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Running head: THE EFFECT OF THE PCOMS ON RETENTION AND DRUG

The Partners for Change Outcome Management System in the psychotherapeutic treatment of cannabis use: A pilot effectiveness randomized clinical trial

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Abstract

Cannabis use disorder is a major public health concern where problems with treatment retention (attending sessions and dropout) challenge the effectiveness of treatments. The aim of the present study was to investigate the effectiveness of the Partners for Change Outcome Management System (PCOMS) in improving the retention rate and reducing drug use in a clinic for drug use treatment. One-hundred outpatients with cannabis use as the primary presenting problem were randomized to either the PCOMS \((n = 51)\) or treatment as usual (TAU; \(n = 49\)). Eight weekly psychotherapy sessions were planned in both conditions. The primary outcome was treatment retention measured as the rate of attendance to planned treatment sessions and dropout. The secondary outcomes were current cannabis and other drug use assessed with the European Addiction Severity Index (EuropASI). Several explorative outcomes were analyzed. Blind assessments of drug use were conducted three and six months after baseline. Outcome analyses were conducted on both the treated sample with at least one psychotherapy session \((n = 82)\) and the intention-to-treat sample \((n = 100)\). The results showed no incremental effect of the PCOMS compared to the TAU condition, for neither treatment retention, drug use, or therapeutic alliance. The main findings align with previous studies that have found no incremental effect of the PCOMS when employing outcome measures independent from the PCOMS intervention. The results are interpreted with caution due to implementation difficulties, which at the same time, suggest challenges when employing the PCOMS in large outpatient clinics for drug use treatment.

*Keywords:* client feedback, Partners for Change Outcome Management System (PCOMS), routine outcome monitoring (ROM), ROM implementation, addiction treatment, psychotherapy outcomes.
Cannabis is the most widely used illicit drug, with an estimated 181.8 million users worldwide (World Health Organization [WHO], 2020). Its main psychogenic component, 9-tetrahydrocannabinol (THC), immediately influences brain processes involved in motivation, attention, perception, memory, and emotion (Broyd, van Hell, Beale, Yücel, & Solowij, 2016; WHO, 2020). Long-term cannabis use has been linked to a range of adverse health outcomes, including accidents, neurocognitive decline, psychiatric disorders, respiratory disease, and cancer (Andrade, 2016; WHO, 2020).

Psychosocial and psychological interventions are commonly recommended in the treatment of cannabis use (National Institute for Health and Care Excellence, 2007). However, the evidence base for the effectiveness of such interventions is still maturing. Generally, systematic reviews and meta-analyses have found that interventions such as cognitive-behavioral therapy (CBT) and motivational interviewing (MI) have better treatment outcomes than waitlist control, although the primary studies are methodological heterogeneous and contain inherent biases (Chatters et al., 2016; Davis et al., 2015). Treatment for cannabis use may be particularly challenging for a number of reasons, including the patients’ motivation, low treatment retention (attendance and dropout), and difficulties with becoming and staying drug-free. Treatment dropout commonly exceeds 50% in the first months of treatment (Stark, 1992) and is strongly associated with no significant improvement (Hawkins, Baer, & Kivlahan, 2008; Simpson, 1981), meaning that most patients neither receive adequate exposure to treatment, nor do they recover from their addiction (Brorson, Ajo Arnevik, Rand-Hendriksen, & Duckert, 2013; Stahler, Mennis, & DuCette, 2016). Thus, it becomes crucial to develop and examine treatment practices that can improve treatment retention.

Routine Outcome Monitoring (ROM) is a therapeutic approach designed to improve treatment attendance and psychotherapy outcomes for various presenting problems.
(Castonguay, Barkham, Lutz, & McAleavy, 2013). In ROM, the patients’ mental health functioning and sometimes the therapeutic alliance are monitored throughout treatment with feedback to the psychotherapist, who can then use the information to adjust the intervention by, for example, trying to strengthen the therapeutic alliance, shift focus, or revisit goals (Castonguay et al., 2013; Lutz, de Jong, & Rubel, 2015). ROM is based on research showing that therapists have difficulties obtaining reliable information about patient progress based on clinical judgment alone (Tracey, Wampold, Lichtenberg, & Goodyear, 2014). Therapists are generally found to be poorer at predicting patient deterioration during therapy (Hatfield, McCullough, Frantz, & Krieger, 2010) and at post-treatment (Hannan et al., 2005) compared to an empirically derived algorithm.

