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Participation in Narcotics Anonymous and Alcoholics Anonymous and Abstinence Outcomes of 322 Methadone Maintenance Patients

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Abstract

In a survey of 322 patients enrolled in methadone maintenance treatment (MMT) in a Northeastern United States urban community, more than one-third (36.3%) of patients reported being 100% abstinent from alcohol and illicit drug use in the past year. Continuous abstinence was associated with a longer duration of MMT treatment, but there was no significant association between abstinence and past-year 12-Step meeting attendance or other 12-Step-related activities. Surveyed patients reported high rates of past-year 12-Step meeting attendance (66%) and high rates of perceived helpfulness of 12-Step programs (more than 70%), but lower levels of involvement in key 12-Step program ingredients.

Keywords: Methadone maintenance treatment, Alcoholics Anonymous, Narcotics Anonymous, Methadone Anonymous, medication-assisted treatment, medication-assisted recovery, recovery mutual aid

Introduction

The pioneers of methadone maintenance treatment (MMT) shared a deep interest in the potential role of recovery mutual aid in long-term addiction recovery. Dr. Vincent Dole served as a nonalcoholic Trustee of Alcoholics Anonymous (AA; Dole, 1991), and Dr. Marie Nyswander served on the Board of Directors of the National Advisory Council on Narcotics—the organization that oversaw the early development of Narcotics Anonymous (NA) in New York City (White, Budnick, & Pickard, 2011). In spite of these early connections, participation in recovery mutual aid groups was not integrated into MMT as it was in other addiction treatment modalities in the United States (White, 1998). There is a rapidly growing body of

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research on the role participation in addiction recovery mutual aid groups can play in long-term addiction recovery outcomes (Humphreys, 2006; Kaskutas, 2009; Kelly & Yeterian, 2008, 2012; Moos, & Moos, 2006), but few studies exist on the level and effects of such participation for methadone maintenance patients.

In an earlier study (White et al., in press), the authors surveyed the level of recovery mutual aid group participation of 332 patients enrolled in MMT in an urban community in the Northeastern United States. We found high rates of past year NA/AA participation (66%) and self-reported helpfulness of AA and NA (72% and 77% respectively), but considerably lower rates of participation in key 12-Step program ingredients: having a home group (50%), having a sponsor (26%), sponsoring others (13%), attending 12-step social events (23%), and active step work (21%). The present study extends these findings by evaluating the effects of participation in 12-Step meetings on rates of self-reported abstinence from illicit drugs and alcohol among the same 332 MMT patients.

Although MMT patients sometimes occupy a marginal status in 12-Step groups and may face restrictions on their degree of participation due to their daily consumption of prescribed methadone (White, 2011), we hypothesized that: 1) MMT patients with higher rates of mutual aid participation would have higher rates of self-reported abstinence than MMT patients with minimal or no mutual aid participation, and 2) key ingredients of 12-Step participation (e.g., sponsorship, step work, service work) would be more predictive of self-reported abstinence than would 12-Step meeting attendance.

Previous studies on the characteristics of MMT patients and the nature of MMT treatment and post-treatment responses inform the present study. Alcohol and multiple illicit drug use has been reported as the norm among opioid-addicted patients admitted to MMT (Backmund et al., 2005; Dobler-Mikola et al., 2005; Rittmannsberger, Silberbauer, Lehner, & Ruschak, 2000; Srivastava, Kahan, & Ross, 2008). Continued use of illicit drugs (e.g., heroin, non-prescribed methadone, cocaine, benzodiazepines, cannabis) and alcohol during treatment poses a major clinical challenge to substance-specific pharmacotherapies such as MMT (Best et al., 2000). Continued drug use remains a significant cause of MMT termination (Davstad et al., 2007; Magura & Rosenblum, 2001). Understood clinically, continued drug use has multiple roots: withdrawal distress (often linked to subtherapeutic doses of methadone), dysphoric emotional states, pleasure-seeking, and impulsive responses to social opportunities to use (Best et al., 2000).

