Journal of Adolescent Health 62 (2018) 241–244

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Adolescent health brief

Prevalence of Nonmedical Use of Prescription Opioids and Association With Co-occurring Substance Use Disorders Among Adolescents in Substance Use Treatment

Alia Al-Tayyib, Ph.D. [a,b,*], Paula Riggs, M.D. [c], Susan Mikulich-Gilbertson, Ph.D. [c], and Christian Hopfer, M.D. [c]

[a] *Denver Public Health, Denver Health and Hospital Authority, Denver, Colorado*
[b] *Department of Epidemiology, Colorado School of Public Health, Aurora, Colorado*
[c] *Division of Substance Dependence, University of Colorado School of Medicine, Aurora, Colorado*

Article history: Received April 25, 2017; Accepted September 1, 2017
Keywords: Adolescents in treatment; Nonmedical use of prescription opioids; Co-occurring substance use disorders

A B S T R A C T

Purpose: We sought to describe the prevalence of the nonmedical use of prescription opioids (NMUPO) and its association with co-occurring substance use disorders in a sample of adolescents in substance treatment.
Methods: Adolescents in two substance treatment programs were recruited for participation between 2009 and 2013. The Composite International Diagnostic Interview—Substance Abuse Module (CIDI-SAM) was administered to assess substance use patterns and lifetime abuse or dependence.
Results: A total of 378 adolescents completed the CIDI-SAM (mean age 16.1 [standard deviation = 1.1], 78% male, 50% white, non-Hispanic). Of the 378 adolescents, 62 (16.4%) reported NMUPO and 59 (15.6%) were diagnosed with opioid/heroin abuse or dependence. The mean age at first NMUPO was 14.3 (standard deviation = 1.4). NMUPO was associated with a 3.31-fold (95% confidence interval: 2.83–3.79) increase in having three or more co-occurring substance use diagnoses.
Conclusions: NMUPO is quite prevalent among adolescents in substance use treatment. Intervention to interrupt NMUPO from progressing to heroin use or developing into a disorder is critical.

IMPLICATIONS AND CONTRIBUTION

There is limited information describing the prevalence of nonmedical use of prescription opioids (NMUPO) and the co-occurrence of substance use disorders in adolescent treatment populations. The current study found a significant association between NMUPO and the co-occurrence of three or more substance use disorders, suggesting that clinicians treating adolescents for nonopioid substance use disorders should address NMUPO.

Nonmedical use of prescription opioids (NMUPO) is a significant public health problem in the U.S. that often begins in adolescence [1]. According to the most recent National Survey on Drug Use and Health (NSDUH), an estimated 276,000 adolescents aged 12–17, representing 1.1% of adolescents in the U.S., were current misusers of prescription opioids [2]. Data from the

Conflicts of Interest: The authors have no conflicts of interest to disclose.
Parts of this paper were presented at the 2015 Annual Meeting of the College on Problems of Drug Dependence in Phoenix, AZ.

* Address correspondence to: Alia Al-Tayyib, Ph.D., Denver Public Health, Denver Health and Hospital Authority, 605 Bannock Street, Denver, CO 80204-4507.
E-mail address: alia.al-tayyib@dhha.org (A. Al-Tayyib).

1054-139X/
https://doi.org/10.1016/j.jadohealth.2017.09.018

Monitoring the Future study show that NMUPO in adolescence is associated with increased risk of substance use disorder symptoms in adulthood (adjusted odds ratio 2.61, 95% confidence interval [CI]: 1.88–3.61) [3]. A history of NMUPO in adolescence also predicts the transition to heroin in young adulthood [1,4,5].

In 2015, an estimated 122,000 adolescents had a pain reliever use disorder, whereas an estimated 6,000 adolescents had a heroin use disorder [2]. According to NSDUH, only 6.3% of adolescents aged 12–17 who needed substance use treatment underwent treatment. The bulk of the literature describing NMUPO among adolescents comes from the NSDUH and the Monitoring the Future study, which are representative of adolescents in the general population. To add to the extant knowledge surrounding NMUPO among adolescents, we examined a cohort of adolescents in two substance use treatment programs. We sought to describe the prevalence of NMUPO and to examine the association between NMUPO and co-occurring substance use disorders in a sample of adolescents receiving substance treatment.

Methods

Data collection

Between September 9, 2009, and August 8, 2013, adolescents were recruited from two substance treatment programs in the Denver metropolitan area (a university-based treatment program and a community hospital-based program). The majority of patients (95%) in the university-based treatment program were in mandated treatment, either through social services or through the juvenile justice system. In the community hospital-based program, approximately 65% of the patients were in mandated treatment, 15% were self-referrals, and 20% were hospital discharges.

