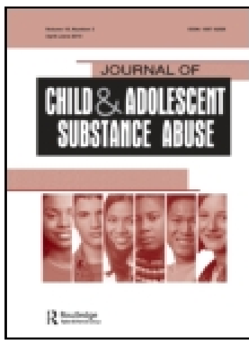

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Adolescent Girls in Out-of-Home Care: Associations Between Substance Use and Sexual Risk Behavior

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ABSTRACT

Substance use and sexual risk behaviors continue to be major concerns for today's youths, and are particularly problematic for those who have been placed in out-of-home care settings. The purpose of this study was to explore these associations in a sample of 120 girls placed in a residential treatment setting and attending an on-site school in a major metropolitan area in the Midwest. A modified Youth Risk Behavior Survey (YRBS) was administered including questions relating to the youths' foster care or adjudicated status. The substance use variables targeted were alcohol and drug use. The sexual risk behavior variables were age of onset of first sexual intercourse, virginity status, contraceptive use, age of first sexual partner, and experience with ever having been forced to have sex. Results indicate that earlier onset and greater frequency of substance use were both correlated with number of sexual partners. Frequency of substance use was a significant and consistent contributor. Age of sexual partner was an inconsistent contributor, and history of forced sexual activity was not a contributor. Implications for policy and practice are offered to enhance the health and well-being of this unique population.

KEYWORDS
adolescent females; foster care and adjudicated youth; residential treatment; sexual risk behaviors; substance use

Introduction

Substance use and sexual activity is a common and potentially devastating combination for all youths, but is especially problematic among court-involved adolescents (i.e., those in foster care or engaged in the juvenile justice system). The United States foster care population reached 400,540 in 2011 (U.S. Department of Health and Human Services [USDHHS], 2012). The Office of Juvenile Justice and Delinquency Prevention (2013) reported that, in 2010, more than 1.3 million delinquency cases were handled in juvenile courts across the United States. Of those, 70,792 children involved in those cases were placed in a facility as part of a court-ordered disposition (Sickmund, Sladky, Kang, & Puzzanchera, 2011). When children in foster care are arrested for delinquent acts (such as substance use or prostitution), they are more likely than youths not in foster care to be sent to juvenile detention to await trial even though they have not been charged with more serious crimes (Conger & Ross, 2001).

Substance abuse includes the use of alcohol and illegal drugs such as marijuana, cocaine, heroin, and other "street drugs," as well as the misuse and abuse of prescription and over-the-counter medications. Such hazardous, high-risk behaviors bear heavy consequences for this young population, and for our nation as a whole. Drug abuse is a serious public health problem in the United States, costing the nation approximately $151.4 billion annually (The Partnership at Drugfree.org, 2012). Even cigarette use is part of the substance abuse constellation, as it is often considered a "gateway drug" because it typically comes first in a sequence of increasingly serious substance use (e.g., Eaton et al., 2012; Pentz & Riggs, 2013; Riggs, Chou, Li, & Pentz, 2007). It has also been linked to sexual activity (Cavazos-Rehg et al., 2011; Sussman, 2005).

Youths who have ever been in foster care had higher rates of illicit drug use than youths who have never been in foster care (33.6% versus 21.7%, respectively), with substance abuse playing a factor in at least three-quarters of all foster care placements (Substance Abuse & Mental Health Services Administration, 2005). Early onset of sexual activity can lead to unprotected sex and, ultimately, unplanned pregnancies and/or contraction of sexually transmitted diseases (STDs). Females with foster care experience also are significantly more likely than other females to report having had casual sex and sex for money (Ahrens, 2010). Foster youths are significantly more likely to become pregnant and to have children at much higher rates than teens in general (Bilaver, 2006;

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Boonstra, 2011; Courtney et al., 2007). Teen pregnancy brings substantial social and economic costs through immediate and long-term impacts on teen parents and their children (Centers for Disease Control and Prevention, 2012a), and it impacts society greatly, accounting for nearly $11 billion annually in myriad costs to U.S. taxpayers (Centers for Disease Control and Prevention, 2012a).