In addition to the common profile of multiple drug use, MMT patients often present with a broad spectrum of medical, psychiatric, family, legal, economic, and social impairments in addition to multiple drug use that inhibit substance use disorder remission, impede the achievement of broader levels of global health, and increase mortality risks (Musselman & Kell, 1995; Puigdollers et al., 2004). These problems collectively impede the achievement of sustained abstinence and contribute to the high mortality rates associated with opioid addiction (Scott, Dennis, Laudet, Funk, & Simeone, 2011). Given this dominant MMT patient profile, recovery mutual aid groups that define recovery as requiring abstinence from alcohol and all illicit drugs, as well as achieving broader levels of physical, emotional, relational, and spiritual health, and offering a program of support to achieve these goals could be useful for MMT patients. Positive outcomes in MMT have been linked to a number of key factors, including optimum medication dosages (Faggiono, Vigna-Taglianti, Versino, & Lemma, 2003); duration of treatment participation (Greenfield & Fountain, 2000; Simpson, Brown & Joe, 1997); number and duration of counseling sessions (Simpson, Joe, Rowan-Szal, & Greener, 1995, 1997),

positive attitudes of staff towards medication maintenance (Caplehorn, Lumley & Irwig, 1998); access to ancillary medical, psychiatric, and social services (Friedmann, Zhang, Hendrickson, Stein, & Gerstein, 2003; McLellan et al., 1998), and post-treatment monitoring and early re-intervention (Zanis, McLellan, Alterman, & Cnaan, 1996). The role of recovery mutual aid participation in enhancing MMT outcomes remains a subject of needed investigation.

Although MMT was originally conceived as a lifelong process of medication support (Dole & Nyswander, 1967; Jaffe, 1972; Joseph, Stancliff, & Langrod, 2000), the majority of MMT patients hope and expect to end MMT in the future (Langrod, Des Jarlais, Alksne, & Lowinson, 1983; Stancliff, Myers, Steiner, & Drucker, 2002). Most patients will terminate MMT treatment within a year of admission (Deck & Carlson, 2005) and will not be provided assertive ongoing monitoring, support, and early re-intervention following their discharge from MMT (White & Torres, 2010). Most importantly to the current study, the majority of discharged MMT patients will return to heroin or other illicit opioid use, often soon after leaving MMT (Davoli et al., 2007; Gossop, Green, Phillips, & Bradley, 1989; Joseph et al., 2000; Magura & Rosenblum, 2001), and will be at increased risk for infectious disease and death—including overdose deaths—following termination of MMT (Clausen, Ancherson, & Waal, 2008). These findings suggest the potential for enhancing post-MMT-treatment outcomes through in-treatment and post-treatment participation in recovery mutual aid groups.

Abstinence rates in MMT have been generally measured by a combination of self-report and drug testing, with a high concurrence between the two in research settings (Grella, Anglin, & Wugalter, 1997), but lower self-report reliability in clinical settings where patients may experience negative consequences for admitted drug use, e.g., loss of medication take-home privileges (Chermack et al., 2000). Comparison of rates across programs is difficult due to variability in clinical populations and differences in frequency and methods of drug testing.

Monitoring in-treatment abstinence rates—abstinence here defined as no use of alcohol and non-prescribed drugs—serves three clinically important functions. First, abstinence rates in the first two weeks of MMT is predictive of subsequent positive responses to treatment, whereas continued drug use during early MMT is indicative of difficulties in engagement, retention, and post-treatment prognosis (Chatham, Rowan-Szal, Joe, & Simpson, 1997; Morral, Belding, & Iguchi, 1999). Identifying those patients at high risk for poor outcomes can help focus clinical resources on those patients in greatest need of more intense service interventions (Rowan-Szal, Chatham, & Simpson, 2000). Second, when continued drug use is identified, specialized clinical interventions can be employed that have been shown to reduce rates of drug use during MMT (Gerra et al., 2011; Magura, Rosenblum, Fong, Villano, & Richman, 2002; Petry & Martin, 2002). Third, aggregate patient abstinence rates provide a benchmark for evaluating overall program-level recovery outcomes and the strength of the culture of recovery within a particular MMT milieu (White & Torres, 2010). In the present study, self-reported past year continuous abstinence rates and aggregate drug test results will be used to answer three questions:

1. What is the rate of sustained abstinence achieved by MMT patients in a non-research service setting?
2. Does participation in NA, AA, or other recovery mutual aid groups affect abstinence outcomes among MMT patients?
3. Does participation in key ingredients of recovery mutual aid programs other than meeting attendance affect abstinence outcomes?

