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Non-medical use of prescription drugs and sexual risk behaviors among depressed adolescents

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Abstract

Non-medical prescription drug abuse is an issue that has plagued adolescents in the United States over the past decade and more. Also, depression is prevalent among our youth with 31% reporting multiple depressive episodes in the past year. As such, the purpose of this study was to assess the relationship between non-medical use of prescription drugs (NMUPD) and sexual behaviors among depressed high school students. Data was derived from the 2015 Youth Risk Behavior Survey (n=15,624). This national study is conducted every odd year, and is a representative sample of high school students in the United States. Logistic regression was conducted to determine the relationship between NMUPD and sexual behavior among students who self-reported a depressive episode. The results of this study found that those students who reported NMUPD and multiple depressive episodes in the past year were significantly more likely to have initiated sexual intercourse, have had sex with 4 or more sexual partners, to be currently sexually active, and to have used alcohol or other drugs before their last sexual encounter. The results of this study seems to indicate that high school students who are depressed may self-medicate with narcotic drugs that were not prescribed to them. In turn, as a result of impaired judgment of narcotic drugs, they may engage in risky sexual behaviors. This research supports calls by other researchers to address issues related to NMUPD early in adolescence. Additionally, these results may extend further the need to develop positive mental health campaigns to identify prolonged negative mood states among adolescents.

Key Words: adolescents, non-medical prescription drug abuse, sexual behavior, depression

Introduction

The percentage of adolescents engaging in early sexual activity is at an alarming rate in the United States. According to the Centers for Disease Control and Prevention (CDC), 41.0% of high school students have had sexual intercourse, 30.0% have had sex in the past three months, and 21% have drank alcohol or used drugs before their last sexual intercourse. Additionally, 43% of students did not use a condom during their last sexual intercourse (CDC, 2015). As such, teen sexual risk behavior is a significant issue that can result in sexually transmitted infections and unintentional pregnancy and may be a result of impairment from alcohol and other drugs (Dunn & Yannessa, 2016).

Nonmedical use of prescription drug (NMUPD) is at an alarming rate among teenagers in the United States. Research has found that over 16% of high school students report using narcotics drugs such as OxyContin, Vicodin, and Adderall in the past year (CDC, 2015). This behavior may put teens at risk for various problem behaviors, such as sexual risk taking. One study found that 9-12 graders who participate in NMUPD had higher rates of sexual behavior compared to their counterparts. Specifically, this study found those youth using NMUPD were more likely to have initiated sexual intercourse, to be currently sexually active, to have had at least four sexual partners in their lifetime, and to have consumed alcohol or other drugs (Clayton, Lowry, August, & Jones, 2016). Another study among college students found that those who used NMUPD had significantly higher rates of sexual risk behavior, including more sexual partners and more instances of unprotected sex in the previous three months (Benotsch, Koester, Luckman, Martin, & Cejka, 2011). These previous results suggest a relationship between NMUPD and sexual risk taking behaviors.

Lastly, depression is an issue among teenagers in the United States. According to the CDC almost 31% of youth reported multiple depressive episodes in the past year (CDC, 2015). Depression may be one contributing factor for sexual decision making. One study assessed the impact of depressive moods on risky sexual behaviors among African-American female adolescents. This study found depressive symptomology among these youths was predictive of no condom use during their last sexual encounter and having multiple sexual partners over the past six-months (Seth, Patel, Sales, DiClemente, Wingwood, & Rose, 2011). A similar study with all races of adolescent girls found that depression was associated with increased sexual activity and less condom use (Anatale & Kelly, 2015). A study among Nova Scotia high school students found that risk of depression was associated with three risk-taking behavior among females including being sexually active, having unplanned sex when use alcohol or other drugs, and not using effective contraception at last intercourse. This study found that there were two risk factors for boys including having unplanned sex when using alcohol or other drugs and having more than one sexual partner in the past year (Wilson, Asbridge, Kisley, Langille, 2010). Another study from Nova Scotia found risk of depression was associated with two or more sexual risk taking behaviors among both males and females (Langille, Asbridge, Kisely, & Wilson, 2012). These studies seem to suggest an association between depression and sexual risk taking behaviors.

