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Community opioid treatment perspectives on contingency management: Perceived feasibility, effectiveness, and transportability of social and financial incentives ☆

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ABSTRACT

Treatment community reluctance toward contingency management (CM) may be better understood by eliciting views of its feasibility, effectiveness, and transportability when social versus financial incentives are utilized. This mixed method study involved individual staff interviews representing three personnel tiers (an executive, clinical supervisor, and two front-line clinicians) at 16 opiate treatment programs. Interviews included Likert ratings of feasibility, effectiveness, and transportability of each incentive type, and content analysis of corresponding interviewee narrative. Multi-level modeling analyses indicated that social incentives were perceived more feasible, more effective, and more transportable than financial incentives, with results pervading personnel tier. Content analysis suggested that the more positive perception of social incentives was most often due to expected logistical advantages, positive impacts on patient quality-of-life, and philosophical congruence among staff. Weaker perception of financial incentives was most often influenced by concerns about costs, patient dissatisfaction, and staff philosophical incongruence. Implications for CM dissemination are discussed.

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1. Introduction

Contingency management (CM) encompasses a host of clinical methods available for use by the addiction treatment community. Petry, Martin, Cooney, and Kranzler (2000) note as two binding tenets the objective detection of treatment adherence and provision of salient incentives when adherence occurs. Analog studies show robust impact of behavioral reinforcement on initiation, maintenance, and discontinuance of substance use [as reviewed by (Higgins, Silverman, & Heil, 2008; Stitzer & Petry, 2006)]. Meta-analyses of CM in addiction treatment settings note reliable efficacy (Dutra et al., 2008; Griffith, Rowan-Szal, Roark, & Simpson, 2000; Lussier, Heil, Mongeon, Badger, & Higgins, 2006; Prendergast, Podus, Finney, Greenwell, & Roll, 2006), and effectiveness trials conducted via NIDA's Clinical Trials Network document its positive impacts when employed at community-based clinics (Peirce et al., 2006; Petry et al., 2005). Still, the treatment community has been slow to embrace CM relative to other behavior therapies like motivational interviewing, relapse prevention, and 12-step facilitation (Benishek, Kirby, Dugosh, & Pavodano, 2010; Herbeck, Hser, & Teruya, 2008; McCarty et al., 2007; McGovern, Fox, Xie, & Drake, 2004).

Treatment community reluctance for CM may vary among what historically have been logistically heterogeneous clinical methods. Published accounts of CM implementation first arose in opioid treatment programs (OTPs) with social incentives—that is, rewards that promote treatment adherence through a variety of means whereby patients experience greater autonomy, convenience, and social status among their peers. For example, early studies documented that offering contingent take-home medication doses increased therapy session attendance, drug abstinence, and patient involvement in productive daily activity (Milby, Garrett, English, Fritschi, & Clarke, 1978; Stitzer et al., 1977; Stitzer, Bigelow, & Liebson, 1980). Subsequent studies replicated these effects (Schmitz et al., 1998; Stitzer, Iguchi, & Felch, 1992), or extended application of contingent take-home doses to reinforce other patient outcomes like employment or educational attainments (Magura, Casriel, Goldsmith, Strug, & Lipton, 1988). Studies have also shown the prospect of dose adjustments or supplements similarly improve therapy attendance, drug abstinence, and retention in treatment (Higgins, Stitzer, Bigelow, & Liebson, 1986; Stitzer, Bickel, Bigelow, & Liebson, 1986). Other studies have clarified the importance of using such incentives within CM systems that rest on reinforcement of treatment-adherent behavior, rather than systems reliant on punishment of treatment in-adherence (Iguchi, Stitzer, Bigelow, & Liebson, 1988; Stitzer et al., 1992). More recent studies of social incentives have extended this

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concept to show that contingent access to preferred opiate medications, priority dosing times, and other clinic services increases drug abstinence and treatment retention (Calsyn, DeMarco, Saxon, Sloan, & Gibbon, 2003; Hartzler, Cotton, Calsyn, Guerra, & Gignoux, 2010).

Alternatively, some CM methods—most often promoted as *motivational incentives approaches*—rely specifically on providing reinforcement in the form of incentives with material appeal (e.g., monetary vouchers, prizes). Higgins et al. (1994 and 1993) were the first to introduce the provision of monetary vouchers (exchangeable for selected goods or services) to patients as means of reinforcing cocaine abstinence, an approach shown to be efficacious and since widely-adapted (Lussier et al., 2006). Concern over the implementation costs of these voucher-based CM methods contributed to Petry et al.'s (2000) eventual design of a variable-ratio, variable-magnitude 'fishbowl technique' wherein patients' treatment adherence is reinforced by the earning of draws for monetary or material prizes (e.g., akin to a raffle). A prize-based CM protocol was tested in CTN-affiliate OTPs, with encouraging results (Peirce et al., 2006). However, sustained post-trial implementation of these procedures was reported by just 12% of CTN clinics (Roman, Abraham, Rothrauff, & Knudsen, 2010), thus raising questions about how CM methods that utilize financial incentives may be perceived among by OTP personnel.

