Drug and Alcohol Dependence 144 (2014) 178–185

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Is residential treatment effective for opioid use disorders? A longitudinal comparison of treatment outcomes among opioid dependent, opioid misusing, and non-opioid using emerging adults with substance use disorder

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ARTICLE INFO

Article history:
Received 29 July 2014
Received in revised form 9 September 2014
Accepted 9 September 2014
Available online 18 September 2014

Keywords:
Opioid dependence
Emerging adult
12-Step residential
Office-based opioid treatment
Youth
Abstinence

ABSTRACT

Background: Opioid misuse and dependence rates among emerging adults have increased substantially. While office-based opioid treatments (e.g., buprenorphine/naloxone) have shown overall efficacy, discontinuation rates among emerging adults are high. Abstinence-based residential treatment may serve as a viable alternative, but has seldom been investigated in this age group.
Methods: Emerging adults attending 12-step-oriented residential treatment ($N = 292$; 18–24 years, 74% male, 95% White) were classified into opioid dependent (OD; 25%), opioid misuse (OM; 20%), and no opiate use (NO; 55%) groups. Paired *t*-tests and ANOVAs tested baseline differences and whether groups differed in their during-treatment response. Longitudinal multilevel models tested whether groups differed on substance use outcomes and treatment utilization during the year following the index treatment episode.
Results: Despite a more severe clinical profile at baseline among OD, all groups experienced similar during-treatment increases on therapeutic targets (e.g., abstinence self-efficacy), while OD showed a greater decline in psychiatric symptoms. During follow-up relative to OM, both NO and OD had significantly greater Percent Days Abstinent, and significantly less cannabis use. OD attended significantly more outpatient treatment sessions than OM or NO; 29% of OD was completely abstinent at 12-month follow-up.
Conclusions: Findings here suggest that residential treatment may be helpful for emerging adults with opioid dependence. This benefit may be less prominent, though, among non-dependent opioid misusers. Randomized trials are needed to compare more directly the relative benefits of outpatient agonist-based treatment to abstinence-based, residential care in this vulnerable age-group, and to examine the feasibility of an integrated model.

1. Introduction

Rates of chronic prescription opioid and heroin use have risen dramatically in the past 15 years and are significantly higher among 18–25 year old emerging adults (7.4 per 1000 compared with 5.0 and 4.0 per 1000 among 26–34 and 35–49 year olds, respectively; Jones, 2012). More emerging adults also are seeking treatment for opioid use disorders. From 1998 to 2008, admissions to treatment for prescription opioid dependence increased by 350% among 18–25-year olds, a disproportionately greater rise than among all other age groups (TEDS, 2009). Opioids, in particular, carry greater mortality risk due to acute respiratory depression, and opioid analgesic overdose deaths have now surpassed all other forms of drug poisoning deaths in the United States (Warner et al., 2011). Furthermore, many prescription opioid users progress to injection heroin use over time (Cicero et al., 2012) and this increases risk of contracting Human Immunodeficiency Virus (HIV) and Hepatitis C (HCV) (Mathers et al., 2008; Wang et al., 2011). In a recent opioid treatment trial of 16–21 year olds, 18% were infected with HCV at entry, despite only an average 1.5 years of opioid dependence

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http://dx.doi.org/10.1016/j.drugalcdep.2014.09.009
0376-8716/

(Subramaniam et al., 2009). Additionally, following a decade of decreasing new infections, incidence of HCV increased from 2010 to 2011 by 50% among 20–29 years olds (CDC, 2013).

Opioid replacement therapy (e.g., buprenorphine/naloxone [B/N]) improves outcomes for many people with opioid dependence and this has emerged as a first-line treatment; however, emerging adults with opioid dependence draw less long-term benefit than older adults from office-based B/N treatment (Schuman-Olivier et al., 2014). Extended treatment with B/N has been demonstrated to be more effective for opioid dependence than detoxification or placebo (Fudala et al., 2003; Weiss et al., 2011). The wide-spread introduction of office-based B/N maintenance treatment for opioid dependence, has been largely successful with more than 14,000 prescribers nationwide (SAMHSA, 2013) and 9.3 million prescriptions were dispensed in 2012 alone (DEA Fax 2013 from IMS Health™ National Prescription Audit Plus). Yet, younger age and emerging adulthood in particular, is associated with higher rates of illicit drug use and much greater attrition during B/N treatment (Dreifuss et al., 2013; Hillhouse et al., 2013; Marsch et al., 2005; Schuman-Olivier et al., 2014; Soeffing et al., 2009), which, in turn, is associated with relapse (Zhang et al., 2003) and increased overdose risk (Clausen et al., 2008; Davoli et al., 2007). While short-term extended B/N treatment for youth has been shown to be more effective than rapid detoxification (Woody et al., 2008), a long-term study of B/N treatment comparing older adults to emerging adults demonstrated a substantially lower proportion of emerging adults remaining in treatment at 12 months (17% versus 45%) and emerging adults were significantly more likely to test positive for illicit opioids, relapse, or drop out of treatment (Schuman-Olivier et al., 2014). Therefore, more research is needed to identify effective long-term treatments for emerging adults with opioid dependence.

