

ARTICLE PRE-PRINT

Treating the seriously mentally ill in prison: An evaluation of a contingency management program

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Abstract

The management and care of inmates with mental health needs creates immense strain for correctional administrators and staff—leaving questions surrounding the best way to treat and house those with especially acute mental health needs. At the same time, those with mental illness experience a number of disproportionately adverse outcomes while incarcerated. This study evaluates a contingency management program aimed at treating seriously mentally ill inmates housed in a maximum-security prison. Program effectiveness was evaluated using an assessment of within-individual change in mental and behavioral health outcomes 1-year following placement. Supplemental analyses were conducted to identify characteristics of participants most likely to experience negative program outcomes. Results from this study suggest that the contingency management program under investigation is a promising approach to the treatment of seriously mentally ill inmates. Future research is needed, however, to build upon these findings.

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American prisons and jails oversee a disproportionate number of individuals with mental health needs and severe mental illness (SMI) (Munetz, Grande, & Chambers, 2001; Osher & King, 2015). Figures vary considerably, but it has been estimated that anywhere from 14% to 25% of people in U.S. correctional facilities have a diagnosable mental illness (James & Glaze, 2006; Morgan et al., 2010; Skeem, Manchak, & Peterson, 2011). This is more than three times the rate documented in the community, which is estimated at about 4% of the adult population (Center for Behavioral Health Statistics & Quality, 2016). Further, estimates suggest that there are more than three times as many individuals with SMI in prison than receiving treatment in a psychiatric hospital (Abramsky & Fellner, 2003). It is clear that correctional facilities have become one of the primary outlets for the treatment and control of those with elevated mental health needs (Adams & Ferrandino, 2008; Torrey et al., 2010). These sobering facts have not gone unnoticed—policy makers and practitioners have devoted significant attention toward developing practices that can improve the response to people with mental illness who come in contact with the criminal justice system (Griffin et al., 2015). Equally important, a number of high profile lawsuits, such as that brought on by inmates in a federal supermax facility in Colorado, have drawn the attention of the general public to how prison conditions may exacerbate existing mental illness. All of this raises a critical question: what is the best way to manage the growing number of those with mental health needs housed in our correctional facilities?

The purpose of the current work is to provide an evaluation of an in-prison mental health program that serves as treatment for those who are classified as SMI. Specifically, the Arizona Department of Corrections (ADC) developed a program (hereafter referred to as the “Saguaro Unit”) that targets maximum custody male inmates for placement in a separate unit reserved for inmates with elevated mental health needs. The program aims to be a more progressive approach

toward improving the mental health of a subpopulation of inmates that are often simply locked away from the rest of the inmate population and society. We evaluate whether programming in the Saguaro Unit leads to positive individual-level outcomes for their SMI participants, including outcomes related to improvements in mental health and behavioral functioning during a one-year period. Our broader purpose is to determine whether the program in the Saguaro Unit is effective in the treatment of SMI and whether the program can serve as an option for correctional administrators and staff interested in implementing programming to address the mental health needs of their inmate population.

Current Issues in the Management of those with Mental Illness

Those with SMI have long presented a challenge to correctional officials (Adams & Ferrandino, 2008). The order, safety, and security of correctional facilities—the primary goals of correctional officials—can be disrupted by inmates who are either unwilling or unable to follow written and unwritten rules and expectations (Mears & Castro, 2006). They can be a danger to themselves, staff, and other inmates (Felson, Silver, & Remster, 2012). In addition, a significant amount of time and resources can be spent simply managing one inmate, and the associated costs with care and treatment of inmates with SMI can be quite expensive (Osher et al., 2012). It has been argued that managing those with SMI can, at times, exacerbate the pervasive level of job stress and strain for correctional administrators and staff who are tasked with managing those struggling with mental illness, especially in the absence of available treatment programs (Dvoskin & Spiers, 2004). Correctional staff are faced with the need to both maintain the safe and orderly function of a facility while at the same time responding to the needs of those struggling with SMI. Correctional staff, however, are often provided with minimal training in the management and

response to those with SMI, leading many to not fully understand mental illness and its effect on institutional adjustment and behavior (Fellner, 2006).

At the same time, those with SMI experience added difficulties adjusting to prison life, which can lead to a host of negative outcomes (Adams, 1986; Kupers, 1999). Inmates with SMI are more likely to serve longer sentences (Ditton, 1999) and are more likely to be victimized than their non-mentally ill counterparts (Abramsky & Fellner, 2003; James & Glaze, 2006; Wolff, Blitz, & Shi, 2008). While in placement, those with SMI are more likely to engage in institutional misconduct (Lovell & Jemelka, 1996; Toch & Adams, 2002), especially substance use, which commonly co-occurs with mental illness (Hartz et al., 2014; National Institute on Drug Abuse, 2018). As a result, those with SMI generate significantly more disciplinary infractions, which could result in additional charges, a longer prison sentence, and placement in a more restrictive setting within the institution (Chandler et al., 2004; O’Keefe & Schnell, 2007). In fact, those with SMI serve an average of four additional months on their sentence when compared to a general prison population (James & Glaze, 2006). They are also more likely to be victimized during their incarceration; inmates housed in state prison facilities are twice as likely to be injured in a fight, for example, than those without a mental health problem (James & Glaze, 2006). These disproportionately negative outcomes continue once the individual is released. Those with SMI are more likely to be returned to prison, especially for technical parole violations (Messina et al., 2004). Most concerning, it has been argued that there remains a lack of empirical research on the effectiveness of in-prison treatment programs for people with mental illness, especially those using a contingency management approach to treatment (Morgan et al., 2012).