A review of research by Kirby (2001) indicated that those believed to be among the most prone to substance abuse and engaging in sexual activity early on are those who present the most risk factors (see review by Kirby, 2001). Individual risk factors include having experienced child abuse (physical, sexual) or other family violence, having favorable attitudes toward the problem behavior (low perceived risk of harm), having friends who engage in the problem behavior, looking physically older than peers, and initiating problem behavior early on (Kirby, 2001). In addition to these individual-level risk factors, family-related risk factors, school risk factors, and community related risk factors also contribute to substance abuse and early sexual activity. These include death of close family members, family history of the problem behavior, family management problems (lack of supervision or involvement), family conflict, favorable parental attitudes and involvement in problem behaviors, and household access to substances (Kirby, 2001). The most common school risk factors are academic failure and a lack of personal commitment or interest in school. Finally, the most common risk factors among the youth's community involve the availability of alcohol or other drugs, poverty, low neighborhood attachment, community disorganization, and stability transitions and mobility (Kirby, 2001).

Impact of substance abuse: Drugs and alcohol

Alcohol, a depressant, is the most commonly used and abused drug among youths in the United States, and is responsible for more than 4,700 deaths annually among underage youths (Centers for Disease Control and Prevention, 2012b). Youths who start drinking before the age of 15 are five times more likely to develop alcohol dependence or abuse later in life than those who begin drinking at or after age 21 years (Centers for Disease Control and Prevention, 2012b). By eighth grade, almost 47% of American females have tried an alcoholic drink, and by tenth grade, almost 69% (National Institute on Alcohol Abuse and Alcoholism, 2003a). In a Missouri study of 17-year-olds in foster care, 45% of foster care youths reported using alcohol or illicit drugs within the past six months; 49% had tried drugs sometime during their lifetime and 35% met criteria for a substance use disorder, statistics that are similar to levels of lifetime alcohol and illicit substance use when compared to the general adolescent population (Vaughn, Ollie, McMillen, Scott, & Munson, 2007). Substance abuse, regardless of age of use, impairs judgment, suppresses inhibition, reduces perception of risk, and/or heightens desire (National Institute on Alcohol Abuse and Alcoholism, 2003b). This leads to a host of negative outcomes for youths and costs for society (U.S. Department of Health and Human Services, 2007).

Impact of sexual activity

Early onset of sexual activity increases the likelihood of serious consequences and unwanted outcomes such as pregnancy and/or sexually transmitted diseases (STDs). It has been established that forty percent of U.S. females have had sex by the age of sixteen (Johnson & Tyler, 2007). A report by the Alan Guttmacher Institute (2002) indicated that the average age of first sex for girls was 17.4 years. More recently, it has been established that 40% of U.S. females have had sex by the age of 16 (Johnson & Tyler, 2007). In 2011, the Centers for Disease Control and Prevention reported that 53% of students had sexual intercourse, of which 33.7% had done so within the past three months, 39.8% did not use a condom the last time they had sex, and 76.7% did not use oral or injected contraceptives. Furthermore, 15.3% had had sex with four or more people in their lives (Centers for Disease Control and Prevention, 2012c). Former foster care females report having intercourse approximately 1.5 years earlier and had 2.2 more partners than their non-foster care peers (Ahrens, 2010).

Risks associated with these sexual behaviors include high rates of HIV, sexually transmitted infections (STIs) and STDs, and unintended pregnancies (Centers for Disease Control and Prevention, 2012c). In addition, females with a foster care background were three times more likely than other females to test positive for trichomoniasis, and males with experience in foster care were 14.3 times more likely to test positive for gonorrhea and three times more likely than their non-foster care peers to test positive for chlamydia (Ahrens, 2010). Teen pregnancy and birth are also significant contributors to high school dropout rates among girls, with only about 50% of teen mothers receiving a high school diploma by the age of 22, in contrast to approximately 90% of women who were not teen mothers, and long-term impacts abound (Centers for Disease Control and Prevention, 2012a). Children of teen mothers are more likely to be removed by child protective services and to grow up dependent on public assistance (George, Harden, & Lee, 2008).

Teen pregnancy and sexually transmitted diseases are not, however, the only potential consequences of sexual activity at a young age. One other risk is that of becoming a victim of forced sexual activity (via sexual violence or assault), as the majority of this victimization starts early in life. According to the Centers for Disease Control and Prevention (2012d), approximately 80% of female victims experienced their first rape before the age of 25 and almost half experienced the first rape before the age of 18 (30% between 11 and 17 years old and 12% at or before the age of 10). It was also reported that compared to 14% of women who did not have an early rape history, about 35% of women who were raped as minors were also raped as adults. Disconnected youths are particularly vulnerable to victimization. At least half of the commercially sexually exploited children on the streets were at one time living in foster care (Ryan, 2013), and they have also been found to be more likely to later engage in abusive and aggressive sexual behaviors toward others (Dowdell, Cavanaugh, Burgess, & Prentky, 2009). The behaviors exhibited by these girls may lead to negative consequences. There is a great need for better, more effective prevention and intervention programs, both in the community and in out-of-home care settings.

