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Patients Undergoing Substance Abuse Treatment and Receiving Financial Assistance for a Physical Disability Respond Well to Contingency Management Treatment

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ABSTRACT

Physical illness and disability are common in individuals with substance use disorders, but little is known about the impact of physical disability status on substance use treatment outcomes. This study examined the main and interactive effects of physical disability payment status on substance use treatment. Participants (N = 1,013) were enrolled in one of six prior randomized clinical trials comparing contingency management (CM) to standard care; 79 (7.8%) participants reported receiving disability payments, CM improved all three primary substance use outcomes: treatment retention, percent negative samples and longest duration of abstinence. There was no significant main effect of physical disability payment status on treatment outcomes; however, a significant treatment condition by physical disability status interaction effect emerged in terms of retention in treatment and duration of abstinence achieved. Patients who were receiving physical disability payments responded particularly well to CM, and their time in treatment and durations of drug and alcohol abstinence increased even more markedly with CM than did that of their counterparts who were not receiving physical disability assistance. These findings suggest an objectively defined cohort of patients receiving substance use treatment who respond particularly well to CM.

1. Introduction

More than 6% of US adults between the ages of 21 and 64 receives disability payments in the form of Social Security Disability Insurance or Supplemental Security Income, with nearly 13 million people awarded benefits in 2013 (Social Security Administration, 2013). Government assistance in the form of disability payments may be granted for mental or physical disability. This study focuses on disabilities for physical reasons, with the most common causes including musculoskeletal problems, cardiovascular disease, and cancer (Meseguer, 2013).

A recent report from the National Survey on Drug Use and Health concluded that substance abuse is higher among individuals with a disability compared to those without (Glazier & Kling, 2013), and some physically disabled populations demonstrate rates of substance abuse up to 50% (Heinemann, Mamott, & Schnoll, 1990; West, Graham, & Cifu, 2009). These studies indicate a link between physical disability and substance abuse, however, this relationship is complex, and substance use may predate or occur subsequent to disability. Longitudinal studies have found a positive association between substance use and later receipt of disability income. Substance use in late adolescence (Danielsson, Agardh, Hemmingsson, Allebeck, & Falkstedt, 2014; Ropponen et al., 2013; Sidorchuk, Hemmingsson, Romelsjö, & Allebeck, 2012) and adulthood (Haukenes, Riise, Haug, Farbu, & Maeland, 2013; Skogen, Øverland, Knudsen, & Mykletun, 2011) is predictive of future disability income. Alternatively, having a disability may increase substance use because of pain, accessibility to prescription drugs, feelings of social exclusion, perceived discrimination and low self-esteem (Helwig & Holicky, 1994; Hollar & Moore, 2004; Kachlík & Havelková, 2010; Miller et al., 2013).

Individuals with physical disabilities and substance use disorders are at an increased risk for more severe health and psychosocial problems (Morasco, Corson, Turk, & Dobscha, 2011; Pittas et al., 2009; Smedema & Ebener, 2010; Zivadinov et al., 2009). Problems associated with substance abuse may be amplified in individuals with a disability, emphasizing the need to evaluate more intensive treatments for this population. Dobscha, Corson, Leibowitz, Sullivan, and Gerrity (2008) conducted a randomized trial in patients reporting physical disability due to chronic pain. A secondary analysis found that when randomized to an enhanced intervention to improve pain-related functioning, which included setting and monitoring the attainment of specified goals aimed at improving physical functioning, patients with a history of substance use disorder had chronic pain treatment outcomes that were comparable

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to patients without a history of substance use disorder. However, patients with a history of substance use disorder who were randomized to usual care were 70% less likely than patients without a history of substance use disorder to demonstrate improvements in pain-related disability (Morasco et al., 2011). These findings suggest that enhanced behavioral interventions may be particularly important for patients with physical disabilities and comorbid substance use disorder as these patients responded poorly to usual care services. Unfortunately, there is little empirical research available assessing intensive substance abuse intervention outcomes among individuals with a physical disability.

Contingency management is a behavioral therapy that can be applied to patients with substance use disorders. It provides monetary reinforcers upon objective evidence of drug abstinence. Of the psychosocial treatments for substance use disorders, this is the intervention with the largest effect size (Dutra et al., 2008). Although highly efficacious in improving substance use outcomes, CM adds direct costs as well as personnel time, and it may not be necessary for all patients initiating substance use treatment (e.g., Petry et al., 2004). For these reasons, identifying subgroups who respond well to this enhanced intervention is important.

One such group may be individuals with physical disabilities. Although few studies have evaluated the extent or correlates of physical disabilities in patients receiving substance abuse treatment, these individuals may be more difficult to treat and require a more intensive intervention such as CM (Morasco et al., 2011). Six primary treatment trials designed to examine CM outcomes were combined in the current data set. The purpose of this secondary data analysis was to evaluate whether patients receiving payments for a physical disability responded differently to substance abuse treatment in general, and to CM treatment in particular. This study also examined the proportion of individuals in substance abuse treatment that were receiving disability payments and whether those individuals differed from their counterparts not receiving disability payments with respect to substance use and psychosocial functioning.

