Disseminating contingency management: Impacts of staff training and implementation at an opiate treatment program

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ARTICLE INFO

ABSTRACT

Guided by a comprehensive implementation model, this study examined training/implementation processes for a tailored contingency management (CM) intervention instituted at a Clinical Trials Network-affiliate opioid treatment program (OTP). Staff-level training outcomes (intervention delivery skill, knowledge, and adoption readiness) were assessed before and after a 16-hour training, and again following a 90-day trial implementation period. Management-level implementation outcomes (intervention cost, feasibility, and sustainability) were assessed at study conclusion in a qualitative interview with OTP management. Intervention effectiveness was also assessed via independent chart review of trial CM implementation vs. a historical control period. Results included: 1) robust, durable increases in delivery skill, knowledge, and adoption readiness among trained staff; 2) positive managerial perspectives of intervention cost, feasibility, and sustainability; and 3) significant clinical impacts on targeted patient indices. Collective results offer support for the study's collaborative intervention design and the applied, skills-based focus of staff training processes. Implications for CM dissemination are discussed.

Published by Elsevier Inc.

1. Introduction

A schism between treatment research and community-based practice, identified by the Institute of Medicine (IOM, 1998) 15 years ago, continues to plague healthcare delivery efforts. Challenges in disseminating empirically-supported approaches are particularly poignant in addiction treatment settings, where this gap is disproportionately large (Brown, 2000; Compton et al., 2005; McLellan, Carise, & Kleber, 2003). A large-scale bridging effort is NIDA's Clinical Trials Network [CTN; (Hanson, Leshner, & Tai, 2002)], enabling multisite trials of promising treatments at community clinics. Other prominent efforts seek to expose community treatment personnel to empirically-supported treatments via SAMHSA's National Registry of Evidence Based Programs and Practices (www.nrepp.samhsa.gov), regional Addiction Technology Transfer Centers, and joint effort with NIDA to develop clinician-friendly 'blending products' (Martino et al., 2010). Nevertheless, one national estimate suggests that just 11% of U.S. treatment-seekers receive empirically-supported treatment (McGlynn et al., 2003).

Contingency management (CM) is a cogent example of an empirically-supported method of treating substance abuse for which dissemination has proven challenging [for review, see Hartzler, Lash, & Roll (2012)]. Encompassing a family of behavioral reinforcement systems, Petry (2012) notes as binding tenets of contemporary CM methods: 1) a focal, desired patient behavior be closely monitored, 2) a tangible, positive reinforcer be immediately provided when the behavior occurs, and 3) the reinforcer be withheld when the behavior does not occur. Meta-analyses document reliable, small-to-medium therapeutic effects with substance abusers (Dutra et al., 2008; Griffith, Rowan-Szal, Roark, & Simpson, 2000; Lussier, Heil, Mongeon, Badger, & Higgins, 2006; Prendergast, Podus, Finney, Greenwell, & Roll, 2006). Greater staff receptivity to CM is found in opioid treatment programs (OTPs), where opiate-dependent patients access a daily dose of agonist medication and medical/psychosocial support services (Fuller et al., 2007; Hartzler et al., 2012). Regarding community effectiveness, a CTN trial with six OTPs found CM increased treatment adherence among 388 patients (Peirce et al., 2006). Despite this widely-cited trial, just 12% of CTN clinics report sustained implementation (Roman, Abraham, Rothrauff, & Knudsen, 2010), and comparatively lesser interest and implementation is noted outside the CTN (Hartzler & Rabun, 2013a, 2013b). As 100 + published RCTs support CM efficacy, dissemination efforts will benefit from trials focused on implementation issues. Indeed, pressing needs for scientific attention to clinician training are gaining broad recognition (Beidas & Kendell, 2010; Herschell, Kolko, Baumann, & Davis, 2010; McHugh & Barlow, 2010).

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Historically, many CM approaches have been validated in OTPs. Early methods offered patients convenience and autonomy of take-home medication doses to reinforce drug abstinence (Milby, Garrett, English, Fritschi, & Clarke, 1978; Stitzer, Bigelow, & Liebson, 1980; Stitzer et al., 1977). Contemporary methods, promoted under a motivational incentives moniker, use monetary reinforcers and derive from hallmark studies of voucher-based CM by Higgins et al. (1994, 1993) and Petry, Martin, Cooney, and Kranzler (2000) 'fishbowl technique' of earning prize draws. As salience of psychosocial support for OTP patients gained international recognition (WHO, 2004), CM methods increasingly targeted counseling attendance (Alessi, Hanson, Wieners, & Petry, 2007; Jones, Haug, Silverman, Stitzer, & Svikis, 2001; Ledgerwood, Alessi, Hanson, Godley, & Petry, 2008). Academicians may debate what they see as the optimal patient behavior to target or type of reinforcer to offer, but ultimately the opinions of treatment professionals' guide whether and how CM is disseminated. To that end, OTPs appear well-served in targeting meaningful patient behaviors in their setting and devising CM systems matched to their implementation capacity in terms of affordability, patient interest, and logistical compatibility with existing clinic services.

