U.S. Department of Veterans Affairs
Public Access Author manuscript
J Consult Clin Psychol. Author manuscript; available in PMC 2023 May 01.

Published in final edited form as:
J Consult Clin Psychol. 2022 May ; 90(5): 413–426. doi:10.1037/ccp0000721.

A randomized controlled trial of moral reconation therapy to reduce risk for criminal recidivism among justice-involved adults in mental health residential treatment

Daniel M. Blonigen[1,2], **Michael A. Cucciare**[3,4,5], **Thomas Byrne**[6,7], **Paige M. Shaffer**[6,7], **Brenna Giordano**[8], **Jennifer S. Smith**[1], **Christine Timko**[1,2], **Joel Rosenthal**[9], **David Smelson**[6,7]

[1]HSR&D Center for Innovation to Implementation, VA Palo Alto Health Care System, Palo Alto, CA USA

[2]Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Palo Alto, CA USA

[3]Center for Mental Healthcare and Outcomes Research, Central Arkansas Veterans Affairs Healthcare System, North Little Rock, AR 72205, USA

[4]Veterans Affairs South Central Mental Illness Research, Education and Clinical Center, Central Arkansas Veterans Healthcare System, North Little Rock, AR 72205, USA

[5]Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, AR 72205, USA

[6]HSR&D Center for Health Care Organization and Implementation Research, Bedford VA Medical Center, Bedford, MA USA

[7]University of Massachusetts Medical School, Worcester, MA USA

[8]Clinical Psychology PhD Program, Palo Alto University, Palo Alto, CA USA

[9]Veterans Justice Programs, Veterans Health Administration, Washington DC USA

Abstract

Correspondence concerning this article should be addressed to Daniel M. Blonigen, Health Services Research and Development Center for Innovation to Implementation, Department of Veterans Affairs Palo Alto Health Care System, 795 Willow Road (152), Menlo Park, CA 94025 USA. Phone: 650-493-5000, ext. 27828. Fax: 650-617-2736. daniel.blonigen@va.gov.
Daniel Blonigen and Christine Timko – Center for Innovation to Implementation, Department of Veterans (VA) Affairs Palo Alto Health Care System, and Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine; Michael Cucciare – Center for Mental Healthcare and Outcomes Research, Central Arkansas Veterans Affairs Healthcare System, and Department of Psychiatry, University of Arkansas for Medical Sciences; Thomas Byrne, Paige Shaffer, and David Smelson – Center for Health Care Organization and Implementation Research, Bedford VA Medical Center, and Department of Psychiatry, University of Massachusetts Medical School, Worcester; Brenna Giordano – Clinical Psychology PhD Program, Palo Alto University; Joel Rosenthal – Veterans Health Administration, Office of Homelessness, Veterans Justice Programs (now retired).

Transparency and Openness. We report how we determined our sample size, all data exclusions, and all measures in the study, and we followed JARS (Applebaum et al., 2018). All data, analysis, code and research material are available upon request from the first author. All data analyses were conducted using the *R* environment for statistical computing version 4.02 (R Core Team, 2020). All mixed effects models were estimated using the lme4 package (Bates, Machler, Bolker, & Walker, 2015). This study's design, analysis, and outcomes were preregistered (ClinicalTrials.gov; ID: NCT02524171) and were also described in a study protocol paper (Blonigen et al., 2018, *BMC Health Services Research*).

Objective: Moral Reconation Therapy (MRT) is a cognitive-behavioral intervention to reduce risk for criminal recidivism. Despite being implemented widely in correctional settings, there are no randomized controlled trials of MRT, and its effectiveness for reducing recidivism among justice-involved adults in non-correctional settings is unknown.

Methods: In a pragmatic trial, 341 justice-involved patients (95.3% male; 57.8% White/Non-Hispanic) admitted to one of three mental health residential treatment programs were randomly assigned to usual care (UC) or UC plus two MRT groups per week for 12 weeks. Follow-ups were conducted at 6- and 12-months post-baseline (71.3% and 74.8% retention, respectively). Primary outcomes were criminal thinking and criminal associates. Secondary outcomes were legal problem severity, days incarcerated in the past 30, rearrested/charged (per official records), substance use, and employment and family/social problems. The study design, analysis, and outcomes were preregistered (ClinicalTrials.gov; ID:NCT02524171).

Results: Patients in both conditions improved over time on most outcomes. In intent-to-treat analyses, the rate of change in outcomes over time did not differ by condition, nor did the prevalence of being rearrested and charged within one year of baseline (UC=20.2%, MRT=24.9%; OR=1.14; 95% CI[0.67,1.94], p=.63). MRT engagement was low; 37% of those randomized to MRT received a minimum dose–i.e., completed at least Step 3. In per-protocol analyses, this subgroup, relative to UC, improved more on criminal associates, days incarcerated, legal problem severity, and alcohol use severity.

Conclusions: In this study, MRT was not more effective than usual care at reducing recidivism risk for patients in mental health residential treatment.

Keywords

Criminal recidivism; Moral Reconation Therapy; Randomized controlled trial; Mental health residential treatment; Veterans

---

For adults in the criminal justice system, recidivism is the norm rather than the exception. Data from the United States (US) Bureau of Justice Statistics estimates that approximately two-thirds of imprisoned adults will recidivate (i.e., be arrested, reconvicted, or reincarcerated for a new crime or violation of their parole or probation) within three years of their release (Durose, Cooper, & Snyder, 2014). A history of repeated involvement in the criminal justice system is also common among individuals in treatment for substance use and/or mental health problems (Malone, 2009; White et al., 2006). For example, a national study of substance use disorder treatment programs in the Veterans Health Administration (VHA) reported that 85% of patients had at least one lifetime criminal charge, with 58% reporting three or more charges in their lifetime (Weaver et al., 2013). Accordingly, there is a need to identify what interventions are most effective for reducing criminal recidivism among justice-involved adults.

Established models of offender rehabilitation indicate that cognitive-behavioral interventions that target *criminogenic needs* are best practices for reducing risk for criminal recidivism (Landenberger & Lipsey, 2005; Milkman & Wanberg, 2007, but see Beaudry, Yu, Perry, & Fazel, 2021). Criminogenic needs refer to dynamic risk factors that have been identified through meta-analyses as reliable and valid predictors of criminal recidivism and are

therefore ideal targets for treatment (Bonta & Andrews, 2016). Among these needs, criminal thinking (attitudes and beliefs reflecting a criminal identity and rationalization of criminal behavior) and criminal associates (close relationship with others who are involved in and/or supportive of criminal behavior) are among the strongest dynamic risk factors for criminal recidivism. Other criminogenic needs include substance use, employment problems, and family/social dysfunction (Bonta & Andrews, 2016). Interventions that can effectively target these criminogenic needs have high potential to reduce risk for criminal recidivism among justice-involved adults.

Moral Reconation Therapy (MRT) is a manualized, cognitive-behavioral intervention for reducing risk for criminal recidivism by targeting criminogenic needs; in particular, reducing criminal thinking and criminal associations (Little & Robinson, 1988). Delivered in a group format and using a patient workbook, MRT exercises facilitate participants' completion of 12 steps of moral development such as creating an awareness of and confronting distorted beliefs that support criminal activity, assessing and healing damaged relationships, and increasing delay of gratification (Milkman & Wanberg, 2007). Participants move through the steps at their own pace, which allows groups to include new members at any time. To pass a step, participants complete homework assignments, which are designed to be appropriate for those with low reading levels. Assignments are completed by participants between groups and then presented at the next group session for feedback. In general, completion of an MRT step takes approximately two group sessions, with completion of all 12 steps often requiring up to 24 sessions (Little, 2003, 2005; Little & Robinson, 1988).

Systematic reviews indicate that MRT may have positive effects on recidivism and associated risk factors (Little, 2005; Wilson, Bouffard, & Mackenzie, 2005). One meta-analysis of 33 published studies compared MRT to a non-treated comparison group using either an experimental or quasi-experimental (matched or non-equivalent groups) design and conducted in either an incarcerated setting or in the community as part of parole or probation. Over an average follow-up period of approximately three years, the rate of recidivism among MRT participants was reduced by one-third relative to those who did not receive MRT (Ferguson & Wormith, 2013). Notably, significantly larger effect sizes in terms of the benefits of MRT over comparison conditions were found in studies conducted in incarcerated settings, which comprised the majority of the studies reviewed (25 out of 33). These findings notwithstanding, most studies of MRT have lacked a comparator, thus limiting the field's understanding of how effective MRT is relative to other types of care. For example, in a systematic review of 28 distinct trials of MRT, only six studies used a comparator (i.e., matched control group or sequential cohort control group); the other studies used either a non-equivalent control group (n=16) or no comparison group (n=6). None of the studies was a randomized controlled trial (RCT; Blodgett, Fuh, Maisel, & Midboe, 2013).

