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Comparing Substance Use And Violence Among Adolescents Recruited From an Urban Emergency Department: Does Parenting Status Matter?

Patton R[1]*, Cunningham RM[2], Carter PM[2] and Walton AM[2]

School of Counseling, College of Health Professions, University of Akron, 114 Chima, 27 S. Forge St, Ohio 44325, Akron, USA

Abstract

Background: The current study examined the prevalence rates of adolescent parents and the association between parenting status (parents, non-parents who are sexually active and non-parents who are not sexually active), substance use and violence among adolescents recruited from an urban emergency department (ED).

Objectives: Understanding the association between adolescent parenting status, substance use, and violence may help inform prevention and intervention strategies for working with parenting and non-parenting adolescents.

Methods: Youth ages 14-18 years (n=2,289) presenting for care to an urban ED completed a brief computerized, self-administered survey that assessed parenting status and other demographic information, substance use, violence, and sexual risk behaviors.

Results: Among participants, 8.4% reporting being parents. Over 1/3 of adolescent parents reported tobacco, alcohol and/or marijuana use and carrying a weapon and over half reported peer violence. Regression analysis suggested that both adolescent parents and sexually active youth reported increased marijuana use and weapon carriage as compared to non-sexually active youth.

Conclusions: Future prevention and intervention protocols should consider the parenting status of youth, and the potential impact that their substance use behaviors and weapon carriage could have on their children.

Keywords: Adolescent parent; Substance use; Violence

Introduction

In the United States, adolescent parenting is a significant public health issue and U.S. adolescent birth rates exceed rates seen in other industrialized nations [1,2]. Adolescent parents are more likely to experience economic hardships, reduced health status, lack of social support, and are less likely to complete high school as compared to other adolescents [3-5]. Furthermore, children of adolescent mothers are at increased risk for multiple health problems, including low birth weight, and cognitive and behavioral problems as compared to other children [3-5]. The current literature has not explored the relationship between adolescent parenting and other risk factors associated with adolescent development, including substance use and violence. In addition, the majority of the adolescent parenting literature has focused on either the adolescent mother or the adolescent father separately, and few mixed gender studies exist. The current study examines the association between adolescent parenting status and risky health behaviors among a mixed gender sample utilizing a secondary data analysis of a larger intervention study for adolescent substance use and violence. Results will aid in understanding the differences in risk behaviors among adolescent parents and will inform the future well-being of the adolescent and, consequently, their child and family.

Adolescent parents and substance use

While previous research has indicated that substance use among the general adolescent population is relatively common [6], data about substance use rates among adolescent parents is lacking in the literature. Among the limited research examining substance use among adolescent parents, conflicting results have been noted [7]. For example, several studies have shown higher rates of cigarette smoking among adolescent mothers than adult mothers [8,9], but other studies found that adolescent mothers had lower rates of binge drinking and other drug use as compared to adult mothers [7], and lower rates of alcohol or nicotine use as compared to other sexually active adolescent females [10]. More research is needed comparing adolescent parents to both sexually active and non-sexually active non-parents to better understand the association between adolescent parenting and substance use risk factors.

Research examining substance use patterns among adolescent parents, both male and female, is also notably lacking in the current literature. Prior studies have relied on the adolescent mother's demographics to define the sample, potentially missing key characteristics of substance use specifically among adolescent fathers. One study found that fathers of children born to adolescent mothers (the father may or may not also be an adolescent) were more likely to report smoking, drinking, and using illicit drugs, including marijuana [11]. Taiwanese fathers of children born to adolescent mothers found they reported increased smoking, drinking, and illicit drug use, along with a several other risky behaviors (e.g. domestic violence) towards their partner [12]. Furthermore, among a sample of fathers of infants born to adolescent mothers in Sweden, fathers reported increased smoking and illicit drug use [13]. Less is known explicitly about adolescent fathers, and more research is needed to discern adolescent male parents from other men, and from adolescent mothers.