Contingency Management in the Correctional Setting

The effective management of incarcerated adults with SMI requires correctional administrators and staff to develop a balanced approach between treatment services and institutional control (Fellner, 2006). Correctional administrators use a number of different management approaches to address the unique needs of those with SMI that are housed in their facilities. Individuals with mental illness may be removed from the general prison population and placed in a secure housing unit in order to ensure their safety and the safety of others within the institution (see generally, Kapoor & Trestman, 2016). They may also be treated with the use of psychotropic medication, which is one of the more common management approaches when responding to those with mental illness (Adams & Ferrandino, 2008). It is estimated that among those in state prisons who had been treated with psychotropic medication in the past, roughly 69% had taken medication to treat a mental disorder since their incarceration (Wilper et al., 2009). Those with SMI may also be placed in treatment programs or mental health units within the institution. The specific modalities of these treatment programs vary, however, as often these individuals are assigned a case-manager that can provide individualized services and monitor compliance with medication (Blackburn, 2004).

One of these approaches, contingency management, involves the use of incentives and disincentives to modify behavior (Petry, 2000). Contingency management programs were one of the first treatment programs used in U.S. prisons and jails (Gendreau et al., 2014). These programs are based on theories of operant conditioning where positive behaviors are reinforced while negative or deviant behaviors are punished (see generally Skinner, 1953). There are a number of benefits of a contingency management that make its use suitable for correctional populations. First, contingency management programs target observable behaviors and provide immediate

punishment or reinforcement using a high degree of structure (Gendreau & Listwan, 2018). Second, from a theoretical perspective, it is argued that contingency management approaches are grounded in known theories of crime and deviance, are complementary to other known treatment modalities such as social learning and cognitive behavior theories, and are consistent with theories of effective correctional intervention (Gendreau et al., 2014; see Morgan & Ax, 2018; Skeem et al., 2014). Third, contingency management programs can be incorporated into other cognitive and behavioral based programs so that individual criminogenic needs can be better addressed (Gendreau & Listwan, 2018; see generally, Andrews, Bonta, & Hoge, 1990). A recent meta-analysis provides support for the potential of contingency management in improving various behaviors and institutional adjustment. Using a total of 64 effect size estimates across 29 studies, Gendreau and colleagues (2014) found that contingency management programs reduced problematic behaviors by 54%.

What is undeveloped, however, is contemporary research that examines the use of contingency management programs that target a specific population of inmates with SMI. Contingency management programs have been found to be an effective treatment for various psychiatric disorders, however, the use of these approaches have declined in the last several decades (Comaty, Stasio, & Advokat, 2001). In a correctional setting, the use of contingency management allows correctional administrators and staff to target those inmates who have previously responded negatively to traditional punitive methods, such as segregation (Gendreau et al., 2014). Growing evidence suggests that those with mental health needs are more likely to be placed in segregation and are more likely to experience mental deterioration as a result of their placement in these environments (Beck, 2015; Haney, 2003; Metzner & Fellner, 2010). In contrast to these outcomes, evidence suggests that contingency management approaches are effective in

not only the prison setting, but also in psychiatric settings (see for e.g., Ellis, 1993; Glowacki, Warner, & White, 2016; Milan & McKee, 1976; Milan et al., 1979). At the same time, contingency management programs allow correctional departments to rely less on expensive and punitive forms of segregation. For example, the meta-analysis mentioned above, concluded that the use of contingency management is effective in both prison and psychiatric settings, improving behavior by as much as 69% and 64% respectively (Gendreau et al., 2014). These results, however, are based on a relatively small number of studies. The current study, as a result, fills an important gap in knowledge on the use of these approaches. Critically, evidence suggests that use of contingency management programs and policies may be increasing in correctional departments in the United States (Gendreau & Listwan, 2018).

DATA & METHODS

Study Setting

Starting in July 2014, ADC implemented mandatory programming for all maximum custody male inmates designated as SMI.¹ This change in policy required the removal of inmates with elevated mental health needs from the general prison population to the Saguaro Unit. The Saguaro Unit is designed to encourage prosocial behaviors through a three-step contingency management approach comprised of psychotherapy and psychoeducational groups. Thus, the program is meant to represent a progressive approach toward improving the mental health of a subpopulation of inmates that are often simply locked away from the rest of the inmate population and society (Beck, 2015). The goals of the program include the following: (1) to select inmates with elevated mental health needs that are willing to participate in a therapeutic program; (2) to

¹ Information in this section was obtained from ADC's Mental Health Program Manual (Arizona Department of Corrections, 2014).

create an environment that allows inmates with elevated treatment needs to build trust with one another and with the staff; (3) to develop social interaction and relationship skills; (4) to promote medication compliance; (5) to decrease and even extinguish self-harm behavior; (6) to promote the expression of thoughts, feelings, and emotions; (7) and to develop sound critical thinking. The design was to implement contingency management programs utilizing a three-tiered incentive process.