Relations between substance abuse and sexual activity

For children in foster care and other out-of-home settings, the transition into adolescence is more complicated by their maltreatment histories and living fluctuations, especially for *girls* in foster care, who have often experienced sexual abuse and are at risk for associating with older antisocial males (Chamberlain, Leve, & Smith, 2006), which is linked to a host of risk behaviors. Prior substance use has been found to increase the probability that an adolescent will initiate sexual activity, and vice versa, even after adjusting risk factors such as age, race, gender, and parental educational level (Henry J. Kaiser Family Foundation, 2002). Substance use and sexual risk taking are each major concerns among youths and become more worrisome when combined due to lack of condom use and greater numbers of partners while both sexually active and using substances (Santelli, Robin, Brener, & Lowry, 2001). In a similar study, Shrier, Emans, Woods, and DuRant (1997) found strong relations among early age onset of sexual intercourse and drug use, lifetime and current problem drug behaviors, and sexual risk behaviors, including for African-American teens. In summary, the consistent and strong association between substance use and engaging in sexual intercourse highlights the need to educate young people about the effects of drug use on sexual risk behaviors, including partner choice, teen pregnancy, and the risk of infection with sexually transmitted diseases.

Current study

The goals for the current study were to examine these associations among this unique group of girls, most who are in foster care or the juvenile justice system, as much less is known about them with respect to these research questions. The specific aims of this study were the following: (a) What are the relations between (1) onset and frequency of drug and alcohol use and (2) the age of onset of sexual intercourse and the number of sexual partners?; (b) Are there differences in onset and frequency of drug/alcohol use by contraceptive use at last sex?; and (c) What are the additional roles beyond drug and alcohol use of "partner age at first sex" and "ever being forced to have sex" in age of onset of sex and number of sexual partners? It was expected, based on prior literature, that substance use would contribute significantly to the onset and frequency of sexual behavior and that the other sex-related factors examined would exacerbate that contribution. This is, in large part, based on averages for age of onset of both substance use and sexual behavior in girls as determined by research. Establishing this knowledge will help in understanding the interplay between substance use and risky sexual behaviors in terms of how they influence each other. Doing so will allow for better educational and prevention efforts aimed at those in high-risk populations, such as the one examined in this study.

Method

Participants

The participants included 120 girls who were placed in a residential treatment center in a major metropolitan area in the Midwest. Upon entry into the residential setting, it was noted from which of two systems the students were primarily coming at that time—either the foster care system (57%) or the juvenile justice system (43%). This was our targeted population for understanding the relations among these study variables. The mean age of the adolescents was 15.7 years (range = 12 through 18 years). Participants were in seventh to eleventh grades, with the majority in ninth through eleventh grade (median grade = 10). The majority were African-American (57.2%) or White (29%). Most participants ($N = 80$) reported one to three instances of being placed in a foster home or other out-of-home care setting. This sample is not reflective of the racial and ethnic

makeup of children in foster care or in the juvenile justice system in the state; however, it is reflective of the state and national data that describe that children of color are over-represented in these systems (Casey Family Programs, 2011).

Measures

This study was conducted using the Michigan Foster Care Youth Health Behavior Survey, a modified Youth Risk Behavior Survey (YRBS) questionnaire, which measured various aspects of participants' health behaviors and demographic factors. The modified version of the YRBS contained approximately 70 items. This survey was developed as an interagency partnership between the Michigan Departments of Human Services, Community Health, and Education. The original version of the Youth Risk Behavior Survey does not delineate risk behavior among subgroups of students, such as those in out-of-home care settings. This study is one of the first attempts to use the Youth Risk Behavior Survey to assess risk behavior in this population.

Alcohol and drug use

A series of eight single-item Likert-type questions were utilized. Participants answered questions about their age at the time that they first smoked cigarettes, first drank one alcoholic drink, first drank five or more alcoholic drinks, and first smoked marijuana (11 options from age eight and under through 18 and older). Participants also indicated their current frequency of cigarette smoking, frequency of drinking one alcoholic drink, frequency of drinking five or more alcoholic drinks, and frequency of marijuana smoking. Following were the response options for each of these four frequency items: 1 = never, 2 = one time or a few times a year, 3 = once or a few times a month, 4 = once or a few times a week, and 5 = once or a few times a day. Finally, a composite of frequency of cigarette use, frequency of consuming five or more alcoholic drinks, and frequency of marijuana usage was created by averaging the three items and labeling it "frequency of all substance use" for the purposes of this study.

