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How effective is continuing care for substance use disorders? A meta-analytic review

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ABSTRACT

Given the often chronic nature of substance use disorders, patients sometimes receive less intensive continuing care following an initial period of more intensive treatment. This meta-analysis estimated the effect of continuing care and formally tested several proposed moderators (intervention duration, intensity, modality, and setting) of that effect. A systematic search identified 33 controlled trials of continuing care; 19 included a no/minimal treatment condition and were analyzed to assess the overall effect of continuing care versus control. Continuing care had a small, but significant, positive effect size, both at the end of the continuing care interventions ($g = 0.187$, $p < 0.001$) and at follow-up ($g = 0.271$, $p < 0.01$). Limited by a small number of studies, analyses did not identify any significant moderators of overall effects. These results show that continuing care can provide at least modest benefit after initial treatment. We discuss study characteristics that may have reduced the magnitude of the overall continuing care effect estimate.

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1. Introduction

More than half of patients in treatment for substance use disorders relapse within the first year after entering treatment, and they remain at heightened risk of relapse throughout the early years of recovery (De Soto, O'Donnell, & De Soto, 1989; Hunt, Barnett, & Branch, 1971; Jin, Rourke, Patterson, Taylor, & Grant, 1998; Miller & Hester, 1986). Continuing care, a period of less intensive treatment following a more intensive initial treatment episode, has been utilized in an effort to extend and reinforce an initial period of recovery and is recommended in several guidelines for the treatment of substance use disorders - for example, U.S. Department of Veterans Affairs and U.S. Department of Defense (2009), and American Psychiatric Association (2006).

Although, intuitively, continuing care would seem to be helpful and well-matched to the chronic nature of some individuals' substance use disorders, studies testing the efficacy of continuing care have produced mixed results. For example, McKay (2009) conducted a systematic review of 20 comparative trials of continuing care. He classified studies as either having "positive results" (i.e., at least one significant group difference on a primary substance use outcome favoring continuing care) or "negative results" (i.e., no significant difference or a significant effect favoring the control group). Only half of the studies ($n = 10$) had positive results. To further investigate those mixed effects, McKay examined different trial characteristics qualitatively. Positive trials tended to have a longer planned duration of care, more intensive continuing care, and more active efforts to deliver continuing care to patients. Negative trials tended to have smaller sample sizes and to include a comparison condition with some continuing care, rather than no treatment. The type of continuing care (cognitive–behavioral therapy [CBT] versus other treatments) was not associated with positive or negative results.

The review by McKay (2009) underscored the mixed effects of continuing care and highlighted several potential moderators that might account for variation in the results of existing studies. However, his "box-score" review was limited by reliance on significance tests, which can be influenced by a number of factors (e.g., sample size and associated statistical power, number of tests for treatment effects conducted), and to perusal of results rather than statistical tests to try to identify study features that were associated with stronger continuing care effects. The current review builds on that of McKay in three ways: first, it is a meta-analysis of effect sizes of continuing care, which has the advantage of producing an estimate of the magnitude of the overall continuing care effect based on weighted study estimates of effects, including under-powered studies which are less likely to yield "positive results" in a review based purely on significance tests. Second, it formally tests several treatment characteristics identified in McKay's (2009) review as potential moderators of the effect of continuing care, including (a) intensity and duration of the treatment, (b) treatment orientation (CBT versus others), and (c) method of treatment delivery (outpatient, telephone, home visits). Finally, it uses an updated and expanded sample of continuing care studies by including those published through 2011.

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1.1. Intensity and duration

What is the optimal length and intensity of continuing care? The duration (i.e., the total amount of time over which the intervention is provided) and the intensity (i.e., how often sessions are provided and how long each one lasts) of continuing care interventions vary widely across existing studies (McKay, 2009). Effective short or low-intensity treatments typically would be more cost-effective than longer or higher intensity ones, but it is unclear whether differences in duration or intensity are associated with variation in effectiveness. An observational study (Ritsher, Moos, & Finney, 2002) and an earlier review by McKay (2005) provided support for the hypothesis that a longer duration of continuing care is beneficial, whereas a meta-analysis of psychosocial interventions for substance use disorders (including both studies of initial treatment as well as continuing care) found a negative effect of treatment duration (Dutra et al., 2008). Regarding intensity, neither Ritsher et al.'s (2002) observational study nor Dutra et al.'s (2008) meta-analysis provided support for a significant influence of treatment intensity on outcome. Considering these mixed results, we hypothesized that, within continuing care interventions, a longer planned duration is associated with greater positive effects on substance use outcomes, but that planned intensity is not significantly associated with outcomes.