Intake

To identify inmates as SMI, ADC relies on a standardized classification system in which inmates are assigned one of five mental health scores depending on their level of treatment needs (see Table 1). Inmates designated as a MH-3A or higher are classified as “SMI.” Those classified as SMI generally demonstrate frequent suicidal ideations, psychotic episodes, and delusions, often requiring immediate intervention—or in this case, placement into the Saguaro Unit. Upon reception to the unit, inmates are interviewed within one business day by the COIII or psychology associate. During this initial interview process the inmate is provided a Memo of Expectations form and a program matrix detailing the incentives available at each of the three steps. The program is explained to the inmate including what will be required to progress through the program.

In addition, the psychology associate will conduct a needs assessment to include a medication review within the first three business days of the inmate’s intake into the program. The psychology associate will conduct an interview as part of the assessment and to begin to establish a rapport and level of trust with the inmate. The inmate will be encouraged to be honest and to relate to the therapist the symptoms of his mental health disorder. The therapist will chart the interview and begin to develop a treatment plan, which may include a referral to a psychiatrist for

medication assessment.

-Insert Table 1 about here-

Step-Program

The Saguaro Unit is structured as a three-step contingency management plan in which inmates advance through program steps, earning incentives along the way, with the end goal being program completion and movement to a higher functioning mental health program or another less restrictive prison complex. In order to advance through and complete the program, inmates are expected to demonstrate progress toward achieving treatment goals, including actively participating in psycho-educational group and individual therapy sessions², demonstrating trust in other inmates and staff, achieving medication compliance, desisting in the engagement of self-harm, and thoughtfully completing self-study packets.³

Step 1. In the first step of the program, the participant is expected to begin to engage in weekly therapeutic groups conducted by a psychology associate. The participant is expected to participate in individual counseling sessions with a psychology associate once every 30 days. They are further required to participate in weekly psychoeducational groups that are normally conducted by psychology associates, but may also be conducted or co-facilitated by COIIIs. Psychoeducational groups may also be co-facilitated by Sergeants and Correctional Officer IIs assigned as cadre staff to the programs. The inmate will also be assigned self-study material that

² The six group counseling programs offered to inmates (Social Values, Self-Control, Responsible Thinking/Healthy Personality, Substance Abuse, Core Skills, and Feelings) are cognitive and evidence-based programs that are a product of The Change Companies.

³ The self-study packets are selected for each individual inmate by the mental health staff based on their individual needs. Self-study packets include Making Decisions, Values and Personal Responsibility, Refusal Skills, Attitudes and Beliefs (Hazelden Publishing), and Anger Management (Substance Abuse and Mental Health Services Administration). The program staff also offered ETV (educational television) modules on a needs-basis, including Conflict Resolution, Resources for Change, Living a Better Way, Commitment to Change (FMS Productions), Domestic Violence (Altschul Education Group), Victim Awareness (Greystone Educational Program), and Substance Abuse (Hazelden Publishing).

is cognitive-behavioral in design and empirically based. In addition, participants are expected to abide by all rules and regulations and to demonstrate respect and courtesy to others. Participants are also expected to be compliant with their prescribed medication.

There are a number of incentives for following the above stated requirements. Participants are allowed to participate in individual outdoor recreation three days per week for two hours. Participants are also allowed one, two-hour non-contact visit and one 15-minute phone call per week. SMI inmates are allowed out of their cell 10 hours per week for unstructured activity. Advancement from step 1 to step 2 must be approved by the treatment team. The inmate must have satisfied the minimum time requirement of 30 days. Criteria for advancement out of this step includes rule compliance, respect for others, active participation and involvement in programming activities, medication compliance, and remain free of self-harm and mental health watch for at least 30 days.

Step 2. Upon approval by the treatment team, participants then advance to the intermediate step of the program. As in step 1, participants are expected to continue to actively participate in weekly therapeutic groups conducted by the psychology associate. Further, the participant is expected to begin to open up and emotionally engage the group and the therapist. They must also actively participate in individual counseling sessions once per month with the psychology associate. Participants in step 2 are expected to continue to remain compliant with rules and to begin to encourage others to be compliant as well. They must continue to demonstrate respect and courtesy to others and are expected to be compliant with any prescribed medication(s).

There are a number of incentives available to participants in step 2 of the treatment program. Participants are allowed one, two-hour recreation period in a group recreation enclosure. In addition, participants are allowed two recreation periods in an individual recreation enclosure

per week. Further, participants can receive one, two hour contact visit per month and can make one 15-minute phone call per week. The SMI participants are also allowed out of their cell for 10 hours a week for unstructured activity. Participants are also allowed to participate in Work Incentive Pay Programs (WIPP) at this step and can attend organized, group religious services.

