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Referral for substance abuse treatment and depression improvement among patients with co-occurring disorders seeking behavioral health services in primary care ☆

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ABSTRACT

This study examined the relationship between substance treatment referrals and depression improvement among 2,373 participants with concurrent substance use and depressive disorders enrolled in an integrated behavioral health program. Three groups of substance treatment referral status were identified: accessed treatment ($n = 780$), declined treatment ($n = 315$), and no referral for treatment ($n = 1278$). The primary outcome is improvement in depressive symptoms (PHQ-9 < 10 or ≥ 50% reduction). Using propensity score adjustments, patients accessing substance treatment were significantly more likely to achieve depression improvement than those who declined receiving treatment services (hazard ratio (HR) = 1.82, 95% confidence interval (CI): 1.50–2.20, $p < 0.001$) and those without a referral for treatment (HR = 1.13, 95% CI: 1.03–1.25, $p = 0.014$). Each 1 week delay in initiating a referral was associated with a decreased likelihood of depression improvement (HR = 0.97, 95% CI: 0.96–0.98, $p < 0.001$). Study findings highlight the need of enhancing early treatment contact for co-occurring substance use disorders in primary care.

1. Introduction

Substance use disorders (SUDs) and mental disorders are prevalent and disabling conditions which commonly co-occur (Chan, Dennis, & Funk, 2008; Dickey, Normand, Weiss, Drake, & Azeni, 2002; Regier et al., 1990); however, most individuals with co-occurring disorders do not receive adequate treatment for either disorder (Epstein, Barker, Vorburger, & Murtha, 2004; Harris & Edlund, 2005; Miller & Weisner, 2002; Watkins, Burnam, Kung, & Paddock, 2001). Even among those who report receiving treatment for their co-occurring mental disorder, receipt of substance abuse treatment remains low (Harris & Edlund, 2005). This is of great public health concern as untreated SUDs are associated with early relapse to substance abuse, poor health outcomes, high consumption of costly treatments (e.g. emergency care) and excessive burdens on social harm and crime (Dennis & Scott, 2007; Dickey & Azeni, 1996; Druss & Rosenheck, 1999; Moos & Moos, 2003; Wall et al., 2000).

One of the effective strategies to reduce the overall burden of SUDs is to identify individuals at risk for substance abuse and initiate treatments early before their disorders become debilitating. As most individuals with SUDs or mental disorder do not seek specialty treatment and are often seen in general medical facilities, primary care settings are promising venues for screening individuals at risk for substance use problems and initiating a treatment contact (Babor, Higgins-Biddle, Dauser, Higgins, & Burleson, 2005; Miller & Weisner, 2002; Wang, Lane, et al., 2005). However, the opportunities to screen patients for substance use and to provide effective interventions for those identified with substance use problems are often overlooked in primary care settings (Bradley et al., 2002; Coups, Gaba, & Orleans, 2004; Friedmann, McCullough, Chin, & Saitz, 2000; Miller et al., 2006; Olfson et al., 2000; Roeloffs, Fink, Unützer, Tang, & Wells, 2001; Tracy, Trafton, Weingardt, Aton, & Humphreys, 2007).

Emerging evidence has consistently shown that the major barriers contributing to the low rates of treatment in the U.S. include difficulties in obtaining substance abuse and mental health services from two fragmented treatment systems and the lack of treatment programs that are tailored to address the treatment needs for individuals with co-occurring disorders (Burnam & Watkins, 2006; Drake, O'Neal, & Wallach, 2008). To date, little is known about how SUDs are addressed in integrated care programs that provide depression care management to primary care patients. A recent program evaluation of a network of community health centers participating in an integrated behavioral health program in the state

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of Washington (Mental Health Integration Program (MHIP), https://integratedcare-nw.org) found that one-third of safety-net patients were missed in the substance screening process at intake (Chan, Huang, Sieu, & Unützer, 2012). In this study, we extended this prior work by examining whether successful referral to substance abuse treatment is associated with depression improvement in a group of patients with co-occurring SUDs and depression seeking care in MHIP. We hypothesized that patients who access substance abuse treatment services are more likely to achieve depression improvement than patients who decline to attend treatment and those without a referral for substance abuse treatment services. We also hypothesized that earlier substance treatment referrals are associated with improved depression outcomes.

2. Methods

2.1. Study sample and setting

The MHIP is a state-wide integrated care program designed to address the limited resources in primary care for behavioral health services. Based on a collaborative team approach (Katon et al., 1995; Unützer et al., 2002), MHIP provides integrated behavioral health care to low income, uninsured patients with a mental disorder in more than 100 community health centers across Washington State. The integrated care is provided through an interdisciplinary team that includes the patient's primary care provider, a clinic-based care manager, and a consulting psychiatrist assigned to each of the clinic-based teams. Using a Web-based patient registry, the care manager tracks care activities and treatment outcomes, provides behavioral activation and problem solving therapy, and coordinates medication management with the primary care provider. A consulting psychiatrist regularly reviews cases with the care manager to provide clinical advice and develop a treatment plan that might include medication recommendations, brief psychotherapeutic interventions, and referrals to specialized services when clinically indicated. Patients' clinical assessments, diagnoses assigned by clinicians, care received, and treatment outcomes are recorded in the Web-based patient registry.