The limited number of publications about NMUPD on sexual risk behavior have found an association between the variables but no research was identified that also addressed depression. As such, the purpose of this study was to assess the relationship between NMUPD and sexual behaviors among depressed high school students who participated in the 2015 Youth Risk Behavior Survey (YRBS).

Methods

Subjects

Of the participants, 44.9% were white, followed by Hispanic (15.5%) and black (10.9%), with 50.0% of the sample being female. Ninth graders constituted the largest grade surveyed (25.8.0%) followed by tenth (25.4%), eleventh (25.3%), and twelfth grade (23.2%). The mean age was 16.3.

Procedures

Data for this study were derived from the 2015 YRBS. A total of 15,624 participants completed the YRBS in 2015. This national study is conducted every odd year by the CDC and measures alcohol, tobacco, and other drug use, dietary behaviors, physical activity, sexual behaviors, unintentional injury and violence, and other health priorities such as mental health in order to determine health-risk behaviors among high school students. The YRBS is a cross-sectional survey administered among representative samples of students in the United States. The YRBS includes school-based national, state, and local data conducted among representative samples of students in grades 9–12. The sampling frame for the 2015 national YRBS consisted of all regular public and private schools with students in at least one of grades 9–12 in the 50 states and the District of Columbia. A detailed description of the methodology used for the YRBS has been published elsewhere (CDC, 2015). Specific to this study, the 2015 YRBS was used to assess other drug use (i.e. NMUPD), sexual risk behaviors, and mental health (i.e. depression). The research was conducted to determine if a relationship existed between the variables of interested. Specifically, the researchers sought to determine whether high school

students who self-reported depression and self-medicated with prescription drugs engaged in more high-risk sexual practices.

Measures and Data Analysis

First, in order to describe the sample we conducted frequencies of all demographic variables. These items included race, gender, age, and grade in school. Secondly, we conducted frequencies of the variables of interest. These variables included NMUPD (i.e. OxyContin, Vicodin, and Adderall), ever had sex, had sex before the age of 13, currently sexually active, had sex with four or more partners, used alcohol or drugs before last sexual intercourse, condom use during last sexual intercourse, and multiple depressive episodes in the past year. These variables were dichotomous. Third, we conducted Chi-Squares to determine the prevalence of behavior among those who self-reported multiple depression episodes in the past year by NMUPD and sexual behaviors. Lastly, we conducted logistic regression to determine the relationship between NMUPD and sexual behavior among adolescents who reported multiple depressive episodes during the past year. In this analysis the dependent variable was NMUPD and the independent variables consisted of sexual risk behaviors.

Results

Table 1 presents frequencies of non-medical use of prescription drugs, sexual behaviors, and self-reported depression. Of the sample, 17.3% reported NMUPD and 31% indicated multiple depressive episodes in the past year. Additionally, 42.6% of the sample had sex, 4.7% had sex before the age of thirteen, 11.6% had sexual intercourse with four or more people, 30.7% were currently sexually active, 21.7% had used alcohol or drugs before last sexual intercourse, and 44.4% did not use a condom during last sexual intercourse.

Table 1. Frequencies of self-reported depression, non-medical use of prescription drugs, and sexual behavior		
Items	n	%
Self-reported multiple depressive episode	4789	31.0
Non-medical use of prescription drugs	2658	17.0
Ever had sex	5958	42.6
Had sex before the age of 13	652	4.7
Had sex with four or more partners	1607	11.6
Currently sexually active	4304	30.9
Drank alcohol or used drugs before last sexual intercourse	902	21.7
Used a condom during last sexual encounter	2335	55.6

Table 2 presents Chi-squares to determine the prevalence of behavior among those who self-reported multiple depression episodes in the past year by NMUPD and sexual behaviors. It was found that 71.6% of students who self-reported multiple depressive episodes and NMUPD had initiated sexual intercourse χ^2 (1, N=813) = 68.92, p=.05. Fifty-two percent of adolescents reported having four or more sexual partners among those with multiple depressive episodes and NMUPD χ^2 (1, N=315) = 249.98, p=.05. Also, 56.3% of adolescents who self-reported multiple depressive episodes and NMUPD were currently sexually active χ^2 (1, N=635) = 214.17, p=0.5. Additionally, 64% of adolescent who were currently sexually active were found to have used

alcohol or other drug use before their last sexual encounter among those who reported multiple depressive episodes and NMUPD χ^2 (1, N=233) = 123.05, p=.05).

