

Managing violence: In-prison behavior associated with placement in an alternative disciplinary segregation program

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Abstract

Purpose: The use of segregation continues to be at the forefront of debates on the most effective way to address violence in prisons. Concern over the negative impact of these placements has prompted correctional administrators to employ alternative strategies to reduce their segregated populations and address serious misconduct. Few studies, however, have explored the impact that these strategies have on future behavioral outcomes. To address this gap, the current study explores the effectiveness of a disciplinary segregation program reserved for those who engage in violent misconduct during their incarceration.

Methods: This study employs a quasi-experimental research design to estimate the treatment effects of placement in a disciplinary segregation program on subsequent levels of institutional misconduct during a one-year follow-up.

Results: Placement in the disciplinary segregation program had no effect on subsequent levels of serious in-prison misconduct amongst participants when compared to their matched counterparts.

Conclusions: Our findings suggest that scholars and practitioners should work to build a response to in-prison violence that starts with what is known about the causes of violence and what effectively modifies attitudes and behaviors. Future research should include rigorous measures of both program process and implementation to better identify effective forms of intervention.

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Violence is an unfortunate yet seemingly inevitable reality of prison life, creating a number of problems for administrators, staff, and those confined in correctional facilities. Violent behavior poses a threat to the smooth operation of a correctional facility by challenging the orderly operation of day-to-day procedures, which can lead to higher operational costs and the redirecting of resources exclusive to the management and control of prison movements rather than programming (Bottoms, 1999; Gendreau et al., 1997). Prison violence can reduce the odds of successful reentry in that those who are released from institutions with high rates of misconduct—especially violent misconduct—are more likely to recidivate (Eichenthal & Blatchford, 1997; Listwan et al., 2013). For correctional staff, working in an environment that is punctuated by violence can lead to high turnover, stress, reduced job satisfaction and organizational commitment, and poor job performance (Armstrong & Griffin, 2004; Lambert et al., 2018). The threat of violence dictates the behavior of everyone in prison. But what is the most appropriate response to violent behavior when someone is already incarcerated?

The traditional response has been the permanent or temporary separation, or segregation, of the individual from the general prison population (Browne et al., 2011). Estimates suggest that roughly 20% of prisoners have spent time in some form of segregation, with up to 4.4% of state and federal prisoners and 2.7% of those housed in local jails held in segregation on an average day (Beck, 2015). Conditions of segregation commonly include confinement in a single cell for 22-23 hours per day with significantly reduced access to personal property, privileges, and programming or education (U.S. Department of Justice, 2016). One key justification for the use of segregation is the goal of reducing or preventing violence against staff and people who are incarcerated by separating those who have exhibited violent institutional behavior.

The practice of segregation in U.S. prisons more broadly continues to be at the forefront of scholarly discussions on crime and punishment. Some researchers have documented that the practice leads to serious psychological deterioration (Andersen et al., 2000, Miller & Young, 1997; Haney, 2003; Gendreau et al., 1972), but not all scholars have documented negative outcomes associated with placement in isolation (Morgan et al., 2016; O’Keefe et al., 2013; Suedfeld et al., 1982; Suedfeld & Roy, 1975; Zinger et al., 2001). There is no one type of segregation; in practice, it varies in terms of its rationale and frequency of use, duration, and facility conditions (Mears et al., 2019). The scholarly discussion of segregation has thus sacrificed some of the nuance involved with the practice in an effort to determine whether it is good or bad policy.

Eliminating the practice of segregation might reduce damage done to the physical and mental health of people placed in these settings, but segregation is at times a necessary tool in the management of behavior within correctional facilities. This is especially the case for people who engage in serious violence who may be a continued threat to staff and the general population. To date, there has been a handful of studies that assess the impact of disciplinary segregation (hereafter referred to as “DS”) placement on subsequent rates of institutional misconduct and these studies tend to find that placement has no effect on subsequent behavior (Butler et al., 2018; Labrecque & Smith, 2019a; Labrecque, 2015; Lucas & Jones 2017; Meyers et al., 2018; Morris, 2016; Salerno & Zboga, 2020; Woo et al., 2020). It is notable, however, that evaluations of *alternatives* to traditional segregation for disciplinary purposes are largely absent from these national discussions. Taken altogether, correctional staff and administrators are left with little evidence on the most effective way to respond to serious violent misconduct are left to devise program and response strategies on their own.

The purpose of this study is to determine the effectiveness of an alternative DS program that is specifically designed to reduce subsequent misconduct for men who have engaged in serious violent misconduct. The program is delivered to adult men incarcerated in the state of Arizona and it employs an incentivized step-based approach to ensure that participants advance to program completion by requiring a number of cognitive behavioral self-study modules and group programming exercises. We use propensity score matching to create a comparison group of non-programming men who engaged in specific forms of violent misconduct that would have made them eligible for the program, and we compare the future behavior of these men to program graduates one year after program completion. Our broader purpose is to inform on whether a more progressive approach to DS can serve as a promising alternative to more traditional forms of segregation as a response to serious institutional misconduct.