Community treatment perspectives about social and financial incentives have been targets of prior empirical study. Kirby, Benishek, Dugosh, and Kerwin (2006) surveyed U.S. treatment personnel, finding preferential attitudes toward social incentives and a range of concerns about financial incentives encompassing their feasibility, clinical effectiveness, and transportability. Other survey-based studies replicate these findings. For instance, Australian treatment personnel also endorse social over financial incentives in CM implementation (Ritter & Cameron, 2007). Additional studies of financial incentives alone further document reluctant staff attitudes at CTN clinics, and even lesser interest at non-CTN clinics (Ducharme, Knudsen, Abraham, & Roman, 2010; McCarty et al., 2007). Both studies note a moderating effect of clinic role, with more receptivity to use of financial incentives among those in managerial positions. Further muddying the picture are organizational factors, like a clinic's internal culture or social architecture, that contribute variance in adoption attitudes about specific CM methods (Bride, Abraham, & Roman, 2011; Hartzler et al., 2012).

Given their varied nature, it may be unsurprising that community treatment attitudes toward CM have also been tapped by qualitative research methods. In interviews with Australian treatment personnel, Cameron and Ritter (2007) note generally positive attitudes about the adoption of CM in their clinical work but also common concerns specific to the use of financial incentives the reflect perceived cost and procedural impracticalities, potential for superficial or iatrogenic therapeutic effects, and philosophical incongruence. Sinclair, Burton, Ashcroft, and Priebe (2011) used focus groups to elicit attitudes among UK treatment personnel, also finding support for adoption of CM in principle voiced alongside similar concerns specific to the use of financial incentives. These qualitative studies offer converging international viewpoints of the treatment community toward social and financial incentives, which highlight preferences and concerns that encompass issues of their practicality, clinical impact, and real-world applicability.

The current study builds on this aggregate literature of incentive preferences, employing a mixed method convergent design (Creswell, Klassen, Plano-Clark, & Clegg-Smith, 2011) in the conduct of individual, semi-structured interviews with a subset of treatment personnel at 16 community-based OTPs. Given the range of treatment community considerations noted in prior research regarding use of social and financial incentives, the framework for interview questions was organized according to a widely-cited behavior therapy development model (Carroll & Rounsaville, 2007) delineating sequential stages for issues of feasibility (e.g., cost, staff time, logistics), effectiveness (e.g., impact on client abstinence, quality-of-life, treatment satisfaction), and transportability (e.g., staff familiarity, capability, philosophical congruence). Interview questions were posed to elicit an initial numeric rating. Each rating was followed by probing for a rationale for the provided rating, with these rationales later subjected to content analysis. This mixed method approach and the resulting viewpoints offered by community treatment personnel regarding use of social and financial incentives in CM implementation are described herein.

2. Methods

2.1. Study design, sampling, and method of inquiry

OTPs were targeted in the current study due to their heavy representation in prior CM literature, and the applicability of operant conditioning principles to federal and state regulations governing access to opiate agonist medication to which OTPs adhere. Investigators sought to enhance generalizability of the OTP sample via balanced representation of clinics' geographic location, local population density, and exposure to CM methods via CTN affiliation (Ducharme et al., 2010). Eight regions (Pacific Northwest, Southwest, Rocky Mountain, South, Midwest, Northeast, Mid-Atlantic, Southeast) were specified a priori from which a CTN and non-CTN OTP were to be drawn. Using the Substance Abuse and Mental Health Services Administration (SAMHSA) national OTP directory, investigators identified cities in each region with one CTN and multiple non-CTN OTPs. Census bureau statistics were accessed to identify corresponding county-level population density, then simplified to a three-level (small $< 750{,}000$; medium $750{,}001$–$1{,}500{,}000$; large $> 1{,}500{,}000$) scale. Eight cities were then selected to enable comparable representation of small, medium, and large density areas.

Clinic recruitment was initiated via an investigator letter that broadly described study aims and procedures, and directed the OTP to contact the research team if interested. Study investigators then outlined a practical template for site visit procedures, confirmed clinic interest in study participation, requested a letter of clinic cooperation, and negotiated a site visit date. In each region, the targeted CTN-affiliate OTP was contacted first. Once clinic interest was confirmed, a non-CTN OTP was then recruited based on proximity alone. Collectively, 19 OTPs were sent initial letters about study participation, of which two did not respond and another was deemed inappropriate due to report that it had discontinued its methadone dispensing services.

The lead author traveled to OTPs and conducted interviews amidst a full-day clinic site visit (procedures later described). Practical and fiscal limitations dictated that four individual staff interviews be conducted per OTP. As CM attitudes vary by professional role (Kirby et al., 2006), interviewees at each OTP consisted of an executive, a clinical supervisor, and two front-line staff. Upon determination of a clinic's site visit date, the executive director was provided a copy of the interviewee consent form and asked to review it with their clinical staff so all were apprised of the opportunity to participate. Individual staff members self-selected to participate in interviews during the site visit based on their interest in the study and availability during the site visit. Given that interviewees were stratified between clinics by geographic region and CTN affiliation status and within clinics by personnel tier, a stratified purposive nonprobability sampling approach is reflected (Sandelowski, 2000).

This mixed method, convergent design (Creswell et al., 2011) included confirmatory hypotheses for feasibility, effectiveness, and transportability ratings of privilege- versus monetary-based CM. Consistent with extant literature, social incentives were expected to be seen as more feasible, effective, and transportable than financial incentives. Sandelowski (2000) notes as benefits of mixed method approaches the prospect of convergent validation (e.g., triangulation),