Advancement from step 2 to step 3 must be approved by the treatment team. This step is considered a significant reflection of the inmate's level of progress in his treatment. The inmate must meet the time requirement of 60 days in the program. They must also be compliant with rules and regulations and to encourage others to do so. To advance a participant must be actively participating in therapy and demonstrating to members of the program team that he is making noticeable positive changes towards his treatment goals. If the individual is participating in WIPP, they must demonstrate a positive work ethic and receive above average work evaluations. Further, to advance to step 3, the participant must be absolutely compliant with medication and may not have any recent incidents of self-harm or placements on mental health watch.

Step 3. In the final step of the program, participants are expected to not only actively participate in groups conducted by the psychology associate on a consistent basis, but to also open up emotionally and share thoughts and feelings with the group in a therapeutic manner. The participant is further required to show progress in developing trust and sharing his emotions during the monthly counseling sessions with the psychology associate. Overall, the participant is expected to demonstrate to the therapists and program staff that he is progressing significantly in his treatment plan. Participants in this step are expected to be able to serve as a role model for the other inmates in the program. They should not only encourage others to abide by rules and actively participate in program activities, but to also show ability to begin to mentor other inmates who may be struggling in the program. Participants in this step must remain compliant with medication

and, if the acuity of his mental health disorder allows, he should begin to show an ability to utilize the understanding and skills that he has gained from the program to begin to lessen his medication dosage. Clearly, there are some inmates that will not be able to reduce their dosage without suffering negative consequences; therefore, it is understood that a reduction in medication dosages based on actualization of skills learned may not be possible for a number of programming inmates.

The final step of the program involves a number of incentives. They are allowed three days of recreation in a group enclosure and are allowed to participate in WIPP and hobby craft if they choose. Participants who advance to this step are allowed one contact visit every weekend. Participants are allowed to go to the commissary in a controlled group movement and can receive commissary weekly. They are also allowed to participate in organized, group religious activities, participate in fundraising activities, and participate in Alcoholic Anonymous meetings. SMI inmates in steps two and three are allowed out of their cell 10 hours per week for unstructured activities.

Participants that remain at step 3 for 60 days are eligible to be utilized as a formal mentor in the mentor pod in the unit. The selection of these formal inmate mentors is a treatment team decision. All participants who have been at step 3 for 30 days or more are expected to be informally mentoring inmates who need it at the lower levels. The idea of assisting others understand and be successful is an integral part of both mental health programs. Mentoring is recognized as a form of caring and reaching out to others in a helpful manner and is evidence that the inmate has transcended his circle of self.

Program Completion

Participants that meet and sustain their treatment goals during step 3 of the program for 90 days are eligible for graduation and movement. An eligible inmate at the Saguaro Unit may be

transferred to a unit with higher functioning inmates. These transfer decisions are made by the treatment team. Some inmates may remain in the program for months or even years based on their acuity level. The treatment team develops and decides on individual goals designed to stimulate and sustain the gains in treatment over the long term.

Program Staff

The cadre of day and swing shift correctional officers assigned to the Saguaro Unit are selected by their respective shift commanders based on their skills, experience, and willingness to work in such a program. The case managers (COIIIs) assigned to the program are selected by the program supervisor (COIV) that oversees the program based on their commitment level to programming, skills with group and individual counseling and desire to be part of this program. The sergeants assigned are selected based on their interactive skills, patience, understanding of the symptoms of this type of population, and commitment to a team concept. All of these staff are highly encouraged to frequently interact with the inmates in the program and to encourage and support their participation.

The psychology associates from a third-party health provider that are assigned to the program are required to have a commitment to the treatment of the individual inmate participants and to the overall therapeutic success of the programs. The psychology technicians that are assigned to the Saguaro Unit must be fully engaged in the holistic nature of the treatment to include recreation, art work, journaling, and skill development. The third-party staff must fully understand, appreciate, and participate as a team with operations staff for the success of the programs.

Treatment Team

The treatment team for the Saguaro Unit consists of the deputy warden, associate deputy

warden, program supervisor, case managers, programs sergeants, psychology associates, psychology technicians, and cadre line officers. The chaplain may also participate. The team meets once per week to discuss individual inmate cases, advancements, reversions, removals, therapeutic and/or innovative program strategies, and operational issues. The decisions of the team regarding inmate advancements, reversions, and removals are final. Minutes of these meetings shall be taken and once approved and signed shall be distributed to team members.

Sample

Participants included 58 male inmates who met criteria for placement. In consultation with ADC, it was decided that all program participants as of July 23, 2015, with program start dates prior to January 29, 2015, would comprise the sample used in the study. Additionally, only inmates who had been in the program for at least one year were included. This permitted a comparison of within-person outcomes one-year *prior* to program placement with outcomes one-year *after* program start. Pre-program measures were included at both six and twelve-months prior to entrance into the program and compared with outcomes both six and twelve-months after entrance in the program.