Sexual risk behavior

Five single-item questions were utilized to measure sexual risk behavior. Onset of sexual intercourse and contraceptive use were measured by asking participants (a) at what age they began having sexual intercourse (7 response options: 1 = age 11 years and younger, 2 = age 12, 3 = age 13, 4 = age 14, 5 = age 16, 6 = age 16, 7 = age 17 and older), and (b) whether or not they used a condom during their last act of sexual intercourse (yes/no; coded 1 = yes or 2 = no). In addition, (c) one question was used to determine the difference in years between participants and their first sexual partner (coded 1–6, with 1 = participant was 5 or more years younger than partner, 2 = 3–4 years younger, 3 = about same age, 4 = 3–5 years older, 5 = 6–9 years older, 6 = 10 or more years older), (d) participants' experiences with forced sexual intercourse was measured by a question that asked whether the participant had ever been physically forced to have sexual intercourse against her will (coded as 1 = yes or 2 = no), (e) they were asked to indicate their total number of sexual partners across their lives, and (f) their current virginity status (1 = non-virgin, 2 = virgin).

Procedure

The study was approved by the university's institutional review board (IRB). Informed consent was obtained by each participant's parent or guardian prior to administration. Before completing the survey, girls who agreed to participate were required to complete an assent form. Survey completion took place under the supervision of several teacher aids and researchers. The teacher aids, who are always present in classrooms, were there to help with behavior management and keeping the girls on task as needed. Participants who required assistance reading the survey had items or the whole survey read to them as needed. In all cases, however, the girls were given an envelope and cover-up sheet to keep their answers private. Students were also encouraged to reach out to staff if they needed clarity on question wording. The classroom sizes were small (about 10 girls per room). It was the perception of the researchers that the girls were comfortable, and no one indicated feeling a lack of privacy and confidentiality.

Results

The general purpose of this study was to examine the relations between substance use and sexual behavior in a sample of young girls in a residential treatment center. Means and standard deviation for the criterion variables are presented in Table 1. Analyses are organized next by research question. Aim 1 was to determine relations between substance use onset and frequency and age of onset of sexual intercourse and number of sexual partners. Pearson correlation coefficients are presented in Table 2. Results indicate a consistent association between number of sexual partners and various substance use variables, including (a) frequency of cigarette use ($r = .40$, $p < 0.01$), (b) onset ($r = .30$, $p < 0.05$), and frequency ($r = .42$,

Table 1. Descriptive Statistics for All Variables.

Variable	Mean	*SD*	Min.	Max.
Onset of cigarette use	4.01	3.28	1.00	11.00
Onset of 1 alcoholic drink	5.34	3.29	1.00	11.00
Onset of 5 or more alcoholic drinks	5.49	3.48	1.00	11.00
Onset of marijuana use	5.27	3.14	1.00	11.00
Frequency of cigarette use	2.48	1.69	1.00	5.00
Frequency of 1 alcoholic drink	2.39	1.27	1.00	5.00
Frequency of 5 or more alcoholic drinks	1.92	1.18	1.00	5.00
Frequency of marijuana use	2.96	1.69	1.00	5.00
Frequency of all substance use	2.61	1.32	1.00	5.00
Age of first sexual intercourse	3.64	1.71	1.00	7.00
Age of partner at first sexual intercourse	3.86	1.19	1.00	6.00
Contraceptive use	1.51	.05	1.00	2.00
Force of sexual intercourse	1.70	.46	1.00	2.00
Number of sexual partners	3.93	2.08	1.00	7.00
Virginity status	1.17	.38	1.00	2.00

Note. Please see Method section for details about possible range and interpretation of scores for each variable. For example, a mean of 3.64 for age of first sexual intercourse is interpreted as about halfway between scores of 3 and 4, which correspond to ages 13 and 14, and a mean of 1.51 for contraceptive use at last sexual intercourse is interpreted as about halfway between scores of 1 and 2, which correspond to 1 = yes and 2 = no. Details for all scales and interpretations are in Measures subsection.