During the last decades, a variety of ROM systems has been developed (Drapeau, 2012). Of these, especially the Outcome Questionnaire 45 (OQ-45; Lambert et al., 2004) and the Partners for Change Outcome Management System (PCOMS; Miller & Duncan, 2004) have been implemented in many treatment settings and examined in several randomized controlled trials (RCTs). The PCOMS has approximately 75,000 individual licenses and more than 1,000 group licenses worldwide (B. L. Duncan and S. D. Miller, personal communications, February 7, 2018). In Denmark, where the present study was conducted, the system is recommended by the National Board of Social Services (Socialstyrelsen, 2020) and implemented in approximately one-third of the Danish municipalities (Socialstyrelsen, 2017).

In the present pilot study, the PCOMS was examined as an option to improve patients’ treatment retention and drug use reduction in a community clinic in Denmark. The PCOMS differs from the OQ-45 and other ROM systems in several ways. The PCOMS uses two visual-analog scales in each session: the Outcome Rating Scale (ORS; Miller, Duncan, Brown, Sparks, & Claud, 2003) measuring the patient’s level of well-being, and the Session Rating Scale (SRS; Duncan et al., 2003) measuring the therapeutic alliance. Each scale takes
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2-3 minutes to complete in the session. Feedback is given immediately to both therapist and patient, whereby the patient is engaged in discussing feedback on the outcome and the alliance in each session. This collaboration with and empowerment of the patient may increase the patient’s motivation, improve treatment attendance, lower dropout, and improve overall outcome (Duncan, Miller, Wampold, & Hubble, 2010).

The effect of the PCOMS has been summarized in six meta-analyses (Kendrick et al., 2016; Lambert & Shimokawa, 2011; Lambert, Whipple, & Kleinstäuber, 2018; Tam & Ronan, 2017; Pejtersen, Viinholt, & Hansen, 2020; Østergård, Randa, & Hougaard, 2020). Lambert et al. (2018) included nine PCOMS studies and found an overall moderate incremental effect of the PCOMS (Hedge’s $g = 0.40$), primarily based on the ORS as the outcome measure. Østergård, Randa, and Hougaard (2020) included 18 PCOMS studies and found a small incremental PCOMS effect ($g = 0.27$). However, no significant PCOMS effect was found in 10 studies from psychiatric settings ($g = 0.10$). All eight studies in counseling settings used the ORS as the only outcome measure, whereas nine of the 10 studies in psychiatric settings used a general symptom measure, which was independent of the PCOMS intervention. Pejtersen et al. (2020) included six RCTs, which measured outcome independently of the PCOMS intervention and found no incremental PCOMS effect on well-being ($g = 0.03$). Thus, the positive PCOMS effect found in Lambert et al. (2018), and counseling settings (Østergård, Randa, & Hougaard, 2020), may be due to employing the ORS as the outcome measure (Østergård & Hougaard, 2020).

To date, only one published RCT has investigated the effect of the PCOMS for substance use treatment (Schuman, Slone, Reese, & Duncan, 2015). Schuman et al. (2015) included 63 soldiers with substance use (primary alcohol) and found a significant effect of the PCOMS in group psychotherapy, as indicated by differences in the ORS ratings, number of attended sessions, and commanders ratings. Some of these findings may be explained by an
improved therapeutic alliance facilitated by the PCOMS (although not examined by Shuman et al. [2015]). For instance, in a systematic review by Brorson et al. (2013), a lower therapeutic alliance was a risk factor for dropout in substance use treatment. However, the evidence for the effects of the PCOMS in treatment for substance use is scarce, and thus, there is a need for investigating the effect of using the PCOMS in substance (including drugs) use treatment, as well as for implementing studies employing other outcome measures than the ORS.