1.2. Type of treatment

CBT has been shown to be efficacious in studies of both initial treatment and continuing care for substance use disorders (Bennett et al., 2005; Maude-Griffin et al., 1998; O'Farrell, Choquette, Cutter, Brown, & McCourt, 1993; Rohsenow et al., 2001). However, one meta-analysis found that the effect was small when CBT was compared to another active treatment (Magill & Ray, 2009). Therefore, we hypothesized that CBT-based continuing care interventions have a significant overall effect compared to control conditions, but that CBT-based interventions do not have a significantly larger effect when compared to non-CBT-based active conditions.

1.3. Method of treatment delivery

Continuing care has been provided in a range of settings (e.g., outpatient visits, home visits, telephone sessions) and various techniques have been used to "[take] the intervention to the patient" (McKay, 2009). Such techniques aim to increase patients' participation in treatment by making it easier for them to receive care. They include telephone counseling, home visits, and other actions to remind patients of appointments and assertively follow-up with patients after missed sessions. Some of these approaches (e.g., telephone counseling) also may cost less. We hypothesized that continuing care provided through telephone sessions, home visits, or outpatient counseling with some additional active elements (such as appointment prompts and active follow-up after missed sessions) is associated with larger positive effect sizes on substance use outcomes compared to exclusively outpatient continuing care without other active elements to increase participation.

1.4. Summary

This meta-analysis adds to the previous research on continuing care in several ways. First, we use and describe an updated sample of 33 controlled continuing care trials. Second, we assess the magnitude and significance of the overall effect of continuing care on substance use outcomes at the end of treatment, as well as at specific follow-up points, in the subgroup of 19 studies including a no- or minimal-treatment comparison group. This information can be used by patients and treatment providers to judge the usefulness of continuing care. Third, in different subsamples of studies, we evaluate the influence of certain treatment and study design characteristics, using formal moderator analyses to help identify "what matters" in continuing care treatment and to attempt to generate information for those making decisions about what kind of continuing care (if any) to provide.

2. Materials and methods

2.1. Eligibility criteria

This meta-analysis included controlled trials (i.e., randomized or using some other form of assignment to groups involving chance, such as sequential cohorts) of one or more continuing care interventions for persons with alcohol and/or other drug use disorders. Other eligibility criteria included publication since 1988, assignment of at least five participants to each condition, and inclusion of at least one substance use-related outcome.

2.2. Information sources

We began our sample with the 20 relevant studies identified by McKay (2009), who reviewed comparative studies of continuing care published from 1988 to 2006. That sample was updated and expanded by searching the PubMed database, as well as scanning the reference lists in relevant articles and reviews. PubMed was searched using the substance use disorder keywords "alcohol*," "drug," and "substance," along with the continuing care-related keywords "continuing care," "continued care," and "aftercare." The search was built on McKay's literature review, so it overlapped with only the last 2 years examined by McKay. Thus, our search was limited to articles published from 2004 through the end of 2011 (last searched on March 6, 2012). All resulting citations and abstracts were examined for relevance and full articles additionally were checked where necessary to assess fulfillment of our inclusion criteria.

In all, 33 studies meeting our criteria were identified (see Fig. 1), 19 of which compared a continuing care condition to a no- or minimal-treatment control condition. The full sample includes the 20 studies reviewed by McKay (2009), plus 10 additional studies published after the cutoff point for McKay's review (i.e., published between 2006 and 2011), and three additional studies that were not included in McKay's review (Brown, Seraganian, Tremblay, & Annis, 2002; Dennis, Scott, & Funk, 2003; Lash, Petersen, O'Connor, & Lehmann, 2001). Two of those studies (Dennis et al., 2003; Lash et al., 2001) were cited in McKay's review, although it was not specified why they were not included in the box score ratings. The studies tested interventions aimed at encouraging participants to re-enter more intensive treatment as needed (Dennis et al., 2003), and increasing continuing care attendance (Lash et al., 2001), so the studies may not have met McKay's criteria for a continuing care intervention. Brown et al. (2002) compared outpatient relapse prevention and twelve-step facilitation continuing care interventions provided after residential treatment. This study was identified in searching reference lists of other study reports; it is unclear why it was not included in McKay's review.

2.3. Coding of studies

A coding form was used to extract study information. Two of the authors (JB and IF) trained on approximately 10% of the studies and then independently coded all included studies. Consensus was reached on all discrepancies with a third author (NM) when agreement could not be reached by the two coders. Additional information was requested from authors when necessary.

2.3.1. Study design characteristics

We coded study design characteristics, such as whether participants were randomly allocated, whether there was a control