$p < 0.01$) of one alcoholic drink, (c) onset ($r = .25$, $p < 0.05$) and frequency ($r = .38$, $p < 0.01$) of five or more drinks, and (d) onset ($r = .22$, $p < 0.05$) and frequency ($r = .40$, $p < 0.01$) of marijuana use. Correlations were varied in strength. Moderate correlations were found for both frequency of cigarette use and one alcoholic drink. All other variables were only slightly correlated with number of sexual partners. In addition, slight correlations were found between onset of sexual intercourse and onset of cigarette use ($r = .21$, $p < 0.05$), onset of one alcoholic drink ($r = .37$, $p < 0.01$), onset of five or more drinks ($r = .38$, $p < 0.01$), and onset of marijuana use ($r = .39$, $p < 0.01$).

A one-way analysis of variance (ANOVA) was used to examine whether there were differences in onset and the composite variable measuring frequency of all substance use by contraceptive use at last sex (Aim 2). See Table 3. Results revealed that the only significant difference by contraceptive use was for frequency of cigarette use ($F(1, 90) = 7.65$, $p < .007$). Those who used contraceptives at last sexual intercourse reported less frequent cigarette use.

Table 2. Correlations Between Substance Use and Onset of Sexual Intercourse and Number of Sexual Partners.

Variable	Onset of Sexual Intercourse	Number of Sexual Partners
Frequency of cigarette use	−.10	0.40***
Frequency of 1 alcoholic drink	−0.06	0.42***
Frequency of 5 or more alcoholic drinks	−.07	0.38***
Frequency of marijuana use	0.04	0.40***
Onset of cigarette use	0.21*	0.17
Onset of 1 alcoholic drink	0.37*	0.30*
Onset of 5 or more alcoholic drinks	0.38*	0.25*
Onset of marijuana use	0.39*	0.22*

*** $p < .001$. * $p < .05$.

Two hierarchical linear regression analyses were used to examine Aim 3, which was intended to determine the additional roles of partner age at first sex and having ever been forced to have sex in (a) age of onset of sex and (b) on the number of sexual partners, above and beyond variance explained by substance use. In each regression, frequency of all substances used was entered as a predictor variable on Step 1, and entered on Step 2 were partner age at first sex and whether the adolescent was ever forced to have sex.

The first regression analysis included age of onset of sexual intercourse as the criterion variable. Results showed that at Step 1, greater frequency of substance use was a significant predictor of earlier onset of sexual intercourse ($\beta = -.308$, $p = .003$). At Step 2, frequency of substance use remained significant ($\beta = -.235$, $p = .021$), and partner age at first sex was also a significant contribution to the model ($\beta = -.341$, $p = .001$), but force was not. At the end of Step 2 the total model results were $R^2 = .20$, $p < .01$. Partner age and force were added to determine if these variables were significant or not, and results showed that this contributed above and beyond Step 1.

Similar to the first regression analysis, a second regression was run with the number of sexual partners as the criterion variable. Frequency of substance use was significant at Step 1 ($R^2 = .19$, $p < .001$; $\beta = .436$, $p < .001$). It continued its significant contribution at Step 2 ($R^2 = .20$, $p < .001$; $\beta = .425$) but neither partner age at first sex nor experience of forced sex added to the model above and beyond frequency of substance use.

Discussion

The main purpose of this study was to explore the role of substance use and other variables in the sexual risk behaviors in a unique group of adolescent girls placed in out-of-home care in a residential treatment facility. In particular, the onset and frequency of substance use were examined in an attempt to understand how such behavior is associated with these girls' risky sexual behaviors. The ultimate aim here was to better inform efforts to ameliorate or prevent risky behaviors among adolescents with these backgrounds (in foster care or the juvenile justice system). Overall, the results of this study did support current expectations and prior studies (e.g., Henry J. Kaiser Family Foundation, 2002; Santelli, Robin, Brener, & Lowry, 2001), which suggested that the onset and

Table 3. Means, Standard Deviations, and ANOVA Results for Onset and Frequency of Substance Use by Contraceptive Use at Last Intercourse.