We hypothesize that abstinence rates will rise in tandem with increases in recovery mutual aid meeting attendance and participation in other key ingredients of recovery mutual aid involvement.

Methodology

Setting. This study was conducted at Partners in Drug Abuse Rehabilitation Counseling (PIDARC), a private, nonprofit addiction treatment center located in Washington, DC whose services include MMT. Each patient is assigned to one of 28 primary counseling groups, which he or she is required to attend at least twice a month. Each one-hour primary counseling group focuses on problem solving and lifestyle reconstruction and is co-led by two of PIDARC's 14 addiction counselors. The center also offers a variety of treatment enhancements for its more than 650 MMT patients, including specialized gender-specific groups, groups for patients continuing to struggle with co-occurring alcohol or cocaine dependence, and a daily harm reduction group. Take-home medication privileges are awarded for timely and consistent attendance and negative drug test results. Random drug tests are collected at PIDARC by two trained urine technicians and evaluated by an independent laboratory with confirmatory evaluation of all positive tests. On-site drug testing at PIDARC is conducted for patients receiving take-home medication and for any patient suspected of being intoxicated. All on-site tests are sent for independent laboratory confirmation. Frequency of drug testing is determined by insurance provisions, with frequency ranging from weekly to monthly. Twelve-Step meetings such as Narcotics Anonymous or Alcoholics Anonymous are not held at this treatment center but are available in the community, and participation is encouraged. The patient population is gender mixed (60% male; 40% female) and age diversified (8.7% 20-39; 5.3% 30-39; 20.7% 40-49; 51.3% 50-59; 18.6% 60-69; 0.8% 70-79), with a wide span of time in MMT (27% less than one year; 29.7% 1-3 years; 19.6% 3-5 years; 23.7% 5 or more years). The majority of PIDARC patients are poor, African American, and aging (85% over the age of 45), with prolonged past histories in the criminal justice system.

Data Collection. 322 participants enrolled in methadone maintenance treatment completed an anonymous survey November 7-11, 2011 (See White et al., in press for complete description of the survey methodology). Of the 53 questions on the survey, 29 specifically focused on participation in 12-Step (AA/NA) groups. The survey also asked questions related to the frequency and pattern of drug use, with abstinence defined as no use of alcohol or illicit drugs. The survey was conducted by clinical staff at the treatment site as part of a larger effort to evaluate and enhance clinical protocol. Data were then sent for analysis to a group of independent consultants (White, Campbell, Spencer, & DuPont) who volunteered to assist with data analysis.

Analysis. Aggregate reports of abstinence from the survey (322 patients) were compared to aggregate drug test results for all patients with drug test data (663 of 674 patients) served during the 90 days preceding survey administration (August 1-November 1, 2011). The drug test data contained the total number of positive tests, the number of positive tests for each specific substance in the drug test panel, and the number of negative tests. The drug test panel included amphetamines, benzodiazepines, cocaine, opioids, PCP, and THC. Data from the survey and drug tests were analyzed using SPSS for Windows version 15. No patient names or other personally identifying information were linked to the survey or drug test data.

Results

Self-reported Abstinence Rates for Surveyed Patients. Of the 322 MMT patients surveyed, 270 self-reported their level of abstinence in the previous year. More than one-third (36.3%) of these patients reported being 100% abstinent from alcohol and illicit drugs during the year prior to the survey. There were no significant age or gender differences when the abstinent and non-abstinent groups were compared, but the former were more likely to have been in MMT longer: mean of 41 months for those 100% abstinent and 27 months for those less than 100% abstinent ($t = 2.63, df=213, p<.01$).

Comparison with Drug Test Results for All Clinic Patients. Analysis of drug tests taken by 663 patients during the 90 days prior to the survey (mean of 4.3 tests per patient) revealed negative drug tests for all illicit drugs by 443 (67%) of the patients. Of the 220 testing positive, 18% tested positive for opioids only, 26% were positive for opioids and other drugs, and 56% were positive for drugs other than opioids (in order of frequency: cocaine, cannabis, benzodiazepines, phencyclidine, and amphetamine). There were no significant gender differences in test results. Older adults were less likely to have positive tests and younger patients were more likely to be positive for multiple drugs. Those in MMT less than one year were more likely to have positive tests for illicit drugs (51%) and have more substances detected (mean of 2.42 substances over 3 months) than patients in MMT for a year or more (27% positive for illicit drugs with a mean of 1.04 substances over 3 months).