***Corresponding author:** Rikki A Patton, School of Counseling, College of Health Professions, University of Akron, 114 Chima, 27 S. Forge St, Ohio 44325, Akron, USA, Tel: 330-972-8158; E-mail: rpatton@uakron.edu

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Adolescent parents and violence

Youth violence is a significant public health problem, with nearly one-third of adolescents reporting being in a physical fight within the past year and 17% reported carrying a weapon within the past 30 days [14]. Homicide is the 2nd leading cause of death among adolescents, with firearms implicated in over 85% of all adolescent homicides [15]. Further, over 700,000 youth received treatment for physical assault-related injuries from the emergency department in 2011, and nearly one in 10 high school students reported experiencing some form of dating violence in the past year [14].

Violence among adolescent parents has not been well studied and prior research has focused almost exclusively on intimate partner violence [16,17], potentially missing key involvement in peer violence and weapon-related violence. Peer violence and weapon-related violence has been extensively studied among the general adolescent population, but it remains unknown if adolescent parents experience differential rates of non-partner related physical assault or are more likely to own or carry a firearm than the general population. Understanding the relationship between adolescent parenting and violence has significant public health implications for both the adolescent parent and the young child(ren) in their care who may be witnessing violence.

Screening adolescent parents through the emergency department

Research indicates that the emergency department is a beneficial location for screening youth for substance use and violence. Prior research from the study reported on in this paper found that among youth aged 14-18, over ¼ reported drinking alcohol, over 1/3 reported marijuana, ¾ reported experiencing peer violence and nearly ¼ reported carrying a weapon, highlighting the fact that youth seeking care in the ED experience high rates of substance use and violence [18,19] found that rates of handgun access was substantial among a sample of ED-recruited youth, with substance use, sexual activity, and prior experience of violence or gun-related injury significantly related to handgun access. Cunningham et al. [20] found that 1/5 of adolescents recruited through the urban ED reported carrying a weapon. Carter et al. [21] found high rates of firearm possession among assault-injured youth, with nearly 1 in 4 reporting possession, and 42% of those with firearms carrying the weapon outside the home; additionally, 32% of these assault-injured youth with firearms were also parents, raising questions about safe firearm storage within the home. However, an examination substance use and violence among a general sample of adolescent parents who utilize emergency department (ED) services is understudied. The aim of the present study is to address the association between substance use, violence, and parenting status among a sample of adolescents seeking ED treatment.

Current study

Prior research indicates that adolescents, in general, report substantial amounts of substance use and violence exposure. Nonetheless, a better understanding of substance use and violence among young people who are parents may allow for the development and refinement of more informed prevention and intervention protocols for adolescent parents and their children. The current paper addresses the gaps identified in the literature through a secondary data analysis exploring rates of substance use and violence among adolescent parents compared to other youth (sexually active non-parent youth, non- sexually active youth) recruited from an urban ED. Based on prior research, it was hypothesized that substance use and violence would be greatest among adolescent parents, followed by sexually active non-parents, and non-sexually active youth. If differences between parents and non-parents exist, researchers, practitioners, and policy makers may benefit from considering parenting status of youth when developing and implementing prevention and intervention protocols for substance use and violence.

Method

Data and study procedures

Cross-sectional screening data collected from August 2007 through September 2009 as part of the larger SafEReens study assessing the efficacy of an intervention on alcohol and violence among youth were used for the current study [22]. The larger study recruited youth ages 14-18 from an urban emergency department (ED) located within a Level 1 trauma center in Flint, Michigan. Recruitment occurred during afternoon and evening hours, 7 days a week. Adolescents presenting to the ED for a medical or trauma complaint were approached by a research assistant (RA) and asked about interest in the project. All consenting/assenting participants completed a brief (15 minute) computerized, self-administered survey and were compensated with a small gift ($1.00 value). The project received institutional IRB approval and a certificate of confidentiality from NIAAA. Measures used for our analysis were obtained during the second and third year of the larger study.

Measures

Parenting status: Respondents were asked to identify the number of children they had, with response options ranging from 0 to 10 or more [23]. All participants stating they had at least one child were coded into the parenting group and all others were coded into the non-parenting group. The non-parenting group was further delineated into two groups, including those who were sexually active (referred to as sexually active youth) and those who were not sexually active/had never had sex (referred to non-sexually active youth). This was based on prior literature demonstrating the strong correlation between sexual risk behaviors, substance use, and violence [24,25].