Residential treatment may be an important treatment alternative for emerging adults. Residential programs generally offer the potential for opioid detoxification, coping skills development, and facilitated involvement in the 12-step recovery community (Borkman et al., 2007; Kelly et al., 2013). Relapse is very common among the opioid-dependent after abstinence-based inpatient treatment, leading to a perceived lack of efficacy of residential treatment (Smyth et al., 2010). Yet, some studies have demonstrated promising long-term outcomes after residential treatment for opioid dependence (Gossop et al., 1989). In a naturalistic study of 28-day residential treatment for 18–25-year olds with mixed substance use disorders, nearly 89% of emerging adults were attending AA/NA 3 months later, and 12-step involvement was associated independently with increasingly greater abstinence in the year following treatment (Kelly et al., 2013). These data about outcomes for emerging adults after residential treatment is compelling, but we are aware of no studies comparing residential treatment outcomes based on opioid use status among emerging adults.

Given the lackluster outcomes for office-based B/N among emerging adults, it is particularly important to investigate whether emerging adults with opioid dependence can benefit from the common Minnesota model residential treatment (Anderson et al., 1999; McElrath, 1997) in a similar manner as emerging adults with other substance use disorders. Also, it is vital to understand the differential effects of residential treatment on emerging adults with opioid dependence compared to those with opioid misuse or other substance use disorders. Since B/N was indicated only for treatment of DSM-IV-TR opioid dependence, many non-dependent opioid misusers have been directed to residential treatment programs. We need to examine how non-dependent opioid misusers fare during and after residential treatment compared to opioid dependent individuals and those with other substance use disorders. Research investigating the effectiveness of residential treatment among emerging adults with opioid dependence and misuse would inform placement guidelines and novel treatment strategies for emerging adults with opioid-related problems.

The aims of the current study were to compare patients with opioid dependence, non-dependent opioid misuse, and no opioid misuse on: (1) demographic and clinical variables at treatment entry; (2) during-treatment changes in clinical target variables (e.g., abstinence self-efficacy; recovery motivation and abstinence-focused coping skills); and (3) substance use outcomes and treatment utilization in the year following discharge from residential treatment.

2. Methods

2.1. Participants

Participants were 292 emerging adults (18–24-year old) undergoing residential treatment and enrolled in a naturalistic study with 12-month follow-up. At admission, participants were 20.3-year old on average (SD = 1.6). Most were Caucasian (94.9%), male (73.6%), and all were single. At admission, 41.2% were employed full- or part-time, and 33.1% were students. Overall, 43.4% had a high school diploma and 45.6% reported involvement in the criminal justice system.

Forty-five percent reported opioid use in the 90 days prior to admission. Specifically, 25% ($n = 73$) had an active opioid dependence (OD) diagnosis at admission, 20% ($n = 58$) reported opioid misuse (OM) in the past 90 days but did not meet criteria for opioid dependence, and 55% ($n = 161$) reported no history of opioid dependence nor any opioid misuse in the past 90 days (NO). Four participants with opioid dependence reported a buprenorphine prescription prior to entering residential treatment episode, while no participants reported methadone maintenance treatment.

2.2. Treatment

Treatment was youth-specific, included integrated psychiatric assessment and treatment when appropriate, and was based on 12-step Minnesota Model treatment philosophy (McElrath, 1997). Motivational enhancement, cognitive-behavioral and family-based therapeutic approaches were used to facilitate problem recognition, treatment engagement, and recovery. Participants remained in treatment for an average of 25.5 ± 5.7 days (range 4–35 days) and 83.9% were discharged with staff approval (Kelly et al., 2013), indicating a high rate of treatment completion. Opioid detoxification was conducted primarily with buprenorphine. Dosing was determined by severity and Clinical Opiate Withdrawal Scale (Wesson and Ling, 2003); tapers averaged 7 days in length. Neither buprenorphine nor methadone maintenance were offered at discharge from residential treatment.

2.3. Procedure

In this study, 607 emerging adults were admitted to treatment during the recruitment period (10/2006–3/2008) (Kelly et al., 2013). To ensure sufficient representation of all ages within the target range (18–24-year old), a stratified sampling procedure was used such that all patients aged 21–24 years and every second patient aged 18–20 years were approached for the study. Of those approached ($n = 384$), 64 declined to participate, 17 participants withdrew prior to data collection, and 1 individual was excluded due to a complication with informed consent. Of the remaining 302 (78.6% of those approached), in order to fulfil the study's primary aims, we excluded individuals who had incomplete or unclear substance use assessments ($n = 3$) and those who had a lifetime history of opioid dependence but were in some form of remission with