Table 2. Prevalence of behavior among those who self-reported multiple depression episodes in the past year by non-medical use of prescription drugs and sexual behaviors.

Items	n	%	*p*-value
Ever had sex	813	71.6	.05
Had sex with four or more partners	315	52.0	.05
Currently sexually active	635	56.3	.05
Drank alcohol or used drugs before last sexual intercourse	233	64.0	.05

Table 3 presents logistic regression analysis among those who self-reported multiple depressive episodes in the past year by NMUPD and sexual behaviors. Results of the study found that those students who self-reported multiple depressive episodes and NMUPD were 3.17 (95% CI =2.74-3.68) times greater to report the initiation of sexual intercourse. Additionally, a significant difference was found among those with depression and NMUPD and having four or more sexual partners. These adolescents were 1.69 (95% CI = 1.33-2.15) times greater to report the behavior. Also, those adolescents who self-reported multiple depressive episodes and NMUPD were 2.78 (CI = 2.42-3.20) times greater to report this behavior. Lastly, a significant difference was found for depression and NMUPD and the use of alcohol or other drugs before last sexual encounter with those students being 3.12 (95% CI = 2.41-4.05) times greater to report the behavior.

Table 3. Odds Ratios and 95% CI of the relationship between non-medical use of prescription drug and sexual risk behavior among those who self-reported multiple depressive episodes		
Items	OR	95% CI
Ever had sex	3.17	2.74-3.68
Had sex before the age of 13	1.41	0.98-2.02
Had sex with four or more partners	1.69	1.33-2.15
Currently sexually active	2.78	2.42-3.20
Drank alcohol or used drugs before last sexual intercourse	3.12	2.41-4.05
Used a condom during last sexual encounter	0.82	0.66-1.02

Discussion

The purpose of this study was to assess the relationship between NMUPD and sexual behaviors among high school students reporting being depressed and who had participated in the 2015 YRBS. Analysis found that those students who reported NMUPD and multiple depressive episodes in the past year were significantly more likely to have initiated sexual intercourse, have had sex with 4 or more sexual partners, to be currently sexually active, and to have used alcohol or other drugs before their last sexual encounter. These results are similar to that of previous research regarding NMUPD and risky sexual practices. Specifically, studies have found that those students who use NMUPD where more likely to be sexually active, to have had multiple sexual partners, be less likely to use condoms, and to have used alcohol or other drugs before their last sexual encounter (Clayton, Lowert, August, et al., 2016; Benotsch, Koester, Luckman,

et al., 2011). Additionally, studies assessing depression and risky sexual practices have found that students who report multiple depressive episodes are more likely to report having had multiple sexual partners, not using condoms, and using alcohol and other drugs before their last sexual encounter (Anatale, Kelly, 2015; Seth, Patel, Sales, et al., 2011). However, much of the literature focuses on college or university aged students. The results of this study found similar results among younger students, in that depressed students who reported NMUPD and multiple depressive episodes in the past year where more likely to report risky sexual practices. These results suggest it may be increasingly important that risky sexual behaviors are addressed within the context of providing mental health care to teen populations.