As illustrated in Table 2, the sample is diverse. Participants were, on average, 37.57 years old, and were Mexican American (34%), Caucasian (29%) and African American (24%). The sample also consisted of a small number of Mexican Nationals (4%) and Native Americans (4%). The majority of participants had completed mandatory literacy (62%), while less than half had earned a GED (40%). On average, the mental health score at program start was around 3.17.⁴

-Insert Table 2 about here-

⁴ In July 2014, the month that the Saguaro Unit was implemented, the overall ADC inmate population was primarily Hispanic (40.4%), followed by Caucasian (39.4%), African American (13.2%), and Native Americans (5.2%) (Ryan, 2014).

Outcome Measures

The critical outcome variables of interest focus on misconduct and the mental health status of inmates before and after program start. Specific variables of interest were identified twelve (Time 1) and six-months (Time 2) prior to placement, and six (Time 3) and twelve-months (Time 4) after program start.

The primary data source for the evaluation was the Adult Inmate Management System (AIMS) database. AIMS contains information on inmate demographics, incarceration history, movements, and current programming information. Importantly, it also contains significant information related to an inmate's mental health history. Thus, we were able to include several measures essential to assessing mental health program effectiveness, including inmate *mental health score* (see Table 1) and number of *mental health watches*. When an inmate is identified as being at significant risk of suicide or self-harm, they are placed in individual watch cells for observation, which ADC refers to as "mental health watches". We also included a measure to capture the number of *protective custody requests*. Those with SMI often have a significant number of requests for placement in protective custody. The reduction in the number of protective custody requests is a critical outcome that ADC targets during programming. Protective custody requests indicate an inability or unwillingness to house in the general prison population (Gendreau, Tellier, & Wormith, 1985). This creates an immense strain on correctional administrators and facilities that are faced with overcrowding and the added commitment of provide housing to those who are unable to live in the general prison population.

AIMS also allows for qualitative notes to be provided by ADC staff regarding an inmate's overall progress in programming. This includes specific details related to violations and any difficulties experienced throughout programming such as refusal to complete required educational

packets. Thus, to evaluate inmate cooperation with the program, we included several program-specific measures. The number of *step reductions* (due to misbehavior), *program refusals* (i.e., refusal to participate in programming), and number of *visits* were all documented.

Lastly, AIMS provides a comprehensive list of violations acquired over the entire length of the inmate's prison stay. To assess general compliance with ADC rules both before and during placement in the Saguaro Unit, we included a range of individual-level behavioral measures to capture the severity of disciplinary misconduct, including number of *major violations* (e.g., drug possession/manufacturing, promoting prison contraband, possession of a weapon), number of *minor violations* (e.g., failure to maintain grooming requirements, being out of place, littering, horse playing, smoking, or use of tobacco in an unauthorized area), number of *drug violations*, number of *assaults on staff*, and number of *assaults on inmates* (i.e., violations for fighting with other inmates, aggravated assault on another inmate, and/or rioting).

Analytic Strategy

The analyses proceed in two stages. First, we assess whether program participants demonstrated improvement in behavior one-year after program start relative to one-year prior. One-group designs are common in program evaluations, especially in instances where random assignment is not possible (Posavac, 2011). Given this, we use paired-sample *t*-tests to determine whether significant differences exist between pre- and post-program behavior. Paired-sample *t*-tests can be used when outcome measures are measured continuously and when using repeated measures amongst the same sample of participants across two time points (Posavac, 2011). Second, we conduct supplemental analyses to examine possible relationships between inmate characteristics and program outcomes using cross-tabulations and independent samples *t*-tests. As shown below, cross-tabulations and independent samples *t*-tests were used to compare two

separate samples. Specifically, we examine the inmate characteristics associated with two negative program outcomes: requiring at least one mental health watch, and two or more program refusals in the one-year period following program start.

RESULTS

Main Analyses

Table 3 demonstrates significant differences across several critical outcomes, including protective custody requests and mental health watches. The data suggest that protective custody requests ($M = 0.16, p < .05$) and mental health watches ($M = 0.66, p < .05$) decreased, on average, from the year prior to the program start to the year following program start. Despite this decrease, the findings also suggest that mental health scores slightly increased after program start ($M = 3.63, p < .05$). This increase is not surprising given the nature of the program. Inmates are assessed more frequently during programming, and thus mental health issues present prior to program start are made more readily apparent during programming (manifesting as an increase in mental health scores). Still, this increase could also indicate the alternative, that overall mental health is getting worse during programming; however, given the significant decrease in mental health watches—a significant indicator of mental health functioning—it is important to interpret this finding in context. With regard to violations, we see that minor violations increased, on average, from Time 1 ($M = 0.54$) to Time 4 ($M = 1.04, p < .05$).

-Insert Table 3 about here-

Examining this finding further, once changes in violations are assessed at mutually exclusive time points⁵ (i.e., first and last six-months preceding program start and the first and last

⁵ Time 2 was subtracted from the Time 1 average to capture outcomes for the first and last six months leading up to the program start date. The same was done for Time 3 and 4 averages to capture the first and last six months after

six-months after program start) it becomes clear that participants generate high rates of minor violations both in the year leading up to and within the first six-months of program start, and begin to slowly taper thereafter. Thus, while the findings show a significant increase in minor violations from one-year preceding to one-year following program start, this difference is calculated without regard to changes occurring within those one-year time frames.