Importantly, MRT has been mostly commonly tested in correctional settings where treatment engagement was mandated. Further, community-based trials of MRT have only been conducted as part of parole and probation services and re-entry programs (Little, 2005). Consequently, the effectiveness of MRT in non-correctional settings is largely unknown. This gap in knowledge is significant, given the substantial increase in the number of

specialty courts over the past decade, which offer access to mental health treatment, including for substance use problems, as an alternative to incarceration (Scott, McGilloway, Demster, 2013). Thus, well-designed RCTs of MRT are needed outside of correctional settings to determine its effectiveness with justice-involved adults.

The present study

To our knowledge, the present study represents the first RCT to examine whether receipt of MRT is associated with reduced risk for criminal recidivism among justice-involved adults in a non-correctional setting. Using a pragmatic, multisite RCT design, we tested the effectiveness of MRT among US military veterans within mental health residential treatment programs in the VHA. These programs serve a high proportion of justice-involved adults (Weaver et al., 2013). We hypothesized that MRT, relative to usual care in these residential programs, would be associated with reductions in risk for criminal recidivism 6 and 12 months after program admission. Risk for recidivism was defined in terms of the criminogenic needs described above. Specifically, the primary outcomes were level of criminal thinking and number of criminal associates, as these are the primary targets of MRT. Secondary outcomes included days incarcerated in the past 30, legal problem severity, being rearrested and charged during the follow-up period, substance use problem severity, quantity and frequency of substance use, employment problem severity, and family/social problem severity.

Methods

Sample and procedures

Patients admitted to one of three mental health residential treatment programs in the VHA were included if they (a) had a criminal history – i.e., had been arrested and charged and/or released from incarceration in the past five years, (b) were conversant in English, and (c) had sufficient cognitive functioning to understand the study procedures (determined from the Orientation section of the Montreal Cognitive Assessment; Nasreddine et al., 2005). After receiving an introduction on the study purpose, procedures, and risks and benefits of participation, patients provided written informed consent and completed an in-person baseline interview within the first week of program admission. After completion of the baseline interview, participants were randomly assigned by the project manager at each site to either Usual Care (UC) or UC plus MRT using a preselected randomization schedule, which was based on a fixed block size of six to assure that the sample size of the two conditions was roughly equal. At 6- and 12-months post-baseline, research assistants who were blinded to patients' condition assignment collected self-report data from patients by telephone. We used an intent-to-treat design and therefore followed all participants regardless of their level of participation in the intervention. All study procedures were reviewed and approved by VA's Central Institutional Review Board (Study #15-04).

A summary of the flow of patients through the trial is provided in Figure 1. The initial enrollment target was determined from a power analysis to detect a small-to-medium effect size difference (i.e., $f^2 = .07$) between the conditions on the primary and secondary outcomes. A sample size of 365 (approximately 182 per condition) was calculated as

providing 80% power to detect this size of an effect, based on an alpha of .05 (two-tailed) and accounting for three sites. Over the course of the study, 469 patients were assessed for eligibility and 341 were enrolled and randomly assigned. Excluded were 128 patients because of ineligibility (n=47), declining to participate (n=48), or other reasons (n=33). In total, 169 patients were randomly assigned to the UC condition, of which 124 (73.4%) were followed at 6 months, and 128 (75.7%) were followed at 12 months. In total, 172 patients were randomly assigned to the MRT condition, of which 119 (69.2%) were followed at 6 months, and 127 (73.8%) were followed at 12 months. Some participants who were incarcerated at the 6- (n=1) and 12-month follow-ups (n=8) completed assessment packets by mail.

Baseline comparisons of the characteristics of patients followed or not followed at 6 and 12 months found that followed participants were significantly older (M=47.5 years (SD=11.8) vs. M=44.0 years (SD=12.5), $t(339)=2.51$, $p=.01$), and spent significantly more days, on average, in residential treatment during the stay in which they were enrolled in the study (M=183.1 (SD=96.2) vs. M=53.0 (SD=56.8), $t(339)=15.69$, $p<.001$). Those followed and not followed at 6 and 12 months also differed significantly with respect to race/ethnicity (Followed: 54.8% White, non-Hispanic/Latino, 33.3% Black, non-Hispanic/Latino, 5.1% Hispanic/Latino, 6.9% Other vs. Not followed: 62.9% White, non-Hispanic/Latino, 20.2% Black, non-Hispanic/Latino, 4.0% Hispanic/Latino, 12.9% Other, $\chi^2(3, n=341)=8.9$, $p=.03$); and in terms of study site (39.2% Pacific, 33.2% Continental, 27.6% Northeast vs. 21.0% Pacific, 30.6% Continental, 48.4% Northeast, χ^2 $(2, n=341)=17.8$, $p<.001$). There were no significant differences between those followed and not followed in terms of gender or living in a controlled environment in the 30 days prior to enrollment.

Across the total sample (n=341), at baseline, 214 participants (63%) reported being homeless prior to admission to the residential program, and 217 (64%) reported having chronic medical problems. In terms of criminal history at baseline, participants reported an average of 14.26 criminal charges (SD=19.21) in their lifetime. In addition, 98 participants (29%) reported being court-mandated to treatment, 179 (52%) reported being on parole or probation, and 41 (12%) reported being incarcerated in a jail or prison in the past 30 days. Based on ICD-10 codes linked to their admission records, participants' presenting diagnoses included substance use disorder (UC: n=146, 86.4%; MRT: n=163, 94.8%), PTSD (UC: n=12, 7.1%; MRT: n=4, 2.3%), serious mental illness (UC: n=6, 3.6%; MRT: n=2, 1.2%), mood disorders (UC: n=2, 1.2%; MRT: n=1, 0.6%), anxiety-related disorders (UC: n=1, 0.6%; MRT: n=0, 0%), and other mental illness (UC: n=1, 0.6%; MRT: n=1, 0.6%). Based on a Fisher's exact test, the UC and MRT groups did not differ in presenting diagnoses ($p=.07$). At baseline, 114 (67.5%) and 100 (58.1%) participants in the UC and MRT groups, respectively, reported use of psychiatric medications in the past 30 days: $\chi^2(1, n=341)=2.77$, $p=.095$.

Conditions

Usual care.—All participants, regardless of condition, received usual care in the mental health residential treatment program at one of the three sites. Each program served patients dealing with homelessness, substance use, and/or mental health issues. The programs were

comparable in terms of program length (3–6 months), structure (patients were involved in therapeutic activities 5 days per week), clinical approach (individual and group-based cognitive-behavioral therapy for substance use and mental health problems), and staffing (psychiatrists, psychologists, social workers, nurses, addiction therapists, justice program specialists, homelessness coordinators). The services provided as part of usual care were largely distinct from MRT as the former focused on homelessness, substance use, and mental health problems, while the latter addressed criminal thinking and associations.

Usual care plus MRT.—Participants assigned to this condition were asked to attend MRT groups at the residential programs, which were planned for twice per week for 12 weeks, with each group planned to last one hour. Each group was facilitated by 1–2 staff members from the residential programs with masters- or doctoral-level degrees who were trained and certified as MRT group facilitators. The group sessions followed the veteran-specific workbook for MRT ("Winning the Invisible War;" Little & Robinson, 2013). The workbook comprises short assignments, grounded in cognitive-behavioral therapy, that aim to restructure antisocial attitudes, cognitions, and behaviors and help participants complete 12 steps of moral development. To progress through each step, participants completed assignments between group meetings and then presented their work at the next group meeting for feedback. Groups used an open-enrollment format incorporating new members at any time. This allowed group participants to present their progress on different steps each week. This also provided an opportunity for those at later steps to share their insights and feedback to newer participants who are working on earlier steps. To incentivize engagement, and consistent with the MRT protocol, patients were provided with medals and/or certificates when they passed Steps 3 (acceptance), 7 (identity and goal-setting), and 12 (choosing moral goals). These steps are considered significant milestones in the MRT curriculum because they are each linked to reduced risk for criminal recidivism (Burnette et al. 2004; Krueger, 1995; Little, Robinson & Burnette, 1991).