2. Methods

2.1. Participants

Participants were 1,013 patients enrolled in randomized trials of CM (Petry, Alessi, Marx, Austin, & Tardif, 2005; Petry, Barry, Alessi, Rounsaville, & Carroll, 2012; Petry, Weinstock, & Alessi, 2011; Petry et al., 2004, 2006). All trials had similar inclusion criteria: age 18 years or older, beginning intensive outpatient treatment at a community-based substance abuse treatment clinic, and ability to understand study procedures. Exclusion criteria were significant uncontrolled psychiatric conditions (e.g., active suicidal ideation, bipolar disorder, schizophrenia) or being in recovery for gambling disorder (see Petry & Alessi, 2010; Petry et al., 2006). University Institutional Review Board approved study procedures, and patients provided written informed consent.

2.2. Procedures

After obtaining informed consent, participants were queried on demographic questions, including race, ethnicity, gender, age and education. Participants were also administered a checklist for the Structured Clinical Interview for the DSM-IV (First, Gibbon, Spitzer, & Williams, 1996) and the Addiction Severity Index (ASI; McLellan et al., 1985). The former assessed substance use diagnoses and the latter medical, drug, alcohol, employment, legal, family/social, and psychiatric problems. The ASI derives composite scores of 0.00–1.00 on each domain, with higher scores indicating greater severity of symptoms. The ASI is reliable and valid in assessing severity of problems related to substance use including medical status (Mäkelä, 2004; McLellan, Cacciola, Alterman, Rikoon, & Carise, 2006). One item on the ASI inquires about earned income from the past year; it asks explicitly about legally obtained income from working and does not include income from other sources such as illegal income, disability payments, alimony, food stamps or unemployment. Another item on the ASI asks, "Do you receive a pension for a physical disability?" For the purposes of this study, groups were formed based on participants' response to that item.

2.3. Treatments

A computerized procedure randomly assigned patients to treatment conditions in each of the primary studies (Petry et al., 2004, 2005, 2006, 2011, 2012). Each study compared a standard care condition to standard care with one or two CM conditions. Standard care was similar across studies and involved intensive outpatient treatment comprised of group therapy sessions 3–5 days per week for up to 4 weeks. The frequency of care was gradually tapered to a minimum of one group per week. All patients received standard care, and in addition they were asked to submit up to 24 study breath and urine samples during the first 12 weeks of treatment. Breath samples were tested for alcohol using Alcosensor-IV Alcometers (Intoximeters, St Louis, MO, USA) and urine samples for opioids and cocaine using Ontrak TesTstiks (Roche, Somersville, NJ, USA).

The CM conditions varied across studies, but they all involved reinforcement for submission of substance negative samples or other, objectively determined clinically appropriate behaviors. In the Petry et al. (2004) study, two CM conditions awarded different magnitudes of prizes for submission of negative samples. Another study (Petry et al., 2005) compared prize reinforcement to voucher reinforcement for submission of negative samples. The Petry et al. (2006) study compared a CM condition that reinforced submission of negative samples to one that reinforced completion of goal-related activities. The Petry et al. (2011) study implemented CM in a group context and reinforced both attendance at group and submission of negative samples. The Petry et al. (2012) study was comprised of two related studies, one for patients initiating treatment with a cocaine positive sample (the "positive" study) and the other for patients initiating treatment with a cocaine negative sample (the "negative" study). The positive study reinforced patients for submission of negative samples using two different magnitudes of reinforcers, and in the negative study, patients randomized to a CM condition received reinforcement for either submission of negative samples or for attendance at treatment.

In all studies reinforcement for abstinence was contingent upon samples testing negative for alcohol, cocaine, and opioids concurrently. Although each CM trial included at least one CM condition that reinforced abstinence, not all CM conditions reinforced abstinence, as noted above. Nevertheless, all studies found some benefits of CM relative to standard care, and studies comparing two CM conditions yielded no or few differences between the CM interventions. Further, all these studies provided comparable treatments (e.g., intensity, duration) and applied identical assessment instruments, allowing for cross-study analyses.

2.4. Data analysis

For the purposes of these analyses, we removed all patients under 21 years of age ($n = 54$), as we presumed, and data confirmed, that no children had been awarded disability payments. Additionally, nine patients with missing disability status data were removed from analyses, leaving an analyzed sample of 1,013. Patients who reported receiving a pension or disability payments for a physical impairment were compared with those who did not report receiving these payments on demographic and baseline characteristics using chi-squared tests for categorical variables and independent t-tests for continuous variables.

Controlling for differences in demographic characteristics between the groups (age and ASI-medical score), multivariate general linear