	Contraceptive Used		Contraceptive Not Used				
	M	*SD*	*M*	*SD*	*df*	*F*	*P*
Freq. of cigarette use	2.11	1.54	3.06	1.73	1, 91	7.65	.007*
Freq. of 1 alcoholic drink	2.29	1.29	2.77	1.19	1, 92	3.51	.064
Freq. of 5+ alcoholic drinks	1.89	1.13	2.09	1.28	1, 91	0.60	.439
Freq. of marijuana	2.87	1.66	3.44	1.61	1, 92	2.83	.096
Onset of cigarette use	4.00	3.52	4.45	3.47	1, 93	0.42	.519
Onset of 1 alcoholic drink	5.24	3.47	6.14	2.81	1, 94	1.93	.168
Onset of 5+ alcoholic drinks	5.61	3.52	6.20	3.12	1, 95	0.76	.386
Onset of marijuana	5.23	3.32	5.90	2.79	1, 95	1.13	.291

*$p < .05$.

frequency of risky sexual behaviors were associated significantly with onset and frequency of substance use.

Several additional contributions by studying this sample were also noteworthy. Specifically, greater frequency of substance use was associated with a greater number of sexual partners for this sample. Substance use onset was also associated with number of sexual partners, with earlier onset predicting a greater number of partners. Age of sexual intercourse onset was correlated only with onset of substance use. In particular, it was found that the younger that participants engaged in substance use, the earlier was their onset of sexual intercourse. These findings are consistent with previous studies that suggest such a link between substance use and sexual risk behaviors, with substance use beginning earlier in life. This was not surprising. However, results also indicated that contraceptive use played almost no role in substance use, except with frequency of cigarette use. Because substance use and use of contraception were, for the most part, unrelated in this group of girls, it may be a positive indication that some of them may be exercising caution with sexual behavior regardless of their engagement in other risky behaviors. The association between more contraceptive use and less cigarette use may be an effect of anti-smoking during pregnancy campaigns, which may be making an impact on these girls.

Finally, through Aim 3 analyses, we found that frequency of substance use contributed significantly to both age of onset of sexual intercourse and number of sexual partners. However, the additional contributions of sexual partner age and experience of having been forced to have sex were inconsistent across analyses. Forced sexual activity did not add to the problematic behaviors studied here (e.g., earlier onset of sexual intercourse and greater numbers of sexual partners), but partner age being older did contribute significantly to age of onset of sexual intercourse. In other words, substance use carried more weight in what were conceptualized in this study as risky sexual behaviors than did age of sexual partner, and experience with forced sexual activity did not have a significant role at all. These findings have implications for development of prevention and intervention efforts tailored to teens' needs and experiences.

Implications for policy and practice

The findings of this study raise several implications for policy and practice. First, when adolescents screen positive for one risky behavior—whether drinking, smoking tobacco, using illicit drugs, or having unprotected sex—it is generally a good marker for the others. For many youths, drinking alcohol is the first risky behavior tried. Quick and simple screening tools, such as the three items developed by Johnston, O'Malley, Bachman, and Schulenberg (2011), can alert child welfare, mental health, and school-based health practitioners early of youths who may need attention for other risky behaviors as well. Developing screening processes in multiple systems in adolescents' lives is an important step in changing practices that can improve methods of early symptom response for these teens.

Second, the Fostering Connections to Success and Increasing Adoptions Act of 2008 includes several provisions that may help foster youths delay pregnancy and childbearing (Boonstra, 2011). It requires states to help adolescents develop a transition plan for themselves as they age out of foster care. This plan should include information relating to sexual health, services, and resources to ensure the youths are informed and prepared to make healthy decisions about their lives. Although youths in foster care age out at 18, these processes with them and others should begin much younger and involve a long and gradual process of education, monitoring, and re-education.

Strengths and limitations of the study

There were several limitations to this study, including the relatively small sample size and the specificity to a certain group of girls living in out-of-home care settings such as

this residential treatment center. In addition, youths from racial groups outside of White and African-American may also have experiences that cannot be generalized from this study. The YRBS has some measurement flaws as well, most notably the use of many single items that cannot be combined into scales, and there are also some awkwardly phrased questions and response options. But despite these limitations, findings from this study can be utilized to educate further research efforts in this area, and to provide a base from which to better understand the link between substance use and sexual behavior in high-risk populations such as this one. Based on these findings, future research is still needed to explore factors that contribute to or influence young, at-risk girls to engage in these types of risky behaviors.

Conclusion

Results of this study indicate that onset and frequency of substance use are significant and contributing factors in risky sexual behaviors and are the most significant contributors to this unique group of girls' behaviors, above and beyond other factors such as age of partner or experience with forced sex. These results can be used to help identify possible risk factors for the early onset of substance use and sexual risk behaviors in high-risk populations, in order to better prevent and educate those at risk. This information may also help contribute to the development of better prevention and intervention programs for this at-risk population.

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