Of the 172 participants who were randomized to the MRT condition, 30 (17.4%) did not attend any groups, and the median number of sessions attended was 4 (ranged from 0 to 168). [1] Among participants who attended at least one MRT group, the median number of sessions attended was 7; among these participants, the average group size for sessions attended was 3.1 participants (SD=1.25; Min, Max = 1.27, 8.0). The percentage of participants who were randomized to the MRT condition who completed at least Step 3, Step 7, or all 12 steps was 37% (n=63), 9% (n=15), and 3% (n=6), respectively.

Prior to study enrollment, the group facilitators were trained in-person over four days (32 hours total) by one of the developers of MRT from Correctional Counseling Inc (CCI). Approximately one year later, these facilitators participated in a day-long (8-hour) booster training session on the MRT curriculum. Facilitators received regular supervision from the PI at each site who was also trained in MRT. To monitor fidelity to the intervention, one

[1]Participants had the option of continuing in the MRT groups after they were discharged from the residential program. One of the participants attended most of the groups that were held from July 2016 to November 2018, attending well past his discharge date and after he had completed all 12 MRT steps so he could serve as a mentor to veterans who were newer to the group. This approach is consistent with the MRT model. This participant received 168 sessions of MRT. The next highest number of MRT sessions attended by a participant was 68.

group per month was selected at random and observed in-person by research staff who completed a fidelity checklist provided by CCI. The fidelity checklists were reviewed by the site PIs and discussed on monthly fidelity calls led by staff from CCI who provided consultation and corrective feedback as needed. A subset of these group sessions (34 out of 110) was also selected at random to be audio-recorded (with participant consent) for fidelity monitoring. Two independent, trained coders listened to the recordings and completed the fidelity checklist, which included 12 items, on average, for the steps presented during the group session. Inter-rater agreement was excellent across all items (kappa = 80.31%). On average, the percentage of step items that were coded as adherent to the MRT protocol was 72.2%.

Outcome measures (primary)

Criminal thinking.—A 56-item version of the Psychological Inventory of Criminal Thinking Styles (PICTS) was administered at each interview to assess criminal thinking. Items on this self-report measure were rated on a 4-point scale (1=disagree, 4=strongly agree). The measure includes scales of Mollification (projecting blame for past and present criminal conduct onto external factors), Cutoff (acting impulsively), Entitlement (having a sense of ownership or privilege to justify violation of laws and/or the rights of others), Power Orientation (a tendency to crave power and seek control over others), Super-optimism (a belief that one will be able to avoid the negative consequences of a criminal lifestyle), Cognitive Indolence (a tendency to take short-cuts and look for the easy way around problems), and Discontinuity (a propensity to lose sight of one's goals and be easily side-tracked by environmental events). Scores on these scales were summed to create a General Criminal Thinking score, which has been validated as an overall index of risk for criminal recidivism (Walters & Lowenkamp, 2016; Walters & Cohen, 2016). Scores were converted to a T-score metric (M=50, SD=10), calculated in reference to norms from samples of incarcerated offenders (Walters, 2013). Internal consistency for these scores were high (α=.95, at all time points).

Criminal associates.—Scale A of the Measures of Criminal Attitudes and Associates (MCAA; Mills, Kroner, & Forth, 2002) was administered at each interview to quantify participants' associations with criminal peers, a strong predictor of criminal recidivism (Mills, Kroner, & Hemmati, 2004). Participants were asked to consider the four adults (excluding family, co-workers, or other residents in treatment) with whom they spend the most free-time. For each adult, they were asked to indicate how much of their time is spent with the individual (>25%, 25–50%, 50–75%, or 75–100%) and four questions (yes/no) regarding the criminal involvement of the individual (e.g., "Has [NAME] ever tried to involve you in a crime?"). A count variable (Criminal Friends) was created by summing the number of friends for which the participant answered yes to any of the questions of criminal involvement (possible range=0–4).

Outcome measures (secondary)

Legal problems.—The Legal Status module of the Addiction Severity Index (ASI; McLellan et al., 2006) was administered at each interview to assess (a) days incarcerated in the past 30 days, and (b) legal problem severity. The latter is based on a composite

index derived from five items: *Are you presently awaiting charges, trial, or sentence? How many days in the past 30 have you engaged in illegal activities for profit? How serious do you feel your present legal problems are?* (0=Not at all, 4=Extremely) *How important to you now is counseling or referral for these legal problems?* (0=Not at all, 4=Extremely) *How much money did you receive from illegal sources in the past 30 days?* These items were standardized and aggregated and yield scores ranging from 0 to 1; higher scores indicate greater problem severity of legal problems. ASI composite scores provide internally-consistent evaluations of a patient in a particular problem area (Grahn & Padyab, 2020).

For the States in which the three residential programs are located, we obtained administrative data from agencies in charge of criminal justice and/or corrections to construct a measure of criminal recidivism based on official records. The information included in these data varied across sites; to construct a consistent measure based on these official records, we created a single, dichotomous measure of whether participants had been rearrested and charged at any point during the 12 months post-baseline (1=yes).

Substance use.—The Alcohol and Drug modules of the ASI were administered at each time point to assess problem severity in these domains, using composite score indices (ranging from 0 to 1); higher scores indicate greater problem severity. In addition, a Timeline Follow-Back interview was administered to measure quantity and/or frequency of alcohol and drug use in the past 6 months (Sobell, Brown, & Leo, 1996). This retrospective, calendar-based measured has been validated for phone administration and up to 6 months of recall (Janssen, Braciszewski, Vose-O'Neal, & Stout, 2017; Sacks et al., 2003). It was administered at each interview to calculate for the past 6 months (a) percent days abstinent from alcohol, and (b) total number of days using any drugs (marijuana, cocaine, amphetamines, heroin, other opiates, benzodiazepines, barbiturates, inhalants, or hallucinogens).

Employment and family/social problems.—The Employment and Family/Social modules of the ASI were administered at each interview to assess problem severity in these domains, using composite score indices (range 0 to 1); higher scores indicate greater problem severity.

Data analysis

Primary analyses were performed on an intention-to-treat (ITT) basis using mixed-effects models for all outcomes, except the official record-based measure of being rearrested/charged. Linear mixed-effects models were used for all outcomes except for the Criminal Friends measure for which we estimated a mixed-effects Poisson regression model. These mixed models included main effects for time (baseline, 6- and 12-months), treatment group (MRT, UC) and a time × treatment group interaction, which was used to assess the effectiveness of the intervention. In the linear mixed models, the time × condition interaction term represents the change in the mean value of the outcome of interest from baseline to 6- and 12-months for the MRT group as compared to the UC group. In the case of the Poisson model for the Criminal Friends measure, the time × condition interaction term

represents the rate ratio at 6-month and 12-month follow up relative to the baseline for the MRT group divided by the rate ratio at 6-month and 12-month follow-ups relative to baseline for the UC group. For the official record-based measure of having been rearrested and charged, we estimated a binary logistic regression model in which the condition term (MRT vs. UC) assessed the effectiveness of the intervention. Models for all outcomes included the following set of covariates: age, sex, race, whether participant had lived in a controlled environment (e.g., hospital or jail) within 30 days prior to baseline, number of days in residential treatment indexed to the start date of the residential treatment episode during which participants were enrolled, and study site. Mixed effects models adjusted for the number of days between the baseline and 6- and 12-month interviews. Models yielded estimated mean values of the outcome at each time point for the MRT and UC groups.

To account for potential bias from noncompletion of interviews at 6 or 12months, the mixed-effect regression models used non-response weights. These weights were constructed by first using a logistic regression model to generate a predicted probability of interview response for each participant based on the following set of baseline characteristics: age, sex, race, marital status, education level, study site, whether participant had lived in a controlled environment (e.g., hospital or jail) in past 30 days, total number of lifetime convictions, whether participant was on probation or parole, recent criminal justice system involvement, whether participant was stably housed, chronic homelessness status at baseline, ASI legal, employment, medical, mental health, alcohol and drug composite scores, and whether participant had ever previously participated in MRT. We then grouped participants into quintiles based on this predicted probability and assigned all participants with the mean predicted probability for their respective quintile. We used the inverse of this probability as our non-response weight.