Between 2008 and 2010, a total of 12,429 adults in the Washington State Disability Lifeline program (eligibility is based on unemployment and disability status of at least 90 days due to a physical and/or mental illness) were referred to MHIP by their primary care providers as needing behavioral health care for depression or other mental health conditions. During the intake process, these patients underwent a clinical assessment and completed standardized questionnaires including the Patient Health Questionnaire-9 (PHQ-9) for depressive disorders (Kroenke, Spitzer, & Williams, 2001) and the Global Appraisal of Individual Needs-Short Screener (GAIN-SS) for substance use problem screening (Dennis, Chan, & Funk, 2006). A total of 11,150 (89.7%) patients completed the intake assessment with 2,856 participants having a probable SUD diagnosis recorded in the registry. For this study, 2,373 patients identified as having concurrent SUDs and depressive disorder (PHQ-9 $>=10$) at intake were included for the analysis.

2.2. Measures

The outcome measure, *depression improvement*, is defined as a decrease in PHQ-9 score from baseline by at least 50% or achieving a PHQ-9 score <10 during the treatment period. Patients' PHQ-9 scores were tracked via the Web-based registry at every care manager contact until patients were discharged from the treatment. The PHQ-9 is a self-report questionnaire that consists of 9 symptom items based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for major depressive disorder (Kroenke et al., 2001; Spitzer, Kroenke, Williams, & Group, 1999). The reliability and validity of PHQ-9 has been shown to be satisfactory for assessing depression severity and treatment response in primary care settings (Gilbody, Richards, & Barkham, 2007; Spitzer et al., 1999). The scores of the PHQ-9 range from 0 to 27, with a score of 10 to 19 indicative of moderately severe depression and a score of 20 or greater indicative of severe depression.

Symptom severity of substance abuse was measured by the GAIN-SS, a five-item screener assessing weekly alcohol and drug use, problems caused by use, and use-induced withdrawal symptoms over the past 12 months. The screener demonstrated satisfactory reliability and validity in identifying substance abuse and risk for hazardous use (Dennis et al., 2006; McDonell, Comtois, Voss, Morgan, & Ries, 2009). Screening and clinical interview on the nature and degree of substance use were conducted during initial assessment. A provisional substance abuse diagnosis was then made and documented in the patient registry, which was considered a positive screen for substance use disorder. In this program, participants screened positive for SUDs are intended to receive a referral for substance treatment services for further assessment, monitoring, and care. Receipt of substance treatment referral, access status (i.e., patient's self-report of accessing the referred substance abuse treatment services), and the date the referral was initiated were all obtained from the patient registry. Of 2,373 participants with co-occurring SUDs and depression in the study, 1,095 (46.1%) received a referral for substance treatment services. Among them, 780 (71.2%) accessed the treatment. Three groups regarding treatment referral status were identified: accessed substance abuse treatment ($n = 780$), declined substance abuse treatment ($n = 315$) and no substance abuse treatment referral ($n = 1{,}278$).

Covariates included in the current study were based on literature review and benchmarks of implementation research established in similar integrated care models, including patient characteristics, care managers' treatment referral rate and experience with the program, and treatment process measures (Katon et al., 1995; Unützer et al., 2002; Unützer et al., 2012; Wells et al., 2005). Baseline patient characteristics include age, gender, suicidal thoughts, treatment history for substance abuse and mental health problems, and diagnosis of depression, anxiety, post-traumatic stress disorder, bipolar disorder, psychotic disorder, cognitive disorder and chronic pain. Care managers' substance abuse treatment referral rate and the number of months in the care manager position in MHIP were ascertained via registry data. Treatment process measures consist of the number of treatment contacts with the care manager, case review by the psychiatric consultant, prescription of psychiatric medications, specialty mental health referral, and length of treatment in MHIP.

2.3. Statistical analyses

Initial analyses included comparisons of baseline PHQ-9, GAIN-SS scores and covariates by treatment referral status: accessed treatment, declined treatment, and without a treatment referral. Since a referral may be initiated at the care manager's discretion, and access to treatments may be associated with patient characteristics and the intensity of care received, a propensity-score technique was used to balance potential treatment referral and access bias (Austin, 2011; Rubin, 1997). Covariates with significance $p < 0.1$ were included for propensity score calculation via multinomial logistic regression to predict the likelihood of treatment referral status (Table 1). This approach allows a separate propensity score calculation for each pair of comparison adjustments (Guo & Fraser, 2010; Imbens, 2000): accessed treatment compared with declined treatment, accessed treatment compared with no treatment referral, and declined treatment compared with no treatment referral. Propensity scores in the form of continuous and quintile measures were used for the analysis. Stratification of propensity score in quintiles has been found to remove bias as high as 90% (Rosenbaum & Rubin, 1983).