This study was one of the first studies to specifically examine these issues among a nationally representative sample of teens with depression. The results seem to indicate that high school students who are depressed may self-medicate with NMUPD. In turn, as a result of impaired judgment of narcotic drugs, they may engage in risky sexual behaviors. This behavior is troubling given the high rates of unintentional pregnancy and sexually transmitted infections among youth in the United States. Current estimates indicate that young people aged 15-24 years acquire half of all STIs and that 25% of sexually active adolescent female has an STI (CDC, 2015). Additionally, in 2014, there were 24.2 births for every 1,000 adolescent females age 15-19, or 249,078 babies born to females in this age group (USDHHS, 2014). As such, it is important to understand what may contribute to these high rates of STIs and unintentional pregnancies among adolescents in the United States. As the results of this study seems to suggest, the combined factors of depression and self-medication through NMUPD may be a culprit in engaging in high risk sexual behaviors. More needs to be known about these relationships and additional studies may need to look at the behavior from a longitudinal

perspective to determine if there is a causal relationship between variables. It would be valuable for researchers to consider a mixed methods approach, or qualitative approach when studying the relationships presented here in an attempt to further understand potential regional socio cultural influences on early teen behaviors.

Given that the results of this study were drawn from a teen population suffering from depression, it is increasingly important to engage youth in sexual health education at an earlier age than previously considered. Relative to sexual health education, there seems to be ongoing debate over the content and type of sexual health education in high schools in the United States. From the data presented here, it appears from this nationally representative sample that teens are engaging in a variety of risky behaviors at an early age. While some areas of the country teach abstinence only education, the results of this research suggest that abstinence only education is missing the mark when it seeks to address teen sexual behavior. Past research has found that abstinence only education is not very effective in preventing early sexual initiation, unintended pregnancies and acquisition of sexually transmitted infections (Kohler, Manhart, & Lafferty, 2008). Based on these results, it reinforces the construct that comprehensive sexual health education should begin long before a child reaches their teen years. Past research indicates that when evaluated, comprehensive sexual health education programs often delay the behaviors documented here, such as early initiation of sexual intercourse, and increase contraceptive use when engaging in sexual behaviors (Kohler et al., 2008; Robbins, Dittus, & Whitaker, 2004). Additionally, substance abuse messaging should be included in the effort to prevent potential future self-medication through abuse of NMUPD.

The results of this study must be considered in light of several limitations. First, the study was cross-sectional. Thus, the temporality of associations cannot be determined. Second, this

study was self-reported behaviors of high school students. There is no way to ensure the accuracy of the responses such as under or over reporting sexual behaviors, however, the questions have been shown to demonstrate good test-retest reliability (CDC, 2015). These data represent a national ecological sample, and suggest broad national issues in the United States. However, they should not be used to draw individual conclusions about individual teen behavior. In the future, researchers should consider replicating this study at the local level. Potential limited access to students should also be considered. These data apply to teens who attend school. They are not representative of all persons in the age group. It must also be mentioned that there was no definition provided for what sexual intercourse meant. So the phrase "sexual intercourse" could have different meanings to different teens depending on access to sexual health education. It should be noted here that not all states include all of the questions on their YRBS questionnaire. Due to the conservative social climates in some areas of the country, questions related to sexual behaviors might have been excluded. So it is important to note that although many community members in these areas would like comprehensive sexual health education (Dunn, Thompson, M'Cormack, Yannessa, & Duffy, 2014), not all states or areas of the country are represented in this particular study. A particularly important limitation of this study is that the YRBS reports behaviors, not the social context in which they occurred. Future researchers may consider additional context such as personality factors of the early teens, or the social cultural context of the area of the country in which they did occur.

Conclusions

While other researchers have researched the use of NMUPD among populations of young adults, there have been much fewer reports in the literature focused on younger adolescents. The results reported here support the need to address mental health issues before the teen years. In so

doing, schools and community organizations should endeavor to coordinate community campaigns designed to identify depressed youth before the teen years. These interdisciplinary, coordinated care efforts should not only address mental health issues but be offered along with substance abuse and comprehensive sexual health education. Communities, even in conservative areas of the country, support the inclusion of comprehensive school based sexual health education as part of teen development programs (Dunn et al., 2014). Perhaps such coordinated care efforts could reduce the level of depression among teen populations and lead teens to ultimately make different, more positive behavioral choices.

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