Members of the research team were notified of each new admission to the treatment programs and a professional research assistant would attempt to contact the potential participant and a parent/guardian to introduce the study and to assess interest in participation. Inclusion criteria were individuals in treatment for substance use disorders, 13–18 years of age, individuals who had an IQ of ≥80, and a valid written consent for 18 year olds or parental consent and assent for those ≤17 years of age. Exclusion criteria were refusal to provide valid informed consent or assent, psychosis, obvious intoxication, current risk of suicide, violent or fire-setting behavior sufficiently great to interfere with evaluation or to endanger evaluators; and insufficient English skills for consenting or assenting to interviews. The participants were compensated $100 for their participation.

The study protocol was reviewed and approved by the Colorado Multiple Institutional Review Board.

Measures

For the current analysis, we utilized measures from the Composite International Diagnostic Interview—Substance Abuse Module (CIDI-SAM [6]). The CIDI-SAM assesses substance use patterns, including onset, duration, and intensity of use. The CIDI-SAM is a structured, 30- to 60-minute interview designed for trained lay interviewers. The CIDI-SAM provides DSM-IIIR and DSM-IV symptom count and diagnostic data regarding abuse and dependence for nicotine, alcohol, and nine classes of illicit drugs, including cannabis, opioids, sedative/hypnotics, inhalants, amphetamines, cocaine, hallucinogens, phencyclidine, and club drugs (e.g., Ecstasy or methylenedioxymethamphetamine (MDMA), gamma hydroxybutyrate (GHB), ketamine, and rohypnol).

Experience with NMUPO was the main outcome of interest. We calculated a categorical variable with the following categories: (1) no NMUPO, (2) NMUPO without a diagnosis of abuse or dependence, and (3) opioid/heroin abuse or dependence. NMUPO was defined as the lifetime use of opioids more than five times when they were not prescribed, in larger amounts than prescribed, more often than prescribed, or for longer than prescribed. The CIDI-SAM defines opioids as "codeine, Darvon, Demerol, Dilaudid, methadone, morphine, opium, Percodan, Talwin, T's, and blues." Scoring algorithms based on whole life substance-related problems were used to derive the number of DSM-IV for lifetime abuse and dependence symptoms [6]. For comparability with the updated DSM-V criteria, which includes both prescription opioids and heroin in opioid use disorders, we have included both in the opioid/heroin abuse or dependence category.

Statistical analysis

Chi-square (χ^2) statistics were calculated to assess differences based on experience with NMUPO. Ordered logistic regression was used to calculate odds ratios and associated 95% CI for the association between experience with NMUPO and various substance use disorders. Crude and adjusted odds ratios were calculated. Odds ratios were adjusted for gender, race/ethnicity, and age. All analyses were conducted using StataSE Version 14 (StataCorp, College Station, TX).

Results

A total of 378 participants between the ages of 13 and 18 were included in the current analysis. The study sample represents a convenience sample of adolescent patients in the treatment programs as research staff was unable to meet with every new admission. The sample represents approximately 20% of the population in the treatment programs. The majority (78.6%) were male and half (50.3%) were white and non-Hispanic (Table 1). The mean age was 16.1 (standard deviation: 1.14). Overall, 257 (68.0%) reported no NMUPO, 62 (16.4%) reported NMUPO, and 59 (15.6%) were classified as having opioid/heroin abuse or dependence. Experience with NMUPO differed significantly by race/ethnicity, with white non-Hispanics more likely to report NMUPO and to be diagnosed with opioid/heroin abuse or dependence. The mean age of first NMUPO was 14.3 (standard deviation: 1.64).

Both NMUPO and opioid/heroin abuse or dependence were associated with an increase in the odds of having three or more co-occurring substance use disorder diagnoses with a 3.31-fold (95% CI: 2.83–3.79) increase with NMUPO and a 4.79-fold (95% CI: 1.04–8.56) increase with opioid abuse or dependence, after adjusting for gender, race/ethnicity, and age (Table 2). Opioid/heroin abuse or dependence was associated with a 5.04-fold (95% CI: 1.69–8.39) increase in co-occurring alcohol abuse or dependence, a 5.16-fold (95% CI: 1.82–8.50) increase in cannabis abuse or dependence, a 4.83-fold (95% CI: 1.39–8.26) increase in amphetamine abuse or dependence, a 5.40-fold (95% CI: 1.86–8.94) increase in club drug abuse or dependence, and a 5.45-fold (95% CI: 2.02–8.89) increase in hallucinogen abuse or dependence. Although the associations between NMUPO and individual co-occurring substance use disorders were not significant, NMUPO was associated with the likelihood of having three or