In addition to the ITT analysis, we also conducted per-protocol analyses in light of the relatively low rate of intervention engagement. In conducting these analyses, we only included participants in the MRT group if they had completed Step 3 or higher of MRT (n=63, 37%). We used this step as our cutoff for defining engagement in the MRT protocol because prior research shows that step completion is more strongly associated with recidivism than number of MRT sessions, and reduced risk for recidivism has been demonstrated for those who reached at least Step 3 in the MRT curriculum (Little, Robinson & Burnette, 1991). Baseline comparisons of patients in the MRT group who completed Step 3 or higher and those who did not found that the two groups differed significantly with respect to having lived in a controlled environment in 30 days prior to enrollment (≥Step 3: 12.7% No time in controlled environment; 15.9% jail; 68.3% Alcohol or drug treatment/ Medical treatment/Psychiatric treatment; 3.1% other; (<Step 3: 5.6% No time in controlled environment; 6.5% jail; 87.0% Alcohol or drug treatment/Medical treatment/Psychiatric treatment; 0.9% other; Fisher's exact test, p=.021). There were no significant differences between those who did and did not complete Step 3 or higher with respect to age, gender, time spent in residential treatment, race/ethnicity or study site.

Transparency and Openness—We report how we determined our sample size, all data exclusions, and all measures in the study, and we followed JARS (Applebaum et al., 2018). All data, analysis, code and research material are available upon request from the first

author. All data analyses were conducted using the *R* environment for statistical computing version 4.02 (R Core Team, 2020). All mixed effects models were estimated using the lme4 package (Bates, Machler, Bolker, & Walker, 2015). This study's design, analysis, and outcomes were preregistered (ClinicalTrials.gov; ID: NCT02524171) and were also described in a study protocol paper (Blonigen et al., 2018).

Results

Comparisons by conditions on model covariates

Sociodemographics and other sample characteristics that served as covariates in the ITT and per-protocol models are in shown in Table 1. Participants in the UC and MRT conditions did not differ significantly on any of these variables. In the full sample, participants were mostly male (95.3%, n=325), white (57.8%, n=197), and lived in a controlled environment (most commonly an alcohol/drug, acute psychiatric, or medical treatment facility; 83.6%%, n=285) prior to admission to the mental health residential program. On average, participants were 46.21 years old (SD=12.71) at the time of admission and stayed in the residential program for 91.87 days (SD=98.18). Participants were evenly distributed across the three sites.

Comparisons by conditions on primary outcomes

ITT analyses.—Table 2 provides the model-estimated means and corresponding 95% confidence intervals (CI) at all time points for the primary outcomes of criminal thinking and criminal associates. Participants in the UC and MRT conditions did not differ significantly on either of these outcomes at baseline. Estimates for the main effects of time show that, relative to baseline, mean scores on the PICTS General Criminal Thinking index decreased significantly at both the 6- and 12-month follow-ups. Similarly, the number of Criminal Friends also decreased significantly at 6- and 12-month follow-ups relative to baseline. The time by condition interaction terms were not significant for either outcome, meaning the rate of change in these outcomes did not differ over time between the MRT and UC groups.

Per-protocol analyses.—Table 3 provides the model-estimated means and 95% CIs at all times points for the primary outcomes from the per-protocol analyses. In these analyses, the MRT sub-sample comprised those who had completed Step 3 or higher of the MRT curriculum (n=63). Participants in the UC and MRT conditions did not differ on either of these outcomes at baseline. Relative to baseline, mean scores on the PICTS General Criminal Thinking index and number of Criminal Friends decreased significantly at the 6- and 12-month follow-ups. The interactions between time and condition were not significant for criminal thinking at either of the follow-up time points or for number of criminal friends at the 6-month follow-up. However, this interaction was significant for number of Criminal Friends at the 12-month follow-up (i.e., decreased at a greater rate over time among those in the MRT condition, relative to UC).

Comparisons by conditions on secondary outcomes

ITT analyses.—Table 4 provides the model-estimated means and SDs at all time points for the secondary outcomes of legal problems (days incarcerated in past 30, legal problem severity), substance use (problem severity, quantity/frequency of use), employment problems, and family/social problems. Patients randomly assigned to UC or MRT did not differ on any of these outcomes at baseline. Legal problem severity decreased significantly at both the 6- and 12-month follow-ups. Days incarcerated in the past 30 days did not change significantly between baseline and the 6-month follow up, but did decrease significantly from baseline to the 12-month follow up. Alcohol and drug problem severity did not change significantly from baseline to either of the follow-ups. Percent days abstinent from alcohol in the past 6 months increased significantly at both follow-up time points relative to baseline, and total days using any drugs decreased significantly at these time points. Employment and family/social problem severity also decreased significantly at each follow-up time point, relative to baseline. The interactions between time and condition were not significant for most outcomes with two exceptions: drug problem severity, which by 12 months had increased at a greater rate among those in the MRT group, relative to UC, and family/social problem severity, the mean value of which decreased less rapidly from baseline to both 6 and 12 months for the MRT group, as compared to UC.

For the official-record based measure of rearrested/charged (not tabled), a total of 34 participants in the MRT group (24.9%) and 34 participants in the UC group (20.2%) were arrested and charged within one year of baseline; the difference between the two groups was not statistically significant in unadjusted or adjusted analyses (adjusted OR=1.14; 95% CI=0.67, 1.94, p=.63).

Per-protocol analyses.—Table 5 provides the model-estimated means and 95% CIs at all times points for the secondary outcomes from the per-protocol analyses. Participants in the UC and MRT conditions did not differ on any of these outcomes at baseline, with exception of the number of days incarcerated in the prior 30 days, which was significantly higher for the MRT group (M=4.3, SD=5.3) than the UC group (M=1.6, SD=9.1); $t(229) = 2.17$, p=.03. Legal problem severity decreased significantly at both follow-ups. Days incarcerated in the past 30 days did not change significantly between baseline and the 6-month follow up, but did decrease significantly from baseline to the 12-month follow up. Neither alcohol nor drug problem severity changed significantly from baseline to either of the follow-ups. Percent days abstinent from alcohol in the past 6 months increased significantly at both follow-ups, relative to baseline, and total days using any drugs decreased significantly at these time points, relative to baseline. Employment and family/social problems also decreased significantly at each follow-up time point, relative to baseline. The interactions between time and condition were significant for days incarcerated and legal problem severity at the 6- and 12-month follow-ups (i.e., decreased at a greater rate over time among those in the MRT condition, relative to UC). The time by condition interaction term was also significant for alcohol use problem severity at 12 months (i.e., decreased at a greater rate from baseline to 12 months for those in the MRT condition than UC).

For the official-record based measure of rearrested/charged (not tabled), 11 participants in the MRT group (17.5%) and 34 in the UC group (20.2%) were rearrested and charged within one year of baseline; the difference between the two groups was not statistically significant in unadjusted or adjusted analysis (adjusted OR=0.66; 95% CI=0.28, 1.46, p=.32).

Discussion

To our knowledge, this study was the first RCT to examine the effectiveness of MRT to reduce risk for criminal recidivism among justice-involved adults in a non-correctional setting. A key strength of this study was its ability to examine the question of whether MRT is more effective than usual care for patients in mental health residential treatment. Based on ITT analyses, MRT was not associated with improvements in any primary or secondary outcomes, relative to UC. Over the 12-month study period, participants in both conditions improved on nearly all outcomes; this is consistent with prior research demonstrating that risk factors for recidivism such as criminal thinking and criminal associations improve over time (Wilpert, van Horn, & Boonmann, 2018). Surprisingly, those in the MRT condition, relative to UC, had poorer outcomes over time on drug and family/social problem severity. This may reflect an increased awareness of such problems over time or chance findings in these secondary outcomes. Collectively, MRT did not show any benefits over UC on any primary or secondary outcomes. This finding may be at least partly due to the relatively low rate of patient engagement in the MRT groups. Per-protocol analyses were therefore conducted to examine whether a minimum dose of MRT (i.e., reaching Step 3 or higher) was more effective than UC. Based on those analyses, MRT was associated with greater reductions over time in criminal associates, days incarcerated, and legal problem severity, relative to UC; however, it was not associated with greater reductions in the primary outcome of criminal thinking, nor in the rate of being rearrested and charged based on official records.

The low level of patient engagement in MRT complicates the interpretation of the effectiveness results, given that the potency of the intervention was likely reduced. Challenges with treatment engagement are common among individuals with criminal justice (Mallik-Kane & Visher, 2008), substance use, and/or mental health problems (Bellack et al., 2006). Some insights on the challenges of patient engagement in the current trial were provided by a process evaluation that was conducted in concert with the RCT (Blonigen et al., 2022). Based on qualitative interviews at each site with participants randomized to the MRT condition and residential program staff, the time-intensity of MRT was viewed as a key barrier to patient engagement. For example, patients reported that the workload of the intervention was overwhelming, particularly given competing demands from the residential treatment program and other priorities (e.g., finding a job or stable housing; Blonigen et al., 2019).