Supplemental Analyses

Additional analyses were conducted to contextualize our main findings. Specifically, these analyses focus on significant differences among key individual level differences between participants—including those with mental health watches, two or more major violations, and two or more program refusals in the one-year period following program start. These are inmates who arguably are the least successful in the Saguaro Unit as they continue to generate new mental health watches and major violations, even after programming has commenced. If we can identify characteristics and behaviors of inmates who are not performing well in ADC's mental health program, then perhaps we can better predict which inmates are most likely to be problematic during the program as well as those who pose a risk for mental and behavioral health issues in the future.

Table 4 demonstrates the significant pre-program characteristics of participants who had at least one mental health watch in the year following program start ($n = 16$) relative to participants who did not have any mental health watches during this same period ($n = 42$). On average, the findings show that participants with at least one mental health watch had higher mental health scores ($p < .05$) and mental health watches ($p < .05$) at both six-months and one-year prior to program start than participants with no mental health watches. In other words, inmates who

program start. Thus, for the purpose of illustrating changes in minor violations across time, the time periods in Table represent mutually exclusive, 6-month snapshots of participant outcomes over a two-year period.

continued to go on mental health watch during the first year of programming typically had worse mental health scores, were on mental health watches more frequently, and had more minor violations in the year preceding program start. Inmates with at least one mental health watch during the first year of programming also had significantly higher assaults on inmates ($M = 0.56, p < .05$) and staff ($M = 0.44, p < .05$) during this same period. They averaged more than three times as many major violations ($M = 1.63, p < .05$) within six-months of programming compared to inmates who did not go on mental health watch in the year following program start.

-Insert Table 4 about here-

Table 5 shows the significant pre- and post-program start characteristics of participants whom had two or more program refusals during the first year of programming ($n = 18$) relative to participants who had no more than one program refusal. The findings show significant demographic differences in these two groups. Specifically, participants with two or more program refusals were more likely to be Caucasian (61% vs. 15%, $p < .05$) relative to participants with no program refusals. Moreover, only 33% of the two or more program refusal group had completed mandatory literacy as compared to over 75% of participants who had no program refusals ($p < .05$). Thus, inmates who were more compliant with program expectations tended to have more advanced educational histories, tended to be younger and were more likely to be classified as a racial/ethnic minority relative to inmates who were non-compliant.

-Insert Table 5 about here-

With regard to key program outcomes, the findings illustrate significant differences in the frequency of staff assaults and visits during the six-months and one-year leading up to program start across the program refusal groups. Specifically, participants with two or more program refusals during the first year of programming received less visits on average than their counterparts

both twelve and six-months prior to program start and had a higher volume of staff assaults six-months prior to program start. Once the program started, participants with two or more program refusals had a significantly higher volume of minor violations at both time points. Taken together, inmates who frequently refused to participate in program activities were less likely to have visits in the both the year prior to program start ($M = 0.06, p < .05$), and the six-months prior to program start ($M = 0.0, p < .05$). They also had more staff assault violations in the six-months prior to program start ($M = 0.17, p < .05$). Once in the program, these inmates were also more likely to continue to generate minor violations. Specifically, in the year following program start, participants with two or more program refusals averaged 0.71 more minor violations than participants with no more than one program refusal during the first six-months of the program and 0.67 more minor violations during the first year of the program.

DISCUSSION

U.S. prisons oversee an overwhelming number of individuals with SMI, which presents a significant challenge to correctional administrators and staff who are often untrained and unprepared to respond to their attitudes and behaviors (Dvoskin & Spiers, 2004). At the same time, those with SMI often struggle adjusting to prison life leading to a number of adverse outcomes. Stacked against this reality, prison officials are tasked with the maintenance of safe and secure facilities while simultaneously providing adequate physical and mental health care. Outcome evaluations of in-prison treatment programs, however, are relatively scarce in the literature. The purpose of the current work was to determine whether a contingency management program designed to house and treat those with SMI impacted the future behavioral and mental health of inmates. Our work here leads to several broad conclusions.

Although mental health treatment has been found to be more effective when delivered in the community (Martin et al., 2012), Saguaro Unit's contingency management approach produced a number of positive individual-level outcomes. Specifically, the number of mental health watches, protective custody requests, and drug violations were lower in the first year of programming compared to the year before placement. Given the high occurrence of misconduct, specifically substance use violations, and the seriousness of being placed on mental health watches, these results are encouraging. Participants also received, on average, more visits in the first year of programming. Critically, social support, in the form of visits, has been found to lead to a number of positive outcomes including increased perceptions of support upon reentry—a critical element for successful reentry outcomes (Meyers et al., 2017). This is especially important for those struggling with elevated mental health needs (Wallace et al., 2016).