12-Step Meeting Attendance and Abstinence Outcomes. Comparison of self-reported abstinence and 12-Step meeting attendance within the sample was made by two groupings—No NA/AA exposure and NA/AA meeting exposure—with a further analysis using four styles of participation: Neither NA nor AA attendance (34.2%), Only AA (5.0%), Only NA (31.7%), and Both NA and AA (29.2%). There was no consistent relationship between time in MMT and likelihood of attending AA or NA meetings. As the data in Table 1 indicate, about the same percentage of patients in NA/AA (35%) as patients not in NA/AA (38%) reported being 100% abstinent over the past year. Lowering the cut-point for abstinence to 90% or more did not produce differences between the two groups. The number of NA/AA meetings attended in the past year also was not significantly related to self-report of 100% abstinence. About the same percentage of patients in NA/AA (35%) as patients not in NA/AA (38%) report being 100% abstinent over the past year (Chi-square=0.18, $df=1, p=.690$).

Influence of Other NA/AA Program Ingredients on Self-reported Abstinence. Table 1 shows the percentage of clients in each abstinence-level group who said they participated in each activity. No single activity was associated with a greater level of abstinence.

Table 1: Percentage of Patients Participating in Various Aspects of NA/AA 12-Step Programs by Reported Level of Past Year Abstinence

Area of Participation	Abstinence Group			Total (n = 178)	p Value*
	0 – 50% (n = 61)	51 – 99% (n = 54)	100% (n = 63)		
Home Group	41%	46%	37%	41%	.562

Service Work at Meetings	34%	32%	37%	34%	.849
Have a Sponsor	30%	28%	27%	28%	.876
Weekly Contact with Sponsor	20%	22%	22%	21%	.925
Sponsor Others	12%	9%	14%	12%	.699
Weekly Contact with Sponsees	8%	9%	16%	11%	.344
Speak at Meetings	38%	41%	38%	42%	.937
Socialize Before/After Meetings	36%	52%	40%	41%	.205
Attend 12-Step Social Events	16%	28%	25%	23%	.301
Active Step Work	25%	15%	25%	22%	.318
Help other Addicts	18%	24%	24%	22%	.665
Involved in NA/AA Service Work	18%	13%	21%	17%	.545
Encourage Family to Participate	25%	33%	25%	28%	.517

*Level of significance (2-sided) from Pearson chi-square statistic

Discussion

The authors surveyed 322 patients to test the relationship between continuous abstinence and 12-Step participation within the context of MMT. Of the 270 patients who reported abstinence status in the past year, 36.3% self-reported continuous past-year abstinence from alcohol and illicit drugs. This self-report rate was lower than the 67% of all patients at this site whose drug tests were negative for all drugs in the 90 days preceding the survey. Such differences could be related to the longer window of time for self-reported abstinence (one year versus past 90 days for the drug testing), inclusion of alcohol in the definition of abstinence (no tests for recent alcohol use were included in the drug test data), and the potential for drug use that was not detected via the random testing schedule. Comparing abstinence rates across studies is complicated by varying definitions of abstinence in available surveys and by different drug testing procedures and reporting periods. While MMT outcomes are often reported in terms of reduced frequency of drug use and related behaviors, patient self-report data and drug testing data from this survey site confirm that a significant portion of MMT patients are achieving continuous abstinence from illicit drug use and alcohol within the context of MMT.

There were no significant associations between age or gender and self-reported abstinence status, but patients who self-reported continuous abstinence were more likely to have been in treatment longer, suggesting a potential link between abstinence outcomes and duration of MMT—a finding that has been confirmed in other studies (Gossop, Marsden, Stewart, &

Treacy, 2002). Negative drug test results were associated with older age and longer time in treatment, suggesting both maturational effects and cumulative treatment effects.