To facilitate patient engagement, patients and staff who were interviewed for the process evaluation highlighted the importance of external and internal motivators that may affect MRT participation. Regarding the former, court-related incentives and sanctions for attendance were suggested, as well as the importance of residential programs establishing partnerships with the criminal justice system to help incentivize or mandate treatment of

patients (e.g., probation or parole services, treatment courts). Consistent with this, a recent evaluation of a national training initiative of MRT in VHA highlighted partnerships with criminal justice system stakeholders as beneficial for providing external incentives to patient engagement (Blonigen et al., 2021). Some incentives to engagement in MRT were provided to participants in the current trial (e.g., coins and certificates for completion of various steps in the MRT curriculum); however, these incentives appeared to have minimal impact on patient engagement in the intervention.

From the standpoint of enhancing patients' internal motivation to engage in MRT, the results of both the process evaluation (Blonigen et al., 2022) and the national training initiative (Blonigen et al., 2021) indicated a perception that MRT lacks a motivational enhancement component. Motivational interviewing is well established as an effective approach to increase treatment engagement (Miller & Rollnick, 2002). Further, a recent review of court-mandated treatment for justice-involved adults argued for use of approaches that enhance patients' internal motivation to treatment engagement to mitigate any perceived coercion to participate in treatment (Hachtel et al. 2019).

Notwithstanding the potential value of enhancing patient engagement, the evidence for the effectiveness of MRT was still somewhat limited in the per-protocol analyses. This raises the question of whether MRT is effective for this specific population even if adherence to the protocol is met. Most prior research on MRT has been conducted on incarcerated populations or parolee re-entry programs following release from incarceration. By contrast, participants from the current trial were patients from a mental health residential treatment program, many of whom had a co-occurring substance use disorder, medical comorbidities, and housing problems. It is possible that the current sample had a higher level of clinical and psychosocial needs than samples from prior studies of MRT, though this is not clear given limited information on sample characteristics from prior studies (Blodgett et al., 2013). On the other hand, mental health and/or substance use problems are highly prevalent among incarcerated adults (Bronson, Carson, Noonan, & Berzofsky, 2015), and some prior MRT studies have been conducted on prison-based therapeutic communities for substance use disorders.

Perhaps the more notable distinction between prior samples and the current one is that the latter was already receiving long-term residential care for homelessness, substance use, and or mental health issues. Consequently, the lack of effectiveness may have been due to patients already receiving sufficient levels of care such that any additional receipt of MRT had minimal incremental impact on recidivism risk. In accordance with this, receipt of substance use and mental health treatment has been linked to reduced criminal activity among justice-involved veterans (Timko, Nash, Owens, Taylor, & Finlay, 2020). This may suggest that treatments such as MRT that target criminogenic needs may not be more effective at reducing recidivism than other evidence-based treatments provided in mental health residential treatment programs. From this standpoint, recidivism risk management for justice-involved adults with substance use and/or mental health problems should prioritize access and engagement into treatment for these problems. This perspective stands in contrast, however, to the Risk-Need-Responsivity (RNR) model of offender rehabilitation literature (Bonta & Andrews, 2016). From an RNR lens, criminal thinking is viewed as

a more robust risk factor for recidivism than substance use problems and that intensive services should be targeted to those at high risk for recidivism, based on validated risk assessment (Fazel, Singh, Doll, & Grann, 2012). The current study did not specifically screen or target inclusion of those at high level of recidivism risk.

Limitations

Some limitations of the current study should be noted. First, the sample was limited to US military veterans, most of whom were male. Therefore, the findings may not generalize to non-veterans or women. The former is particularly relevant, given that veterans have higher rates of trauma and homelessness than non-veterans, both of which have been proposed as unique risk factors for criminal recidivism in the veteran population (Blonigen, King, & Timko, 2019; Taylor et al., 2020). Second, due to our broad inclusion criteria, not all participants were actively involved in the criminal justice system at the time of enrollment. However, it is important to note that based on the mean scores on the PICTS General Thinking Index, participants had, on average, a moderate level of criminal thinking. Further, the results of the process evaluation indicated that patients viewed the MRT curriculum as unique and complementary to other services they received in the program but did not engage more due to the time-intensity of the curriculum (Blonigen et al., 2022). Nonetheless, some participants may have perceived MRT as less relevant to their problems and therefore may have engaged less in the intervention. Third, use of official records to measure rearrested/charged was a strength of the current study; however, records were only obtained from the three States where the residential programs were located. Thus, our measure of recidivism would not have captured federal charges or any criminal charges of a participant that occurred in another State during the follow-up period. Further, due to the relatively low base rate of being rearrested/charged during the follow-up period, statistical power was limited to detect a signal for this outcome. Finally, the per-protocol analyses provide insights into the potential effectiveness of MRT if a patient receives at least a minimum dose of the intervention; however, this approach cannot rule out selection effects such as internal motivation, which may have driven the findings rather than receipt of MRT per se.

Conclusions

This study found that MRT is not more effective than usual care at reducing risk for criminal recidivism for patients in mental health residential treatment. MRT may confer some benefits to reducing recidivism risk if patients receive at least a minimum dose of the intervention. Given that these findings are specific to patients in mental health residential treatment, future trials may be warranted to examine the effectiveness of MRT for different populations and different settings. In addition, trials that test a modified version of MRT that incorporates a motivational component and/or leverages partnerships with the criminal justice system may help enhance patient engagement and thus increase effectiveness. Alternatively, the field should also consider other approaches to treating recidivism risk in justice-involved adults. For example, a recent study found support for a theory of crime and offender rehabilitation that emphasizes the roles of attachment and trauma, and their impact on peer affiliations (Lindberg & Zeid, 2018). Testing approaches other than MRT or cognitive-behavioral therapies may ultimately broaden the field’s understanding of what

psychological interventions are (and are not) effective at reducing recidivism (Beaudry et al., 2021).

Acknowledgments

This work was supported by a VA Health Services Research & Development (HSR&D) grant awarded to Daniel Blonigen and David Smelson (IIR 14–081). Christine Timko was supported by a Senior Research Career Scientist Award from VA HSR&D (RCS-00-001). The views expressed are those of the authors and do not necessarily reflect those of the Veterans Health Administration. The authors have no conflicts of interest to report. MRT is copyrighted and trademarked by Correctional Counseling Inc. (CCI), who served as paid consultants on this project. CCI also receives compensation for MRT trainings and sales of MRT workbooks.

The authors would like to acknowledge the contributions of the MRT Study Facilitator Group (Fatimaah Carmichael, Ean Dervin, Nichole Fraser, Bruce Meltzer, Victor Modesto, Rickey Phillips, John Sirley, Lisa Southerland, and Robert Whelan), as well as other members of the research staff who assisted with recruitment and data collection (Kathyrn Bruzios, Nico Filice, Autumn Harnish, Lakiesha Kemp, Raquel Morson, and Mitzi Mosier). We would also like to acknowledge the contribution and support of the President (Dr. Kenneth Robinson) and Vice Presidents (Ms. Katherine Burnette, and Mr. Stephen Swann) of CCI, who trained the intervention coordinators in the delivery of MRT and participated in the treatment fidelity calls to provide corrective feedback and consultation to the MRT group facilitators during the trial, as well as the support from our VA partners in the Office of Mental Health & Suicide Prevention (Jennifer Burden) and the Veterans Justice Programs (Jennifer Blue-Howells, Sean Clark, Jim McGuire [retired], Joel Rosenthal [retired], and Matt Stimmel).

References

Bates D, Mächler M, Bolker B & Walker S (2015b). Fitting linear mixed-effects models using lme4. Journal of Statistical Software, 67, 1–48.

Beaudry G, Yu R, Perry AE, & Fazel S (2021). Effectiveness of psychological interventions in prison to reduce recidivism: A systematic review and meta-analysis of randomized controlled trials. Lancet Psychiatry, 8, 759–773. [PubMed: 34419185]

Bellack AS, Bennett ME, Gearon JS, Brown CH, & Yang Y (2006). A randomized clinical trial of a new behavioral treatment for drug abuse in people with severe and persistent mental illness. Archives of General Psychiatry. 63,426–432. [PubMed: 16585472]

Blodgett JC, Fuh IL, Maisel NC, & Midboe AM (2013). A structured evidence review to identify treatments needs of justice-involved veterans and associated psychological interventions. Menlo Park, CA: Center for Health Care Evaluation, VA Palo Alto Health Care System.