Demographics: Demographic characteristics were examined using questions modified from the National Study on Adolescent Health (ADD Health; [23]. Respondents self-reported their age (in whole numbers), gender (dichotomized as male or female), race (recoded into African-American as compared to all others), current work status (recoded as 20 hours vs. less than 20 hours), and living with parents (yes/no; 24). Finally, youth reported school grade, which included the option of "not in school, dropped out" [23]. This option was recoded into the variable to assess school drop-out.

Substance use: Substance use was assessed by asking participants how often they: 1) drank alcohol in the past 12 months [26], 2) how often the smoked cigarettes in the past 12 months [27], and, 3) how often they has used marijuana or i-n the past 12 months [27]. Each of substance use variables were dummy coded to include a binary variable of "ever used" and "never used" in the past 12 months.

Violence: To assess violence, both peer violence and weapon carriage were included. Peer violence was measured using a modified form of the Revised Conflict Tactics Scale (CTS-2) [28]. Weapon carriage was measured using a measure from the Youth Risk Behavior Survey [29,30]. Participants were asked if they carried a knife or a gun in the past 12 months. Both variables were collapsed to dichotomous variables (yes/no).

Data analysis plan

Data were analyzed using SAS version 9.3 [31]. Descriptive statistics were examined to characterize the sample. We chose to compare three groups because we expected risk behaviors to vary based on the following categories: 1) adolescent parents; 2) sexually-active youth, and 3) non-sexually active youth. Given the large variation in sample size between the parent and non-parent groups, and in order to control for oversampling bias within the whole sample, participants (e.g. parents, sexually active youth, and non-sexually active youth) were matched via key demographics, including race (African-American vs. White/other), gender (male vs. female), and age (14-15 vs. 16 and above) using Proc Survey Select in SAS. Matching participants in terms of demographics for each major category allows for the sample to be representative of the population of interest. The resulting sample size was n = 565 and this matched sample was used for the current analysis. Through the matching process, a sampling weight was created for use in the regression analysis. After matching the sample, analysis of variance (ANOVA) statistical test and Duncan's multiple-range test were conducted to explore bivariate differences between adolescent parents and non-parents on substance use and violence variables. Next, a multinomial logistic regression model examining differences in substance use and violence based on parenting status groups was conducted using the sampling weight created during the matching process.

Results

Sample enrollment

This paper reports on screening data from a subsample of participants in the original study, as the parenting questions were not added until year 2 of the original study. Among patients that RAs approached to participate in the screening, 90.2% consented (N=2,522); thus, the refusal rate was 9.2%. The total sample of participants who completed the screening containing the parenting questions was 2,289. Common reasons for refusal included lack of family assent and the patient feeling too sick or too stressed to participate. Findings indicated that males were more likely to refuse involvement in the study as compared to females (χ^2=5.98; p<.05). There was no race difference in the refusal rates (χ^2=0.39).

Among the 2289 participants who participated in the screening, 191 (8.3%) were parents, 51.3% (n=1173), were sexually active non-parents, and 40.4% (n=925) were non-sexually active. As stated above, to control for oversampling in the non-parent groups, participants were matched via key demographics, including race, gender, and age. After matching the sample sizes for each group were n = 191 for the parent group, n=191 for the sexually active group, and n = 183 for the non-sexually active group, resulting in a final sample size for subsequent analyses of n = 565. The smaller, matched sample size was used in the current analysis.

Descriptive characteristics

The majority of the matched sample self-reported being African-American (59.2%), being female (55.6%), living with their parents (88.0%), and having a work status of less than 20 hours per week (90.6%). The average age of the sample was 16.2 (SD=1.5).

Regarding risk factors, in the past year, approximately just over ¼ of the matched sample reported smoking cigarettes, 28.5% reported any alcohol use, and 28.5% stated they used marijuana. The majority of the sample reported experiencing peer violence (69.8%) and nearly ¼ of the sample stated they carried a weapon.