Two hypotheses were tested related to the effects of 12-Step participation and continuous past-year abstinence. First, the authors hypothesized that those MMT patients who self-reported participation in 12-Step meetings would have higher rates of self-reported continuous abstinence in the year prior to the survey than those who did not self-report participation in such meetings. This predicted finding was based on earlier studies confirming that participation in 12-Step meetings enhanced abstinence outcomes in patients treated for alcohol and drug dependence (For review, see Kelly & Yeterian, 2008) as well as studies finding that combinations of professional treatment and participation in mutual aid groups produce recovery outcomes greater than either activity in isolation (Dawson, Grant, Stinson, & Chou, 2006; Fiorentine & Hillhouse, 2000). Contrary to our predicted outcome, study findings revealed that past-year continuous abstinence was related to longer duration of time in MMT treatment, but was not related to 12-Step meeting attendance.

The reasons for absence of abstinence effects from 12-Step meeting participation among this group of MMT patients are unclear. Potential explanations of this finding include the potential lack of potency of 12-Step group participation for MMT patients. This interpretation is challenged by the high rates of reported voluntary past-year participation in 12-Step groups (66%) and the high reported rates of helpfulness by those who do participate (77% for NA, 72% for AA). It is possible that these MMT patients received many benefits from participation in 12-Step meetings (e.g., social support, enhanced emotional health, enhanced life purpose and meaning), but that the primary influence on their abstinence status comes from professional treatment or sources other than 12-Step meetings. The lack of abstinence effects may also have been influenced by the lack of integration of 12-Step concepts and practices into this treatment program and the lack of assertive 12-Step group linkage procedures. In spite of such integration and linkage procedures, rates of patient participation in these groups and their reported helpfulness were quite high.

In light of increased studies confirming that a significant proportion of 12-Step group members decrease or stop meeting participation but sustain abstinence and other recovery-related activities (Kaskutas et al., 2005; Tonigan, 2005; Tonigan et al., 2002; Weiss et al., 2005), it is also possible that MMT patients who once attended but did not attend NA or AA in the past year could be hidden within the non-NA/AA involved group—resulting in an underreporting of NA/AA effects on abstinence. In fact, 27.3% of survey participants who were not active in NA/AA in the past year had previously attended one or both of these 12-Step programs. Transitions from compulsive opioid use to occasional use to abstinence following help-seeking have also been documented in earlier studies (Gossop et al., 1989). It is possible that a measure of 100% past year abstinence may fail to capture such progressive changes within the recovery process.

Second, we hypothesized that self-reported participation in key ingredients of 12-Step programs (e.g., sponsorship, step work, service work) would be more predictive of past year continuous abstinence than would self-reported meeting attendance alone. Other studies have confirmed that such ingredients as step work, reading 12-Step literature, socializing with others in recovery, applying recovery principles to daily problem-solving, having a sponsor, and sponsoring others may be more potent in influencing abstinence outcomes than the factor of meeting attendance (Crape, Latkin, Laris, & Knowlton, 2002; Humphreys, Moos, & Cohen, 1997; Montgomery, Miller, & Tonigan, 1995; Pagano, Friend, Tonigan, & Stout, 2004; Sheeren, 1988;

Weiss et al., 2005; Zemore, Kaskutas, & Ammon, 2004). For example, a study of 487 cocaine dependent outpatients found no relationship between 12-Step meeting attendance and subsequent drug use outcomes, but did find a relationship between subsequent drug use outcomes and these core 12-Step activities (e.g., reading program literature, calling a sponsor) beyond meeting attendance (Weiss et al., 2005).

Again unexpectedly, the present survey data reveal no significant association between such key 12-Step activities beyond meeting attendance and self-reports of past year continuous abstinence among our sample of MMT patients. The absence of such effects is difficult to explain in light of research on these factors with patients in other addiction treatment modalities. The picture emerging from this survey is that the sampled MMT patients have a high rate of past year exposure to 12-Step meetings, but they have much lower rates of participation in key 12-Step program ingredients. One possibility is that the marginalized status MMT patients occupy in some 12-Step groups (e.g., denial of right to speak, claim “clean time,” celebrate recovery anniversaries, sponsor new members, hold service roles; White, 2011) inhibits full participation in NA and AA and prevents many MMT patients of reaping the benefits of such participation. Such marginalized status is confirmed in part by our earlier finding that one-quarter (25%) of NA/AA-involved patients in this sample reported a negative experience within NA or AA related to their MMT status (e.g., negative comments about methadone, pressure to reduce methadone dose or stop MMT, denied right to speak at or chair a meeting). Further indicative is the fact that only 34% of the NA/AA-involved patients disclosed their MMT status to their sponsors and at meetings (White et al., in press).