Blonigen DM, Cucciare MA, Timko C, Smith J, Harnish A, Kemp L, Rosenthal J, & Smelson D (2018). Study Protocol: A hybrid effectiveness-implementation trial of Moral Reconation Therapy in the US Veterans Health Administration. BMC Health Services Research, 18(1), 1–9. doi:10.1186/s12913-018-2967-3 [PubMed: 29291745]

Blonigen DM, King CM, & Timko C (2019). Criminal justice involvement among veterans. In Tsai J & Seamone E (Eds.), Intersections between mental health and law among veterans (pp. 13–43). Springer Publishing.

Blonigen DM, Shaffer PM, Smith JS, Cucciare MA, Timko C, Smelson D, Blue Howells J, Clark S, & Rosenthal J (2021). Recidivism treatment for justice-involved veterans: Evaluating adoption and sustainment of Moral Reconation Therapy in the US Veterans Health Administration. Administration and Policy in Mental Health and Mental Health Services Research [e-pub, Jan 30, 2021]. 10.1007/s10488-021-01113

Blonigen DM, Smith JS, Javier S, Cucciare MA, Timko C, Nevedal AL, Filice N, Rosenthal J, & Smelson D (2022). Implementation potential of moral reconation therapy for criminal recidivism in mental health residential programs. Psychiatric Services Published online January 26, 2022. 10.1176/appi.ps.202100089

Bonta J, Andrews DA (2016). The psychology of criminal conduct (6th Ed.). New York, Routledge.

Bronson J, Carson AC, Noonan M, & Berzofsky M (2015). Veterans in prison and jail, 2011–12. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Burnette KD, Swan ES, Robinson KD, Woods-Robinson M, & Little GL (2004). Male juvenile offenders participating in MRT within a therapeutic community program continue to show positive results. Cognitive-Behavioral Treatment Review, 13(1), 3–5.

Durose MR, Cooper AD, & Snyder HN (2014). Recidivism of prisoners released in 30 30 states in 2005: Patterns from 2005 to 2010. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Fazel S, Singh JP, Doll H, & Grann M (2012). Use of risk assessment instruments to predict violence and antisocial behaviour in 73 samples involving 24 827 people: Systematic review and meta-analysis. British Medical Journal (Clinical Research Edition), 345, e4692. 10.1136/bmj.e4692

Ferguson LM, & Wormith JS (2013). A meta-analysis of Moral Reconation Therapy. International Journal of Offender Therapy and Comparative Criminology, 57(9), 1076–1106. 10.1177/0306624X12447771 [PubMed: 22744908]

Grahn R, & Padyab M (2020). The predictability of the Addiction Severity Index criminal justice assessment instrument and future imprisonment: A Swedish registry study with a national sample of adults with risky substance use. Drug and Alcohol Dependence, 217, 108396. 10.1016/j.drugalcdep.2020.108396 [PubMed: 33234300]

Hachtel H, Vogel T, & Huber CG (2019). Mandated treatment and its impact on therapeutic process and outcome factors. Frontiers in Psychiatry, 10, 219. 10.3389/fpsyt.2019.00219 [PubMed: 31031658]

Janssen T, Braciszewski JM, Vose-O'Neal A, Stout RL (2017). A comparison of long- vs. short-term recall of substance use and HIV risk behaviors. Journal of Studies on Alcohol and Drugs. 78(3), 463–467. 10.15288/jsad.2017.78.463 [PubMed: 28499115]

Krueger S (1995). Three-year recidivism of MRT-treated offenders in a county jail. Cognitive Behavioral Treatment Review. 4, 12

Landenberger NA, Lipsey MW (2005). The positive effects of cognitive behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. Journal of Experimental Criminology. 1, 451–476.

Lindberg MA, & Zeid D (2018). Tests of the attachment and developmental dynamic systems theory of crime (ADDSTOC): Toward a differential RDoC diagnostic and treatment approach. International Journal of Offender Therapy and Comparative Criminology, 62, 3746–3774. [PubMed: 29303015]

Little GL, & Robinson KD (1988). Moral Reconation Therapy: A systematic step-by-step treatment system for treatment resistant clients. Psychological Reports, 62(1), 135–151. 10.2466/pr0.1988.62.1.135 [PubMed: 3283816]

Little GL, Robinson KD, & Burnette KD (1991). Treating drug offenders with Moral Reconation Therapy: A three-year recidivism report. Psychological Reports, 69(3 Pt 2), 1151–1154. 10.2466/pr0.1991.69.3f.1151 [PubMed: 1792284]

Little GL (2003). Comparison of post-treatment recidivism rates between the NIC's Thinking for a Change program and MRT. Cognitive-Behavioral Treatment Review, 12, 8–9.

Little GL (2005). Meta-analysis of Moral Reconation Therapy recidivism results from probation and parole implementations. Cognitive-Behavioral Treatment Review,14,14–16.

Little GL, Robinson KD (2013). Winning the invisible war: An MRT workbook for Veterans. Memphis, TN: Eagle Wing Books.

Mallik-Kane K, Visher CA, (2008). Health and prisoner reentry: How physical, mental, and substance abuse conditions shape the process of reintegration. Urban Institute. http://www.urban.org/uploadedpdf/411617_health_prisoner_reentry.pdf

McLellan AT, Cacciola JC, Alterman AI, Rikoon SH, & Carise D (2006). The Addiction Severity Index at 25: Origins, contributions and transitions. The American Journal on Addictions, 15(2), 113–124. 10.1080/10550490500528316

Malone DK (2009). Assessing criminal history as a predictor of future housing success for homeless adults with behavioral health disorders. Psychiatric Services (Washington, D.C.). 60(2), 224–230. 10.1176/ps.2009.60.2.224

Milkman H, Wanberg K (2007). Cognitive behavioral treatment: A review and discussion for corrections professionals. U.S. Department of Justice, National Institute of Corrections.

Miller WR & Rollnick S (2002). Motivational interviewing: Preparing people for change (2nd ed.). New York: Guildford Press.

Mills JF, Kroner DG, & Forth AE (2002). Measures of Criminal Attitudes and Associates (MCAA): Development, factor structure, reliability, and validity. Assessment, 9, 240–253. 10.1177/1073191102009003003 [PubMed: 12216781]

Mills JF, Kroner DG, & Hemmati T (2004). The Measures of Criminal Attitudes and Associates (MCAA): The prediction of general and violent recidivism. Criminal Justice and Behavior, 31(6), 717–733. 10.1177/0093854804268755

Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, Cummings JL, & Chertkow H (2005). The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. Journal of the American Geriatrics Society, 53(4), 695–699. 10.1111/j.1532-5415.2005.53221.x [PubMed: 15817019]

R Core Team. (2020). A language and environment for statistical computing. R Foundation for Statistical Computing. https://www.Rproject.org.

Sacks JA, Drake RE, Williams VF, Banks SM, & Herrell JM (2003). Utility of the Time-Line Follow-Back to assess substance use among homeless adults. The Journal of Nervous and Mental Disease, 191(3), 145–153. 10.1097/01.NMD.0000054930.03048.64 [PubMed: 12637840]

Scott DA, McGilloway S, Dempster M, Browne F, & Donnelly M (2013). Effectiveness of criminal justice liaison and diversion services for offenders with mental disorders: a review. Psychiatric Services (Washington, D.C.), 64(9), 843–849. 10.1176/appi.ps.201200144

Sobell LC, Brown J, Leo GI, & Sobell MB (1996). The reliability of the Alcohol Timeline Followback when administered by telephone and by computer. Drug and Alcohol Dependence, 42(1), 49–54. 10.1016/0376-8716(96)01263-x [PubMed: 8889403]

Taylor EN, Timko C, Nash A, Owens MD, Harris A, & Finlay AK (2020). Posttraumatic stress disorder and justice involvement among military Veterans: A systematic review and meta-analysis. Journal of Traumatic Stress, 33(5), 804–812. 10.1002/jts.22526 [PubMed: 32516492]

Timko C, Nash A, Owens MD, Taylor E, & Finlay AK (2020). Systematic review of criminal and legal involvement after substance use and mental health treatment among Veterans. Substance Abuse: Research and Treatment, 14, 1–13.