Despite this, the program still encountered issues, including inmates not meeting criteria for step advancement due to placement on mental health watch or by flat out refusing to participate in program activities. While mental health watches were significantly reduced as a whole, within one year of program start 28% of the sample had experienced a mental health watch. Those who went on mental health watch during this time had a more significant history of watches and minor violations leading up to program start, as well as more assaultive behavior during the first year of programming compared to inmates who did not go on watch. These findings underscore the need to separate lower functioning or troublesome inmates from higher functioning inmates; this may allow correctional administrators and staff to divert their limited resources to those who need it most (see for example, Lowenkamp & Latessa, 2005). This is especially critical given the large amount of resources and training that is required to effectively implement and maintain programs that use a contingency management approach (Gendreau & Listwan, 2018).

Too often we think of SMI in a vacuum when it comes to the treatment and evaluation of in-prison programs without adequate consideration of the role of co-occurring risks and needs. Within one year after program start, for example, 62% of the sample had at least one instance of refusing to program. On average, they were less likely to have earned a GED or achieved mandatory literacy, were less likely to be visited in the year leading up to program start, and averaged more placements on mental health watches. Once in the program, those with co-occurring issues averaged more incidents of minor violations, placements on mental health watch than inmates not refusing to program. Broadly speaking, individual characteristics of inmates and their co-occurring needs and risks may affect whether placement in the Saguaro Unit leads to null, negative, or positive future outcomes. This suggests that an individual's risk and needs are important and a more comprehensive program aimed at SMI that includes these areas is likely to be more effective (Morgan & Ax, 2018). This is critical in the implementation of contingency management programs and policies where punishment and rewards in response to behavioral patterns need to be individualized to the greatest extent possible (Gendreau & Listwan, 2018).

Overall, the Saguaro Unit presents a promising first step on the long road to understanding effective approaches to the treatment of inmates with serious mental health needs. It is important to note, however, that this research is limited in a number of ways. Most importantly, we have no comparison group or counterfactual to isolate the true effect of the program. We believe, however, that the major threats to validity of our one-group pretest-posttest design are limited (Cook & Campbell, 1979). For example, history effects, such as a change in policy in how mental health scores are defined, could be responsible for the observed outcomes. To be sure, no major change in ADC's mental health policy occurred during the study period. In addition, the use of a one-group pretest-posttest design must account for maturation as inmates may simply be growing too

old to engage in misconduct. To that end, should maturation be a factor, we also could not rule out that it was the program itself that contributed to the reductions in problematic behavior discussed above.

The research team was also limited in terms of data available to assess program outcomes. A qualitative analysis of the program, for example, would allow for a better understanding of the existing challenges in the program, as well as a more targeted evaluation of whether inmate functioning is actually improving. Finally, the program is restricted to one facility; therefore, inferences cannot be made as to the systemic improvements in mental health programming occurring across all ADC facilities or to facilities in other states. Balanced against these limitations, we have access to information on a historically difficult population to reach, and we have reason to believe that the program did little further harm for a population that will continue to be a challenge for correctional practitioners. It is our hope that this work may serve as a step toward a longer line of research examining inmates with SMI in correctional facilities.

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Table 1. Description of Mental Health Scores in the Arizona Department of Corrections

Mental Health 1: Inmates who have no history of mental health issue or treatment. These inmates will not be regularly monitored by mental health staff, but may request mental health services in accordance with the ADC protocols.

Mental Health 2: Inmates who do not currently have mental health needs, and are not currently in treatment but have had treatment in the past. These inmates will not be regularly monitored by mental health staff, but may request mental health services in accordance with the ADC protocols.

Mental Health 3: Inmates with Mental Health needs, who require current outpatient treatment.

- *Category A:* Inmates in acute distress who may require substantial intervention in order to remain stable (Example: A floridly psychotic or delusional inmate with current or frequent suicidal ideation) All inmates classified as severely mentally ill (i.e., inmates with a qualifying mental health diagnosis and have a severe functional impairment that is directly related to their mental illness) in ADC and/or the community will remain in this Category.
- *Category B:* Inmates who may need regular intervention but are generally stable and participate with psychiatric and psychological interventions. (Example: An inmate with a major depressive or other affective disorder who benefits from routine contact with both psychiatry and psychology staff.)
- *Category C:* Inmates who need infrequent intervention and have adequate coping skills to manage their mental illness effectively and independently. These inmates are managed only by psychiatry. (Example: An inmate with a general mood or anxiety disorder who has learned to manage their symptoms effectively through the use of medication and infrequent contact with mental health staff.)
- *Category D:* Inmates who have been recently taken off of psychotropic medications and require follow up to ensure stability for a minimum of six months.
- *Category E:* Inmates who may benefit from infrequent interventions by mental health clinicians only and are not in need of medications to remain stable.

Mental Health 4: Inmates who are admitted to a residential mental health program and require a more structure program setting.

Mental Health 5: Inmates with mental health needs who are admitted to an inpatient psychiatric treatment program.