Therefore, the aim of the pilot study was to investigate whether the PCOMS improved the retention (attendance and dropout rates) and reduced cannabis and other drug use in a public outpatient clinic for drug use treatment. It was hypothesized that the PCOMS would improve treatment attendance, decrease dropout, and reduce drug use compared to treatment as usual (TAU).

**Method**

**Study Design**

The study was an effectiveness RCT (Singal, Higgins, & Waljee, 2014), also known as a pragmatic RCT (Zwarenstein et al., 2008), with three clinically rated assessment points: baseline (T1), three months after baseline (T2), and six months after baseline (T3). Before the treatment, patients, who had signed informed consent, answered 10 questions regarding demographics, occupation, and drug use (see Table 1). A researcher employed the 10 answers for urn randomization allocating the patients to one of two treatment conditions. The urn randomization method was chosen to obtain an overall balanced distribution of patients across the 10 variables (Stout, Wirtz, Carbonari, & Del Boca, 1994). Researchers conducting the assessments (T1, T2, and T3) were blind to participants’ treatment allocation. Therapists
treated patients in both conditions, which was a pragmatic way of controlling for potential effects introduced at the therapist level.

Setting and Participants

The treatment took place in a drug use treatment center in the municipality of Odense. According to the Danish Consolidation Act on Social Services (2015), Part 18, art. 101, treatment must be free of charge, and patients must be offered treatment within 14 days after the initial contact with the treatment service. Patients were eligible to participate in the study if they had cannabis use as their primary drug problem. Patients were excluded if they had severe psychotic disorders, severe cognitive deficits, or were otherwise deemed unsafe to participate (e.g., engaged in violent actions against staff).

All 16 therapists in the drug use treatment center were obligated to treat patients in the trial. They all had a bachelor’s degree in social work or social education, and a 15 days post-graduate course in psychotherapy, including CBT, MI, and systemic theory.

The study was approved by the Danish Data Protection Agency, and the Regional Committee for Medical and Health Research Ethics for the Southern Denmark Region was consulted. All participants signed informed consent to participate in the study.

Some of the data in the present paper have been published in a Danish report (Pedersen & Pedersen, 2013).

Treatments

Patients in both conditions were offered eight weekly 50-minutes sessions.

Treatment as usual. The treatment center provided the patients with the usual and highest standard of care possible. Although the therapists had a course in CBT and MI, they used a variety of methods. The attitude was supportive, with a focus on practical matters and what the patients wanted to talk about. Patients were neither tested for drugs nor discharged
from treatment if they continued to use drugs during treatment. This integrative and non-judgmental approach is typical for drug use treatment in Danish municipalities.

**PCOMS intervention.** As the only difference to the control condition, the therapists were instructed to administer a paper-and-pencil version of the ORS at the beginning and the SRS towards the end of each session and encouraged to discuss the feedback with the patients. The ORS measures well-being on four dimensions: (1) individually, (2) interpersonally, (3) socially, and (4) overall. The SRS measures the therapeutic alliance on four dimensions: (1) relationship, (2) goal and topics, (3) approach or method, and (4) overall. Both the ORS and the SRS are rated with visual analog scales, where the patient rates her or his well-being and alliance, respectively, by placing a mark on 10 cm long lines. Higher scores represent better scores. Each scale is summed up to a total score, ranging from 0 to 40 (Miller & Duncan, 2004). Following Miller and Duncan (2004), patients were defined as not-on-track (NOT) of a good outcome if there was a 5-point reduction on the ORS in any session compared to the ORS-intake score. On the SRS, a total score below the established cut-off point of 36, or an at least 1-point drop from the previous session were considered to indicate a poor alliance or an alliance rupture (Miller & Duncan, 2004). In the discussion of patient feedback, therapists were asked to pay special attention to NOT cases and indications of alliance problems.

In the PCOMS condition, it was mandatory for the therapists to use the PCOMS in all sessions. However, the ORS and the SRS were only administered in approximately 40% of all sessions. This figure was estimated by dividing the total number of ORS and SRS administrations, by the total number of sessions in the PCOMS condition. The trial period started immediately after the training courses described below and lasted for one year.