Walters GD (2013). The Psychological Inventory of Criminal Thinking Styles (PICTS; unpublished manual). Center for Lifestyle Studies, Allentown, PA

Walters GD, & Cohen TH (2016). Criminal thought process as a dynamic risk factor: Variable- and person-oriented approaches to recidivism prediction. Law and Human Behavior, 40(4), 411–419. 10.1037/lhb0000185 [PubMed: 26974366]

Walters GD, & Lowenkamp CT (2016). Predicting recidivism with the Psychological Inventory of Criminal Thinking Styles (PICTS) in community-supervised male and female federal offenders. Psychological Assessment, 28(6), 652–659. 10.1037/pas0000210 [PubMed: 26237208]

Weaver CM, Trafton JA, Kimerling R, Timko C, & Moos R (2013). Prevalence and nature of criminal offending in a national sample of Veterans in VA substance use treatment prior to the Operation Enduring Freedom/Operation Iraqi Freedom conflicts. Psychological Services, 10(1), 54–65. 10.1037/a0030504 [PubMed: 23148768]

White MC, Chafetz L, Collins-Bride G, & Nickens J (2006). History of arrest, incarceration and victimization in community-based severely mentally ill. Journal of Community Health, 31(2), 123–135. 10.1007/s10900-005-9005-1 [PubMed: 16737173]

Wilpert J, van Horn JE, & Boonmann C (2018). Comparing the central eight risk factors: Do they differ across age groups of sex offenders? International Journal of Offender Therapy and Comparative Criminology, 62, 4278–4294. [PubMed: 29478392]

Wilson DB, Bouffard LA, & Mackenzie DL (2005). a quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. Criminal Justice and Behavior, 32(2), 172–204. 10.1177/0093854804272889

VA Author Manuscript

VA Author Manuscript

Public Health Significance:

This study found that for adults in mental health residential treatment programs who have a history of involvement in the criminal justice system, group treatment aimed at reducing criminal thinking and risk for criminal recidivism is not more effective than other care that these patients receive in these programs, particularly if patients do not sufficiently engage in the groups.

Data Transparency Statement:

No other papers have been published using the same data as the one in the submitted manuscript. The process evaluation results of the larger study were accepted for publication at another journal; however, none of the data from that manuscript overlap with data from the current manuscript submission.

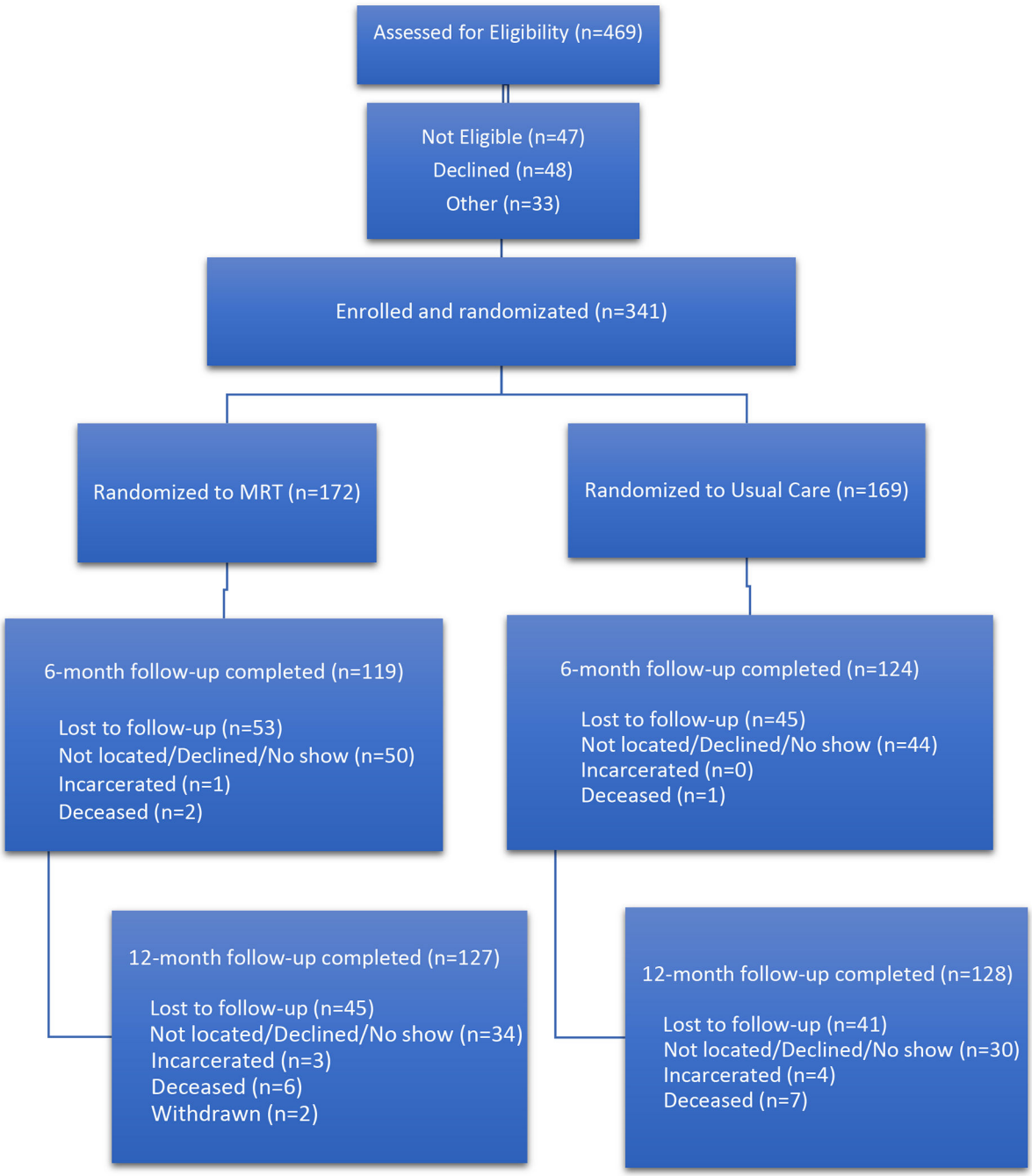

Figure 1.
Flow of patients through the trial.

J Consult Clin Psychol. Author manuscript; available in PMC 2023 May 01.

Table 1.

Comparisons by conditions on model covariates.

	M (SD) or N (%)			
	Total Sample	**UC**	**MRT**	***p***
Sociodemographics				
Age (M, SD)	46.21 (12.71)	46.60 (12.17)	45.83 (12.19)	0.561
Gender (n, %)				0.952
Male	325 (95.3%)	160 (95.2%)	165 (95.4%)	
Female	16 (4.75%)	8 (4.8%)	8 (4.6%)	
Race/Ethnicity (n, %)				0.146
White, Non-Hispanic	197 (57.8%)	100 (59.5%)	97 (56.1%)	
Black or African American, Non-Hispanic	97 (28.4%)	52 (31.0%)	45 (26.0%)	
Hispanic or Latino/a, Any race	16 (4.7%)	6 (3.6%)	10 (5.8%)	
Other	31 (9.1%)	10 (5.9%)	21 (12.1%)	
Lived in a controlled environment (past 30 days) (n, %)				0.272
No	24 (7.0%)	10 (6.0%)	14 (8.1%)	
Jail	27 (7.9%)	10 (6%)	17 (9.8%)	
Alcohol or drug treatment/Medical treatment/Psychiatric treatment	285 (83.6%)	146 (86.9%)	139 (80.3%)	
Other	5 (1.5%)	2 (1.2%)	3 (1.7%)	
Sites (n, %)				0.935
Pacific	111 (32.6%)	53 (31.5%)	58 (33.5%)	
Continental	110 (32.3%)	55 (32.7%)	55 (31.8%)	
Northeast	120 (35.2%)	60 (35.7%)	60 (34.7%)	
Days in the residential program (M, SD)	91.87 (98.183)	92.55 (100.33)	91.20 (96.035)	0.682

Notes. UC = Usual Care, MRT = Moral Reconation Therapy.

Table 2.

Comparisons by conditions on primary outcomes at baseline and 6- and 12-month follow-ups (intent-to-treat).

	Estimated means (95% Confidence Intervals)									
	Baseline		6 months		12 months		Effect for Time (Betas)		Time × Condition (Betas)	
	UC	MRT	UC	MRT	UC	MRT	6 mo.	12 mo.	6 mo.	12 mo.
Criminal thinking (PICTS)										
General Criminal Thinking	57.49 (52.9, 62.1)	57.95 (53.5, 62.4)	53.30 (48.7, 58.0)	53.66 (49.2,58.1)	49.80 (45.2, 54.4)	50.96 (46.5,55.4)	−4.19 **	−7.69 ***	−0.10	0.69
Criminal associates (MCAA)										
Number of criminal friends [a]	0.58 (0.3, 1.1)	0.60 (0.3, 1.1)	0.28 (0.1, 0.6)	0.43 (0.2, 0.8)	0.43 (0.2, 0.8)	0.37 (0.2, 0.7)	0.49 **	0.73 *	1.45	0.83

Notes.