Effective dissemination of CM may be guided by implementation science models that incorporate real-world systems issues (Damschroder & Hagedorn, 2011; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Rogers, 2003). Often overshadowed by the patient outcomes in controlled treatment trials, such issues are focal outcomes of staff training and implementation activities. Proctor et al. (2011) define these implementation outcomes as "effects of deliberate and purposive actions to implement new treatments, practices, and services" (p.65). A corresponding taxonomy includes an intervention's: 1) acceptability, or philosophical palatability among staff, 2) appropriateness, or setting compatibility for staff, 3) fidelity, or staff knowledge and skill to deliver as intended, 4) adoption, or staff intent to use, 5) cost, or the clinic resources required to implement, 6) feasibility, or clinic navigation of logistical hurdles, 7) sustainability, or its maintenance as a stable clinic service, and 8) penetration, or its integration into regular clinic practice by staff. The unit of analysis for some domains (acceptability, appropriateness, fidelity, and adoption) is individual staff members, who can offer quantifiable self-report or skill demonstration at repeated points. Others (costs, feasibility, sustainability, and penetration) reflect OTPs as units, and can be assessed by qualitative management report or independent review of clinic records after a trial period of implementation. As suggested in a psychotherapy review (Beidas & Kendell, 2010), implementation is well-suited to mixed method evaluation.

Extant literature on CM dissemination to the treatment community, predominated by the widely-promoted motivational incentives methods, may inform expectations about staff-focused implementation domains. A bleak picture is painted of attitudes toward these CM methods, with lesser acceptability and perceived appropriateness than other therapeutic approaches (Bride, Abraham, & Roman, 2010; Herbeck, Hser, & Teruya, 2008; McCarty et al., 2007; McGovern, Fox, Xie, & Drake, 2004). Prevailing objections include perceived inefficacy, procedural confusion, and philosophical incongruence (Ducharme, Knudsen, Abraham, & Roman, 2010; Kirby, Benishek, Dugosh, & Kerwin, 2006; Ritter & Cameron, 2007), with routine use of CM supported by just 27% of addiction treatment staff (Benishek, Kirby, Dugosh, & Pavodano, 2010). Staff members' clinic role appears to moderate such attitudes, with greater appeal voiced by those in managerial positions (Ducharme et al., 2010; Henggeler et al., 2008; Kirby et al., 2006). Opposition by direct-care staff may be overcome via championing by agency leadership (Kellogg et al., 2005), with strong training attendance observed after simple forms of executive advocacy (Henggeler, Chapman, et al., 2008). Direct training exposure does appear to enhance CM attitudes, knowledge, and adoption among counseling staff working in the related field criminal justice (Henggeler, Chapman, Rowland, Sheidow, & Cunningham, 2013). A broader

training literature also notes the importance of active learning strategies—specifically use of expert demonstration and applied trainee practice—in developing new clinical expertise (Beidas & Kendell, 2010; Cucciare, Weingardt, & Villafranca, 2008; Herschell et al., 2010). To that end, performance-based feedback has been suggested to reduce staff drift in procedural CM adherence (Petry, Alessi, & Ledgerwood, 2012) and enable longitudinal improvement in delivery skill (Henggeler, Sheidow, Cunningham, Donohoe, & Ford, 2008). Taken together, it appears that staff-based implementation outcomes may be enhanced if CM training: 1) is advocated by management, 2) addresses concerns of direct-care staff, and 3) focuses on building clinical competencies through active learning strategies.

Prior research also informs expectations about management-focused CM implementation domains. As core costs (e.g., staff time, purchase of reinforcers) are a common reason clinics forego adoption (Roman et al., 2010; Walker et al., 2010), CM interventions must be affordable in the eyes of the clinics adopting them. Another common sentiment is that clinical methods be adopted only if 'they don't conflict with treatments already in place' (Haug, Shopshire, Tajima, Gruber, & Guydish, 2008). In this respect, CM systems that rely on staff to perform foreign or complicated tasks (like dense arithmetic calculations), even if efficacious in controlled trials, will prompt logistical problems (Chutuape, Silverman, & Stitzer, 1998; Petry et al., 2001). One way to effectively address potential fiscal constraints and logistical incompatibilities is to engage clinic management in CM intervention design (Kellogg et al., 2005; Squires, Gumbley, & Storti, 2008). This allows an OTP to tailor a CM system to its fiscal and logistical implementation capacities, thereby enhancing likelihood of sustainability and breadth of staff penetration. As support for sustaining a CM intervention once designed, conceptual primers and procedural descriptions enhance knowledge acquisition and adoption readiness (Benishek et al., 2010; Ledgerwood et al., 2008). Thus, the impact of CM trainings may be augmented if the curricula include reproducible aids for staff to reference as needed in their daily work. This collective literature suggests that positive managerial implementation outcomes are more likely achieved for a CM intervention if: 1) management contributes to its design, 2) it is compatible with clinic fiscal and logistical constraints, 3) foreign or complicated staff procedures are avoided, and 4) the training curriculum includes reproducible materials for staff to later reference as needed.

Guided by a widely-cited implementation framework (Proctor et al., 2011), the current study evaluates a range of implementation and clinical impacts of CM training delivered to staff at a community OTP. This mixed method trial evaluated staff-focused domains over time (prior to, immediately following, and 3 months after training) in a design accounting for potential assessment reactivity, and examined qualitative report of management-focused domains after a 90-day implementation period. The OTP's executive director was enlisted in a collaborative intervention design process—specifying a target behavior, target population, reinforcers, and reinforcement system. Resulting clinical impacts were assessed via independent chart review, and comparison to a historical control period. Herein, processes of intervention design and staff training are described, followed by evaluation of: 1) immediate and eventual impacts of staff training on CM delivery skills, knowledge, attitudes and adoption readiness, 2) management perspective of intervention affordability, feasibility, and sustainability after a 90-day period of implementation, and 3) intervention effects on the treatment adherence of targeted patients.

2. Materials and method

2.1. Trial Design

The mixed factorial design of this training and implementation trial includes three salient features. First, within-subjects analyses of temporal changes in four staff-focused domains (acceptability,