**Training.** Before the trial period, all therapists participated in a two-day course conducted by Scott D. Miller (one of the PCOMS founders), and a two-day introductory
course, which included hands-on training in the PCOMS. During the trial period, the therapists received individual PCOMS supervision on two occasions, and the PCOMS practice was discussed at monthly meetings at the center.

Measures

**Primary outcomes.** Treatment retention was measured as (1) the rate of attendance to treatment sessions, and (2) dropout rate. Following Davidsen et al. (2018), the rate of treatment attendance (R) was calculated as $R = \frac{A}{N}$, where $A$ was the number of sessions attended, and $N$ was either the number of maximum planned sessions (i.e., 8) or the number of sessions before a bilateral agreement to terminate. If the therapists and patients both agreed to discontinue treatment before the eight planned sessions, the $N$ was adjusted to reflect that agreement. If the patient unilaterally discontinued treatment, $N$ remained unchanged at 8. The attendance rate ranged from 0 to 1, where 1 meant attending to 100% of the planned sessions. The therapists registered the treatment attendance after each planned session as part of their case management.

Dropout was defined by the patient’s unilateral termination of the treatment; that is, before the 8 sessions planned, the patient canceled, did not show up, could not be reached, or ended the treatment without agreeing with the therapist. When the patients did not show up, the therapists followed the clinic's usual procedures and contacted them by telephone or text message. This procedure was followed in both conditions. Dropout was dummy-coded as 1, and else as 0 (i.e., patients who completed the treatment after the 8 sessions planned or in agreement with the therapist). As part of the case management, the therapists registered dropout in the records.

**Secondary outcomes.** The European Addiction Severity (EuropASI; Kokkevi & Hartgers, 1995) drug use module was used to measure drug use in the 30 days prior to assessment. The EuropASI is a semi-structured interview with 68 questions assessing nine
areas of functioning often affected by substance use, including alcohol use, drug use (i.e., EuropASI-Drug module), concerns about work, financial state, family relationships, social relationships, legal problems, and mental health. The EuropASI-Drug module consists of 11 items covering different types of drug use (e.g., heroin, cocaine, amphetamine, cannabis). From the EuropASI-Drug module, we obtained three indices of current drug use: (1) all types of drugs (EuropASI-Drug), which consists of a composite score with the 11 items, (2) abstinence from cannabis use (any use: yes/no), and (3) the number of days using cannabis. The EuropASI-Drug use module has demonstrated high concordance with DSM-IV substance use disorders (Rikoon, Cacciola, Carise, Alterman, & McLellan, 2006).

**Explorative outcomes.** The explorative outcomes included the EuropASI alcohol, mental health, legal, financial, and medical modules, as well as the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989; 36 self-report items, completed by therapists and patients) used to measure the therapeutic alliance. The EuropASI was administered at T1, T2, and T3, and the WAI only at T2.

**Statistical Analyses**

Different analytical strategies were employed depending on the type of dependent variable (e.g., binary vs. continuous; repeated vs. not repeated). The number of days using cannabis, the drug, alcohol, and the mental health modules of the EuropASI were analyzed using multilevel modeling (MLM). MLM was chosen because it can better handle missing data (e.g., the patient is still included in the analysis if missing one of the three assessment points [T1, T2, and T3]), and because MLM accounts for the nesting structure of the data, where assessment time at Level 1 is nested within patients at Level 2. An incremental PCOMS effect was defined by a statistically significant two-way (Condition x Time) interaction. The equation was:

\[ Y_{ij} = (\beta_0 + U_{0j}) + \beta_1(T_{ij}) + \beta_2(\text{Condition}_j) + \beta_3(T_{ij} \times \text{Condition}_j) \]
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Abstinence from cannabis use (yes/no) was analyzed with the generalized estimating equation (GEE), which analyses repeated measures of binary variables. A statistically significant two-way (Condition x Time) interaction indicated a PCOMS effect. Independent t-tests were used to test for a PCOMS effect on the treatment attendance rate and the WAI, and a chi-square test was used for dropout rates. All analyses were conducted with SPSS version 26.