Bivariate analysis

Table 1 presents the bivariate results for the matched sample (n = 565). Adolescent parents were more likely to drop out of school, smoke cigarettes, and carry a weapon, and less likely to live with parents as compared to the other groups. Youth in the sexually active group were more likely to work greater than 20 hours per week, report using alcohol, and report using marijuana as compared to the other groups. Past year history of peer violence did not differ based on parenting status groups.

Regression analysis

Multinomial logistic regression was used to examine the association between demographics, substance use, and violence measures and parenting status. The sampling weight was included in the regression analysis in order to allow for the findings to be more representative of the population of interest. Findings from the multinomial logistic regression analyses are located in Table 2.

Parenting youth vs. sexually active youth: Findings indicated that the parenting group was significantly more likely to report dropping out of high school (AOR=3.42) as compared to the sexually active group. The parenting group was significantly less likely to live with parents (AOR=0.22), work more than 20 hours per week (AOR = 0.41) or use marijuana (AOR=0.38) than the sexually active group. There was no significant differences between the two groups in smoking cigarettes, alcohol use, weapon carriage, or peer violence.

Variable	Parents (N=191)	Non-parents, sexually active (N=191)	Non-Parents, not sexually active (N=183)
Demographic Information			
1. Drop out of school***	32 (16.8%)	7(3.6%)	4(2.2%)
2. Work Status (>20 hours)**	30(15.7%)	38(19.8%)	13(7.1%)
1. Live with Parents***	111(58.1%)	154(81.5%)	170(93.4%)
Substance Use			
1. Smoke Cigarettes***	82 (42.9%)	61(31.8%)	18(9.8%)
2. Any Alcohol Use***	65 (34.0%)	69(35.9%)	22(12.0%)
3. Marijuana Use***	69 (36.1%)	87(45.3%)	18(9.8%)
Violence			
1. Carry a weapon***	71 (37.2%)	60(31.3%)	27(14.8%)
2. Peer violence	125 (65.5%)	138(71.9%)	118(64.5%)

*p<.05; **p<.01; ***p<.001

Table 1: Bivariate analysis of demographics, substance use and violence comparing parents to non-parents (n=565).

Demographics and risk behaviors	Parents (n=191) Vs. nonparents, sexually active	Parents (n=191) Vs. nonparents, nonsexually active	Sexually active non-parent (n=183) Vs. nonparents, nonsexually active
	AOR (95%CI)	AOR (95%CI)	AOR (95%CI)
Live with parents	0.22 (0.12-0.39)**	0.05 (0.02-0.13)***	0.23 (0.09-0.60)*
Dropped out of high school	3.42 (1.22-9.67)**	2.40(0.26-21.96)	0.70(0.07-7.35)
Work status	0.41 (0.18-0.93)*	2.04(0.63-6.60)	4.97(1.72-14.39)***
Smoke Cigarettes	1.35 (0.73-2.50)	0.84(0.20-3.53)	0.72(0.21-2.52)
Alcohol Use	1.14 (0.58-2.26)	1.51(0.54-4.23)	1.32(0.48-3.68)
Marijuana Use	0.38 (0.18-0.80)*	4.16(1.43-12.09)**	10.90(3.88-0.59)***
Carry a weapon	1.24 (0.64-2.40)	5.16(2.07-12.85)***	4.17(1.39-12.55)***

*p<.05; **p<.01; ***p<.001

Table 2: Multinomial Logistic regression models assessing the association between risk behaviors and parenting status (n=565).

Parenting youth vs. non-sexually active youth: As compared to non-sexually active youth, parenting youth were significantly more likely to report using marijuana (AOR=4.16) and carry a weapon (AOR=5.16). The parenting group was significantly less likely to live with their parents (AOR=0.05). There were no significant differences between these two groups in dropping out of school, working more than 20 hours per week, smoking cigarettes, alcohol use or peer violence.

Comparing non-parents: sexually active vs. non-sexually active youth: Sexually active youth were significantly more likely to report working more than 20 hours per week (AOR = 4.97), using marijuana (AOR=10.90), and carrying a weapon (AOR=4.17) as compared to non-sexually active youth. Sexually active youth were significantly less likely to live with parents (AOR = 0.23). There were no significant differences in dropping out of school, smoking cigarettes, or alcohol use.