It should not be concluded from this study that NA and AA participation failed to exert an influence on abstinence outcomes in MMT patients. This study revealed that MMT patients achieve abstinence both with and without recovery mutual aid involvement and that the proportion of NA/AA-involved MMT patients who self-reported 100% abstinence in the past year was not different than the proportion of non-NA/AA-involved patients who self-reported 100% past year abstinence. The support mechanisms used to sustain abstinence in the latter group were not identified in the survey and remain unknown.

Further research is needed on the degree and effects of MMT patient participation in 12-Step meetings and other aspects of 12-Step programs. There are also growing varieties of secular, spiritual, and religious alternatives to 12-Step programs (Humphreys, 2004; White, 2009; White & Kurtz, 2006), including recovery support structures designed specifically for MMT patients (e.g., Methadone Anonymous, Medication-Assisted Recovery Support; Gilman, Galanter, & Dermatis, 2001; Ginter, 2012; McGonagle, 1994). Future research should compare the differences in abstinence outcomes of MMT patients across these various recovery support groups in comparison to no mutual aid participation. Future MMT patient surveys should also collect information on their perceptions of 12-Step and other community support and the influence of such participation on their alcohol and other drug use and on rates of continuous abstinence. More also needs to be known about how continually abstinent MMT patients who are not involved in formal recovery mutual aid groups are sustaining their abstinence. It is possible, for example, that long-term involvement in the primary counseling group at this MMT clinic has taken over functions usually associated with recovery mutual aid groups. It is also possible, as suggested by PIDARC clinical staff, that many non-NA/AA-involved African American patients in this sample are utilizing culturally indigenous recovery support structures (recovery-supportive relationships within their families, extended families, and kinship networks; abstinence-based cultural and religious revitalization movements; church-based recovery

ministries; patient peer support rituals [e.g., meeting informally for breakfast each morning], and external monitoring and support resources related to work or supervision by criminal justice or child welfare authorities) as an alternative to 12-Step groups to sustain their abstinence (Achara-Abrahams et al., 2012; Evans, Achara, Lamb, & White, 2012; Sanders & Powell, 2012; White & Sanders, 2008). Much more knowledge is needed about MMT patients involved with 12-Step groups and the alternative support mechanisms that are helping MMT patients sustain long-term recovery without 12-Step involvement.

This study has numerous limitations. While we were able to compare aggregate data on self-reported abstinence and aggregate negative drug tests, we were not, because of the anonymous nature of the survey, able to match self-report to drug test results for particular patients. The self-reported rate of abstinence could be lower than reported, and the rate of negative drug tests may inflate assumed abstinence levels due to drug use not detected within the random testing schedule. Similarly, the rate of reported involvement in NA/AA could be lower than that reported due to staff encouragement and expectation for such participation. There may also be distinct characteristics of the clinical population at this study site (e.g., predominance of older African American patients) that limit transfer of findings to other clinical populations.

Comparison of these findings to other studies is also severely limited due to such factors as the widely varying definitions of abstinence in MMT outcome studies, the dearth of research on NA (Toumbourou, Hamilton, U'Ren, Stevens-Jones, & Storey, 2002), and the paucity of research on the level and effects of recovery mutual aid participation on opioid-addicted patients involved in MMT and other treatment modalities.

In spite of these limitations, the present study confirms the existence of NA/AA-involved and NA/AA non-involved MMT patients who are continually abstinent from alcohol and illicit drugs; confirms a high rate of MMT patient participation in, and self-reported helpfulness of, 12-Step recovery support groups; raises important questions about the potential effects of MMT patient marginalization within 12-Step groups on abstinence outcomes; and suggests the potential existence of alternative, culturally indigenous recovery support structures that may help MMT patients maintain continuous abstinence. It is the authors' hope that these preliminary findings will mark the beginning of long-overdue studies on the potential role of recovery mutual aid groups, culturally indigenous recovery supports, other peer-based recovery support services, and professionally directed treatment groups in elevating in-treatment and post-treatment recovery outcomes for MMT patients.

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