In the MLM analyses, the between-group effect size (ES) was calculated as Cohen’s d derived from the F-test (Time x Condition interaction) according to the equation: $d = 2 \times \left( \frac{\sqrt{F}}{d_f} \right)$. For the MLM analyses and t-tests, an incremental effect of the PCOMS was indicated by a positive Cohen’s d. Fisher’s z and odds ratio were reported as ESs for other tests.

Results

Participant Flow

The participant flow is shown in Figure 1. Of the 100 patients randomized (i.e., intent-to-treat; ITT), 82 attended at least one therapy session (82%; i.e., treated sample). Fifty-four (54%) and 43 (43%), respectively, participated at follow-up interviews three and six months after the baseline interview. Missing follow-up assessments were due to patients not showing up for interviews or being out of reach.

A larger percentage of the 18 patients, who did not start the treatment, had previously been treated for substance use ($n = 13, 72\%$), compared to the treated sample ($n = 36, 44\%$), $\chi^2(N = 100) = 4.74, p = .030$. No other significant differences were found between these two
groups, including sex, age, use of psychotropic medication, suicidal ideation, use of cannabis and other illicit drugs, aggressive behavior, and socioeconomic factors (i.e., paid work, living arrangement, having a partner, cohabits with someone with substance use; $ps > .05$).

***insert Figure 1 about here***

### Participant Characteristics

Baseline participant characteristics of the treated sample are shown in Table 1. Sixty-six (80.5%) were men, and the mean age was 26.3 years (range 16-48). Seventy-one (86.6%) had paid work. Sixty-eight (82.9%) used cannabis for at least 13 days in the month before randomization, 15 (18.3%) other illicit drugs, and 18 (22.0%) used psychotropic medication. About one-third (32.9%) had problems with aggression (i.e., violent behavior), and 12 (14.6%) experienced suicidal ideation. Thirty-six (43.9%) had previously been treated for substance use.

***insert Table 1 about here***

At baseline, no significant differences were found between the PCOMS and the TAU condition on any of the sociodemographics, drug use, or mental health variables reported in Table 1, or on any of the EuropASI modules reported in Table 2 at T1 ($ps > .05$).

### Outcomes

All the outcome analyses for the treated sample are reported in Table 2.

***insert Table 2 about here***

#### Primary outcomes.

**Treatment retention.** The mean number of sessions for the treated participants was 4.7 ($SD = 1.6$) in the PCOMS condition, and 4.5 ($SD = 1.8$) in the TAU condition. For the treated sample, the rate of attendance to sessions (number of sessions attended/number of
sessions planned or agreed on) was 0.66 in the PCOMS condition and 0.65 in the TAU condition, with no difference between the conditions ($t(80) = 0.15, p = .88$). The number of patients dropping out of treatment was 21 (51.2%) in the PCOMS condition and 23 (56.1%) in the TAU condition. The dropout rate did not differ between treatment conditions ($\chi^2(82) = 0.19, p = .82$). Likewise, ITT analysis found no significant differences between conditions for rate of attendance ($t(98) = -0.19, p = .85$), or dropout rate ($\chi^2(100) < 0.01, p = .98$).

**Secondary outcomes.**

**Drug use.** For the treated sample, the Time x Condition interactions were not significant, suggesting no incremental effect of the PCOMS on cannabis abstinence rate, Wald $\chi^2 = 0.24, p = .63$; the average number of days using cannabis during the last 30 days, $F(1, 62.91) = 0.017, p = .90$; or drug use measured with the EuropASI-Drug, $F(1, 79.54) = 1.17, p = .28$. In the ITT analyses, the interactions were also non-significant for cannabis abstinence rate ($p = .68$), days of cannabis use ($p = .93$), and EuropASI-Drug ($p = .31$).

**Explorative outcomes.**

No significant Time x Condition interactions were found for any of the explorative outcomes in the treated sample ($ps > .05$, see Table 2). ITT analyses for explorative outcomes were also non-significant ($ps > .05$).