* $p < .01$

** $p < .01$

*** $p < .001$.

[a] Count variable (results based on Poisson model and coefficients for the effect of time and time × condition represent incidence rate ratios. Values less than 1 indicate a negative relationship).

UC = Usual Care, MRT = Moral Reconation Therapy, PICTS = Psychological Inventory of Criminal Thinking Scale, MCAA = Measures of Criminal Attitudes and Associates. Patients in the UC or MRT conditions did not differ significantly on either of the outcomes at baseline.

Table 3.

Comparisons by conditions on primary outcomes at baseline and 6- and 12-month follow-ups (per protocol).

	Estimated means (95% Confidence Intervals)									
	Baseline		6 months		12 months		Effect for Time (Betas)		Time × Condition (Betas)	
	UC	MRT	UC	MRT	UC	MRT	6 mo.	12 mo.	6 mo.	12 mo.
Criminal thinking (PICTS)										
General Criminal Thinking	60.4 (56.9, 63.9)	59.9 (55.2, 64.6)	55.77 (52.1, 59.5)	54.39 (49.6, 59.2)	52.72 (49.3, 56.2)	51.3 (45.7, 56.0)	−4.63**	−7.68***	−0.88	−0.89
Criminal associates (MCAA)										
Number of criminal friends [a]	0.46 (0.3, 0.8)	0.65 (0.3, 1.2)	0.20 (0.1, 0.4)	0.34 (0.2, 0.7)	0.34 (0.2, 0.6)	0.22 (0.1, 0.5)	0.43**	0.73*	1.22	0.46**

Notes.

* $p < .01$

** $p < .01$

*** $p < .001$.

[a] Count variable (results based on Poisson model and coefficients for the effect of time and time × condition represent incidence rate ratios. Values less than 1 indicate a negative relationship).

UC = Usual Care, MRT = Moral Reconation Therapy, PICTS = Psychological Inventory of Criminal Thinking Scale, MCAA = Measures of Criminal Attitudes and Associates.

Table 4.

Comparisons by conditions on secondary outcomes at baseline and 6- and 12-month follow-ups (intent-to-treat).

	Estimated means (95% Confidence Intervals)									
	Baseline		6 months		12 months		Effect for Time (Betas)		Time × Condition (Betas)	
	UC	MRT	UC	MRT	UC	MRT	6 mo.	12 mo.	6 mo.	12 mo.
Legal problems (ASI)										
Days incarcerated (past 30)	1.54 (−0.02, 3.1)	1.71 (0.2, 3.2)	1.24 (−0.4, 2.8)	0.88 (−0.7, 2.4)	0.26 (−1.32, 1.8)	0.06 (−1.5, 1.6)	−0.30	−1.28 *	−0.52	−0.36
Legal problem severity	0.22 (0.2, 0.3)	0.21 (0.15, 0.3)	0.13 (0.1, 0.2)	0.14 (0.1, 0.2)	0.09 (0.02, 0.15)	0.09 (0.03, 0.15)	−0.09 ***	−0.13 ***	0.02	0.01
Substance use										
Problem severity (ASI)										
Alcohol	0.04 (−0.0, 0.1)	0.04 (−0.0, 0.1)	0.06 (0–0.1)	0.09 (0.0, 0.2)	0.06 (0, 0.1)	0.04 (−0.0, 0.1)	0.02	0.03	0.04	−0.03
Drugs	0.05 (0.0, 0.08)	0.04 (0.0, 0.1)	0.04 (0.0, 0.1)	0.06 (0.0, 0.1)	0.04 (0.0, 0.1)	0.04 (0.0, 0.1)	0.00	−0.01	0.03 *	0.01
Quantity/Frequency (TLFB) [a]										
Percent days abstinent (alcohol)	0.88 (0.8, 1.0)	0.82 (0.7, 0.9)	0.95 (0.9, 1.0)	0.94 (0.9, 1.0)	0.94 (0.9, 1.0)	0.94 (0.9, 1.0)	0.07 *	0.06 *	0.06	0.07
Total days used (drugs)	45.83 (27.4, 64.3)	42.9 (24.9, 60.9)	15.01 (−3.7, 33.7)	23.07 (5.0, 41.1)	15.03 (−3.6, 33.6)	18.63 (0.4, 36.8)	−30.81 ***	−30.80 ***	10.98	6.53
Employment										
Problem severity (ASI)	0.77 (0.7, 0.9)	0.7 (0.6, 0.8)	0.61 (0.5, 0.7)	0.58 (0.5, 0.7)	0.53 (0.4, 0.6)	0.48 (0.4, 0.6)	−0.16 ***	−0.24 ***	0.04	0.02
Family/Social										
Problem severity (ASI)	0.19 (0.1, 0.2)	0.13 (0.1, 0.2)	0.1 (0.0, 0.2)	0.1 (0.1, 0.2)	0.11 (0.1, 0.2)	0.19 (0.1, 0.2)	−0.09 ***	−0.08 **	0.06 *	0.07 *

Notes.

* $p < .01$

** $p < .01$

*** $p < .001$.

[a] Indices reflect quantity and frequency of substance use in the past 6 months.

UC = Usual Care, MRT = Moral Reconation Therapy, ASI = Addiction Severity Index, TLFB = Timeline Follow Back. Patients in the UC or MRT conditions did not differ significantly on any of the outcomes at baseline.

Table 5.

Comparisons by conditions on secondary outcomes at baseline and 6- and 12-month follow-ups (per protocol).

	Estimated means (95% Confidence Intervals)									
	Baseline		6 months		12 months		Effect for Time (Betas)		Time × Condition (Betas)	
	UC	MRT	UC	MRT	UC	MRT	6 mo.	12 mo.	6 mo.	12 mo.
Legal problems (ASI)										
Days incarcerated (past 30)	1.96 (0.6, 3.3)	4.27 (2.4, 6.2)	1.85 (0.3, 3.4)	1.11 (−1.0, 3.2)	0.65 (−0.7, 2.0)	−0.85 (−2.8, 1.1)	−0.10	−1.31 *	−3.06 *	−3.81 **
Legal problem severity	0.25 (0.2, 0.3)	0.31 (0.2, 0.4)	0.15 (0.1, 0.2)	0.13 (0.1, 0.2)	0.11 (0.1, 0.2)	0.10 (0.0, 0.2)	−0.10 ***	−0.13 ***	−0.08 *	−0.08 *
Substance use										
Problem severity (ASI)										
Alcohol	0.16 (0.1, 0.2)	0.2 (0.1, 0.3)	0.18 (0.1, 0.2)	0.23 (0.2, 0.3)	0.19 (0.2, 0.2)	0.16 (0.1, 0.2)	0.02	0.03	0.02	−0.07 *
Drugs	0.05 (0.0, 0.1)	0.04 (0.0, 0.1)	0.04 (0.0, 0.1)	0.03 (0, 0.1)	0.04 (0.0, 0.1)	0.02 (−0.0, 0.0)	−0.01	−0.01	0.00	−0.01
Quantity/Frequency (TLFB) [a]										
Percent days abstinent (alcohol)	0.78 (0.7, 0.9)	0.76 (0.7, 0.9)	0.85 (0.8, 0.9)	0.85 (0.8, 0.9)	0.84 (0.8, 0.9)	0.84 (0.7, 0.9)	0.07 *	0.06 **	0.02	0.01
Total days used (drugs)	51.55 (58.1)	41.57 (52.0)	10.15 (28.0)	6.87 (20.8)	20.97 (47.0)	15.09 (44.9)	−32.31 ***	−30.35 ***	14.64	5.68
Employment										
Problem severity (ASI)	0.85 (0.8, 0.9)	0.82 (0.7, 0.9)	0.69 (0.6, 0.8)	0.68 (0.6, 0.8)	0.61 (0.5, 0.7)	0.5 (0.4, 0.6)	−0.16 ***	−0.24 ***	0.02	−0.08
Family/Social										
Problem severity (ASI)	0.26 (0.2, 0.3)	0.19 (0.1, 0.3)	0.16 (0.1, 0.2)	0.16 (0.1, 0.2)	0.18 (0.1, 0.2)	0.19 (0.1, 0.3)	−0.10 ***	−0.08 **	0.06	0.08

Notes.

* $p<.01$

** $p<.01$

*** $p<.001$.

[a] Indices reflect quantity and frequency of substance use in the past 6 months.

UC = Usual Care, MRT = Moral Reconation Therapy, ASI = Addiction Severity Index, TLFB = Timeline Follow Back.