=4, $p=0.0035$

US sample significantly different on gender, grade, and race/ethnicity

Table 2

Sexual assault victimization by age, living arrangements, parent's education, and plans to attend college

Question	% Yes	<i>n</i>	p-value
Age?			0.4383
14	6.7	150	
15	8.6	452	
16	7.3	477	
17	9.9	352	
18 Years or older	10.8	203	
Both parents completed high school?			0.5152
No	8.5	1,296	
Yes	9.8	235	
Do you plan to attend college?			0.0468
No or don't know	13.4	127	
Yes	8.2	1,507	
Who do you live with?			<0.0001
Both parents	5.0	799	
One parent	10.1	593	
Grandparents	14.0	86	
Other	20.0	135	

Table 3

Adjusted likelihood of sexual assault victimization by gender, age, race/ethnicity, living arrangements, parent's education, and plans to attend college

Question (number missing)	Adjusted p-value	Odds ratios ^a	95% confidence limits	
Gender? (63)				
Male	0.7401	1		
Female	df=1	0.94	0.64	1.37
Age? (19)				
14	0.3984	1		
15	df=4	1.37	0.63	2.99
16		0.86	0.39	1.92
17		1.24	0.56	2.74
18 years or older		1.44	0.61	3.36
Race/ethnicity? (29)				
Non Hispanic white only	0.0049	1		
Non Hispanic black only	df=5	1.05	0.62	1.19
Hispanic		0.99	0.58	1.67
Non Hispanic Asian and Pacific islanders only		2.10	0.82	5.34
Non hispanic multiple race		4.53	1.86	11.06
Both parents completed high school? (122)				
No	0.5795	1		
Yes	df=1	1.16	0.69	1.96
Do you plan to attend college? (19)				
No or don't know	0.1592	1		
Yes	df=1	0.64	0.34	1.19
Who do you live with? (40)				
Both parents	<0.0001	1		
One parent	df=3	2.50	1.58	3.94
Grandparents		3.18	1.46	6.93
Other		5.54	3.08	9.95

^a 1 is comparison group