**Sensitivity analyses.**

Sensitivity analyses were conducted with the sub-sample of PCOMS-treated patients for whom there was evidence of active use of the PCOMS ($n = 19$) compared to TAU. For these patients, the ORS/SRS was employed in at least 50% of all sessions (14 received the ORS/SRS in all their attended sessions, and five completed the ORS/SRS in 50-67% of the sessions). Regarding primary outcomes, no significant differences were found between conditions for attendance rate ($t(58) = 1.072, p = .29$) or dropout rate ($\chi^2(60) = 0.397, p = .53$), although the effect sizes were in the expected direction for both outcomes, with $d = 0.28$. 


and \( z = 0.08 \), respectively. For the secondary and explorative outcomes, there were no significant effects of the active PCOMS compared to TAU \((p > .05)\). All effect sizes ranged from -0.52 to 0.29, with fifty-fifty in the positive and negative range, respectively.

A post hoc power calculation using G*Power 3.1.2 (Faul, Erdfelder, Buchner, & Lang, 2009; \( \alpha = .05; \) power = .80, one-tailed) showed that for the primary outcome with the largest effect size \((d = 0.28)\) to be significant, a total sample size of 318 would have been required.

**Discussion**

The aim of the study was to investigate whether the PCOMS improved treatment attendance and dropout in the treatment for cannabis use. To our knowledge, the present pilot trial is the first RCT examining the PCOMS effectiveness in an outpatient clinic for drug use treatment compared to TAU.

Contrary to the hypotheses, the PCOMS did not significantly improve treatment attendance, decreased dropout rates, or reduced consumption of cannabis or other drugs compared to TAU. Moreover, the PCOMS did not improve the therapeutic alliance. The null findings might be explained by a combination of factors, including the outcome measures employed, patients’ characteristics, and adherence or implementation difficulties.

Several studies have found moderate to large PCOMS effects when the treatment outcome has been the ORS, a measure that is part of the PCOMS intervention itself. For instance, Lambert et al.’s (2018) meta-analysis found a moderate PCOMS effect when measuring the effect with the ORS in eight of nine included studies. Similarly, the one study investigating the PCOMS effect in the treatment for substance use (primarily alcohol) found a positive effect on the ORS (Schuman et al., 2015). In contrast, the findings of the present study are consistent with two recent meta-analyses (Pejtersen et al., 2020; Østergård, Randa,
& Hougaard, 2020), in which no clinically significant PCOMS effects were found on the number of sessions attended by patients or on general symptoms or well-being, and in which the outcomes were measured independently from the PCOMS intervention (i.e., not the ORS).

Regarding the outcome measures, the present study employed measures independent from the PCOMS intervention, including records by the therapists (attendance and dropout), a blinded researcher-administered assessment (Europ-ASI), and self-report measures (WAI). The only prior study employing a blinded expert rating of the primary outcome did not find a PCOMS effect (Davidsen et al., 2017). In a direct comparison of seven studies, where both the ORS and an independent outcome measure were employed, Østergård, Randa, and Hougaard (2020) found that the effect size was larger by 0.11 when the analysis was based on the ORS as outcome compared to when the analysis was based on an independent outcome, suggesting a measure-specific effect. This finding aligned with Østergård, O’Toole, Svendsen, and Hougaard (2020), finding that the pre-post treatment effect when implementing the PCOMS was significantly larger for individual and group counseling when the outcome measure was the ORS compared to an independent outcome measure (i.e., Symptom Check List 90). Seidel, Andrews, Owen, Miller, and Buccino (2017) found a larger pre-post effect size on the ORS (0.83) compared to the OQ-45 (0.44). Typically, the ORS is completed in the session in the therapist’s presence, which may explain the larger effect sizes when employing the ORS. According to the Hello-Goodbye-Effect, the client may have a low score on the first ORS trying to signal a need for help, and a higher ORS score at the end of treatment to please the therapist or portray themselves in a more positive light (Østergård, Randa, & Hougaard, 2020).

At the same time, the interpretation of the present findings must consider that effectiveness trials without a witnessed effect may be related to several factors, including an
ineffective intervention, poor implementation, and lack of clinician or patient acceptance and
adherence (Singal, Higgins, & Waljee, 2014).