Table 2. Sample Characteristics (N = 58)

Variables		<i>n</i>	%
Age ^a	Range: 19 - 74 (M; SD)		37.57; 11.77
Race/Ethnicity			
Caucasian		17	29.31
African American		14	24.14
Mexican American		20	34.48
Mexican National		2	3.45
Native American		2	3.45
Other		3	5.17
GED	0 = No; 1 = Yes	23	39.66
Mandatory Literacy	0 = No; 1 = Yes	36	62.07
MH Score ^b	Range: 1 - 4 (M; SD)		3.17; 0.50

ABBREVIATIONS: M = mean; SD = standard deviation; MH = Mental Health.

^a Age was calculated at the start of data collection.

^b MH Score at program start.

Table 3. Comparison of Key Outcomes Pre- and Post-Programming (N = 58)

	Time 1	Time 4
MH Score ^a (M; SD)*	3.18; 0.66	3.63; 0.65
MH Watch (M; SD)*	1.93; 4.17	0.66; 1.42
Protective Custody Requests (M; SD)*	0.66; 1.74	0.16; 0.72
Minor Violations (M; SD)*	0.54; 0.84	1.04; 1.21
Major Violations (M; SD)	1.85; 1.95	1.43; 2.50
Drug Violations (M; SD)	0.17; 0.38	0.07; 0.26
Inmate Assaults (M; SD)	0.22; 0.56	0.26; 0.66
Staff Assaults (M; SD)	0.17; 0.63	0.14; 0.61
Visits (M; SD)	1.32; 3.02	2.81; 7.40

ABBREVIATIONS: M = mean; SD = standard deviation; MH = Mental Health.

Note: Differences across Time 1 and Time 4 were tested using paired *t*-tests. Time 1 is one-year prior to program start whereas Time 4 is one-year after program start.

^a One inmate did not have a Time 1 MH Score. Thus the test of differences across Time 1 and Time 4 for MH Scores only reflect inmates with valid scores (N = 57).

**p* ≤ .05

Table 4. Comparison of Participants with MH Watches Relative to Participants with No MH Watches in Time 4 (N = 58)

Variables ^a	Mental Health Watch	
	No (%)	Yes (%)
General demographics		
Age ^b (M; SD)	38.10; 12.48	36.19; 9.89
Race/ethnicity		
Caucasian	28.5	31.2
African American	26.1	18.8
Mexican American	31.0	43.7
Mexican National	4.8	0.0
Native American	4.8	0.0
Other	4.8	6.3
GED	42.9	31.3
Mandatory Literacy	61.9	62.5
Time 1		
MH Score ^c (M; SD)*	3.05; 0.59	3.50; 0.73
MH Watch (M; SD)*	1.07; 2.28	4.19; 6.67
Time 2		
MH Score (M; SD)*	3.17; 0.62	3.63; 0.81
MH Watch (M; SD)*	0.79; 1.75	2.31; 4.18
Minor Violations (M; SD)*	0.29; 0.46	0.75; 1.24
Time 3		
Major Violations (M; SD)*	0.41; 0.86	1.63; 2.87
Inmate Assaults (M; SD)*	0.02; 0.15	0.19; 0.40
Staff Assaults (M; SD)*	0.0; 0.0	0.38; 0.89
Time 4		
Major Violations (M; SD)*	0.93; 1.28	2.75; 4.09
Inmate Assaults (M; SD)*	0.14; 0.35	0.56; 1.09
Staff Assaults (M; SD)*	0.02; 0.15	0.44; 1.09
Total	42	16

ABBREVIATIONS: M = mean; SD = standard deviation; MH = Mental Health.

Note: Differences across program refusal groups were tested using a chi-square for categorical indicators, and *t*-tests for continuous indicators.

^a Table only reports significant measures from Time 1 through Time 4.

^b Age calculated at start of data collection.

^c One inmate did not have a Time 1 MH Score. Thus the test of MH Score differences in Time 1 across MH Watch groups only reflect inmates with valid scores (N = 57).

**p* ≤ .05

Table 5. Comparison of Participants Refusing to Program Relative to Participants Not Refusing to Program in Time 4 (N = 58)

Variables ^a	Program Refusal	
	No (%)	Yes (%)
General demographics		
Race/Ethnicity		
Caucasian *	15.0	61.1
African American	30.0	11.1
Mexican American*	45.0	11.1
Mexican National	5.0	0.0
Native American	5.0	0.0
Other*	0.0	16.7
Mandatory Literacy*	75.0	33.3
Time 1		
Visits (M; SD)*	1.90; 3.49	0.06; 0.24
Time 2		
Staff Assaults (M; SD)*	0.03; 0.16	0.17; 0.38
Visits (M; SD)*	1.20; 2.31	0.0; 0.0
Time 3		
Minor Violations (M; SD)*	0.35; 0.62	1.06; 1.31
Time 4		
Minor Violations (M; SD)*	0.83; 0.98	1.50; 1.54
Total	40	18

ABBREVIATIONS: M = mean; SD = standard deviation; MH = Mental Health.

Note: Differences across program refusal groups were tested using a chi-square for categorical indicators and *t*-tests for continuous indicators.

^a Table only reports significant measures from Time 1 through Time 4.

^b Age calculated at start of data collection.

* $p \leq .05$