Discussion

The current findings present novel data regarding prevalence rates and correlates among young parents presenting to an urban emergency department, which can be used to inform future screening and interventions for adolescent parents and their children. Nearly one in ten youth recruited in the ED were parents. After matching the sample for key demographics, multivariate findings also indicated that adolescent parents were less likely to use marijuana as compared to sexually active non-parents, but were more likely to use marijuana than non-sexually active non-parents, with no difference in alcohol or cigarette use. Adolescent parents were also more likely to carry a weapon as compared to non-sexually active youth, with no difference between the parent group and sexual active group on weapon carriage.

Adolescent parents reported the greatest rates of tobacco use and sexually active youth reported the highest rates of alcohol and marijuana use. Although sexually active youth reported the greatest rates of alcohol and marijuana use as compared to the other groups, it should be noted that over 1/3 of adolescent parents reported using alcohol and/or marijuana, as compared to approximately 1/10 of non-sexually active youth, and were significantly more likely to report cigarette and marijuana use when compared to non-sexually active youth in the bivariate analysis. Findings of higher rates of substance use among sexually active adolescents, as well as among adolescent parents, highlight the need for substance use interventions within these groups. While adolescent substance use has been well-studied [32-34], the impact of adolescent substance use on the children of adolescent parents is less well established in the literature and future research is needed to determine the effects of adolescent parent tobacco, alcohol and marijuana use on the adolescent's child. Our cross-sectional findings may reflect increasing and decreasing trajectories in substance use across development based on the age, gender, and race [35], sexual orientation [36], sexual involvement [37], and due to the life stresses, potentially such as of having young children [38,39], found among adolescents. Future longitudinal studies of these young parents in the ED would better characterize these relationships.

Further, multivariate analysis indicated a significant between-group difference in marijuana use. Specifically, both parenting and sexually active groups were more likely to report using marijuana as compared to the non-sexually active group, but the parenting group was significantly less likely to report using marijuana as compared to the sexually active group. It is possible that underlying similarities among the parenting and sexually-active group, such as higher sensation seeking, may be related to increased marijuana use. For instance, [40] found that increased sensation seeking was positive association with increased substance use among adolescents. Prior research has also indicated a positive relationship between increased sexual activity, inconsistent condom use and marijuana use among pregnant teens [41] and sexually-active youth in general [37]. Further, it is possible that the transition to parenthood results in a decrease in rates of marijuana use, which could explain the difference between adolescent parents and sexually active youth. However, longitudinal research is needed to better understand the causal relationships among marijuana use, sexual involvement, and parenting among adolescents.

Importantly, findings from the current study also indicated that adolescent parents and sexually active youth were more likely to report carrying a weapon as compared to non-sexually active youth. While the motivations for weapon carriage cannot be discerned from the current data, this finding still has several important implications for the adolescent parent and their child. Weapon carriage has been linked to increased risk of injury and death for the individual who carries the weapon [42,43]. Further, research has suggested that self-inflicted or unintentional firearms injury or death among youth most often occurs with a firearm stored in their home or the residence of a friend, [44], and 1/3 of youth recruited from a disadvantaged urban area reported easy access to both drugs and weapons [44]. If youth who are parents are more likely to carry weapons, as suggested by the current finding, prevention and interventions may be aimed at better understanding and addressing the reasons parenting youth are more likely to carry weapons [45-47]. In addition, weapons within the home increase the need for proper storage and handling to prevent inadvertent discharge and accidental child injury.

While the current study provides novel findings regarding the relationship between adolescent parenting, substance use, and violence, several limitations should be noted. First, the current study used a secondary data source that was collected from one urban ED at one time point, thereby limiting the variability in questions answered by respondents, the generalizability of the findings to other settings, and the temporal understanding of the variables of interest. Future research aimed directly at better understanding the relationship between adolescent parenting, substance use and violence may benefit from other measures of substance use and violence in multiple settings across time to mitigate these limitations. The current findings are also limited in that no data were available regarding parenting besides parenting status, and no information was available about the child or the parent-child relationship. Child characteristics and parent-child interactions may be important moderating factors impacting a young parent's substance use trajectory and future research should incorporate these familial measures to better understand these relationships.

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