Regarding patient or setting characteristics, Østergård, Randa, and Hougaard (2020)
did not find any incremental PCOMS effects when implemented in psychiatric settings,
compared to a moderate PCOMS effect in counseling settings. Davidson, Perry, and Bell
(2015) found that the effect sizes for using ROM tend to diminish with more severe
psychiatric populations. Patients with cannabis use problems are likely to have more severe
and complex problems than patients in counseling settings. Patients with more severe
presetting problems may prefer direct advice and guidance as they may have little motivation
or lack the capacity to reflect on feedback (van Oenen et al., 2016). Moreover, patients in
drug use treatment have more attendance problems and therapy-resistant symptoms than
other patient groups, making therapy progress more challenging.

An important limitation of the present study was the therapists’ adherence to the
PCOMS, which may also have had an impact on the findings. The decision to implement the
PCOMS was taken by the management of the clinic and was met with resistance from many
therapists. The therapists did not systematically administer the ORS and the SRS despite
having received four days of PCOMS training before the trial period, holding monthly
meetings during the trial period, and discussing cases in PCOMS supervision. To mitigate the
potential effect of the low adherence to the PCOMS on the findings, we conducted sensitivity
analyses with the 19 participants actively exposed to the PCOMS. Overall, these analyses did
not find evidence that the PCOMS resulted in better outcomes than the TAU.

While the poor adherence was an important limitation of the current study, it also
highlights potential challenges of implementing the PCOMS system in public clinics.
Anecdotally, most therapists expressed that they did not find the PCOMS helpful. The quality
of implementation is reduced if clinicians do have a negative attitude towards ROM (Bjaastad
et al., 2019) or do not feel that ROM adds value to their practice (de Jong, van Sluis, Nugter, Heiser, & Spinhoven, 2012; Gleacher et al., 2016). De Jong et al. (2012) found that feedback did not improve outcomes if not used actively. More specifically, for the PCOMS, several studies have discussed the importance of adherence to the PCOMS protocol during implementation (Brattland et al., 2018; Davidsen et al., 2017; She et al., 2018). Brattland et al. (2018) found that the effect of the PCOMS increased significantly with time from the first to the fourth year of the trial and speculated that this could be a result of the continued implementation efforts during the trial. One of the founders of the PCOMS argues that some, if not many, settings cannot implement the PCOMS effectively because of the high level of fidelity required (Duncan & Sparks, 2019). S. D. Miller, the other founder of the PCOMS, has stated that more than the PCOMS what is required to achieve an improved therapeutic outcome is deliberate practice. Deliberate practice is defined by three activities: (1) establishing a baseline level of effectiveness, (2) obtaining feedback regularly, and (3) spending time outside of daily work in systematic effort to improve where the therapist set therapeutic goals and uses feedback to benchmark and practice therapeutic skills (Miller, Hubble, & Chow, 2018). That said, as illustrated in the present study, the implementation of a ROM system in a public outpatient clinic for drug use might not lead to treatment gains even after therapist training.

Other limitations of the study were lack of information on how the ORS/SRS feedback was discussed with patients, a relatively small number of randomized patients, and the fact that therapists treated patients in both conditions. Regarding the latter, an advantage of this method is accounting for variability at the therapist-level. However, this method also risks contamination between the two treatment conditions.

Despite the study’s limitations, two major strengths of this study were the application of an RCT design in a routine clinical setting (i.e., effectiveness trial) and the use of
independent outcome measures, including blinded expert ratings to test treatment effects. Singal et al. (2014) argue that effectiveness studies despite limitations in internal validity might have higher external validity than efficacy studies because it accounts for external patient-, provider-, and system-level factors that may moderate an intervention’s effect. Unlike Duncan and Sparks (2019), we believe that PCOMS studies are still valid even in the light of implementation problems, as they underscore the challenges of implementing well-designed therapeutic methods in large routine clinical settings. In sum, we did not find evidence that the PCOMS was related to superior retention and drug use outcomes when implemented in a typical public outpatient clinic for drug use in Denmark. The study adds to increasing evidence indicating that ROM-systems, such as the PCOMS, may be challenging to implement effectively.
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