Use and Impact of Disciplinary Segregation in the United States

DS refers to the temporary placement in a segregated housing unit as punishment following a serious rule violation (Browne et al., 2011; Butler & Steiner, 2017).¹ It appears now that short-term confinement in disciplinary segregation following serious institutional acts of violence may be a more appropriate approach for correctional administrators and staff who are concerned with the safety and orderly functioning of their institutions while at the same time doing no further harm to those who are housed in these environments. There are at least three reasons to believe that the

¹ In the U.S., there are three broad types of segregation: administrative segregation, DS, and protective custody (Frost & Monteiro, 2016). Individuals may be placed in these units for their protection or the protection of others, while awaiting transfer or movement to another facility or unit, while awaiting trial, or as punishment for violating facility rules and regulations. The three types of segregated housing vary significantly in their goals and operating procedures. Administrative segregation, for example, may be used to separate those who are deemed a threat to institutional safety and security based on patterns of disruptive or violent behavior for an indefinite period of time (Shames et al., 2015). Protective custody, on the other hand, refers to placement in a segregated unit because the individuals are classified as being at risk for victimization if housed in the general prison population (Gendreau et al., 1985). DS, which is the focus of the current study, is unlike administrative or protective segregation in that it does not typically include indefinite placement.

use of disciplinary segregation may remain as the primary form of restrictive housing used by correctional officials and administrators in the future. First, the use of disciplinary segregation, or segregation more broadly, is viewed as a necessary correctional tool (Mears & Castro, 2006). Some sort of response is needed when an individual commits a serious violent act within the institution; the safety and security of the facility, staff, and other persons depends on it (Gendreau & Keyes, 2001). Second, exposure to disciplinary segregation is typically short in duration (Butler & Steiner, 2017). Due to the temporary nature of the placement, the potentially damaging effects of isolation can be minimized or eliminated, although evidence on damaging psychological effects has recently been called into question (see for e.g., Morgan et al., 2016). The practice also allows correctional staff and administrators to incentivize rule-abiding behavior that can lead to placement in less restrictive settings. Third, disciplinary segregation is a widespread practice in the United States and as a result, the practice can be modified using evidence from rigorous outcome evaluations. Because of these reasons, the practice is less likely to garner the same criticisms as placement in long-term administrative segregation (see for e.g., Obama, 2016), and research on this particular form of restrictive housing is especially needed to guide the modification of existing practice.

Civil and human rights activists have recently renewed concerns about the negative impact that placement in any type of segregation may have on physical and mental well-being. The vast majority of research on the effects of segregation has examined the psychological outcomes associated with the practice, with far less research focusing on the impact of segregation on future criminal activity or in-prison misconduct. In a meta-analysis conducted by Labrecque and colleagues (2013), among 65 separate effect sizes of segregation outcomes, only nine measured behavioral outcomes such as recidivism and misconduct (see also, Labrecque, 2015). Those studies that do look at behavioral outcomes have found mixed evidence of the effect of segregation

placements on *recidivism* (Butler et al., 2020; Clark & Duwe, 2018; Woo et al., 2020; Wildeman & Andersen, 2020), *institutional rates of violence and disorder* (Huebner, 2003; Steiner, 2009; Wooldredge & Steiner, 2015), and *individual-level misconduct* (Labrecque & Smith, 2019a; Labrecque et al., 2019; Labrecque, 2015; Lucas & Jones 2017; Morris, 2016; Salerno & Zboga, 2020; Woo et al., 2020). This is of primary concern given that, theoretically, the purpose of segregation is to reduce problematic behavior by punishing wrongdoing, increasing control, and deterring individuals from subsequent engagement in misconduct.

In recent years, an emergent body of research has started to focus on in-prison behavioral outcomes associated with placement in DS. These studies often conclude that placement in segregation for disciplinary purposes has no effect on subsequent behavior (for a review, see Labrecque & Smith, 2019b). For example, in one of the more methodologically rigorous evaluations on the effect of placement in DS, Morris (2016) employed a quasi-experimental research design to examine the effects of placement in traditional segregation following an act of violent institutional misconduct across seventy prison units in a single southern state. The results from this study found that placement in segregation had no effect on subsequent misconduct. A number of studies have reached a similar conclusion—placement in DS does not significantly affect subsequent in-prison misconduct (see for e.g., Lucas & Jones, 2017; Medrano et al., 2017; Salerno & Zboga, 2020; Woo et al., 2020).

Use and Impact of Alternative Approaches to Disciplinary Segregation

Correctional administrators are provided little direction from the evidence base on how to respond to and prevent future violence, and yet almost no research has explored alternatives to the traditional approach of DS. As states begin to reform their practices, incorporating therapeutic elements may reduce the negative psychological and behavioral outcomes that have been

associated with placement in segregation settings (Digard et al., 2018; Shames et al., 2015; Smith, 2016). The much discussed, and much debated, “Colorado Study” provides evidence that suggests progressive approaches to segregated confinement can be designed to ensure no further harm (Grassian, 2010; Grassian & Kupers, 2011). O’Keefe and colleagues (2013) found that those who were placed in segregation did not exhibit worsened psychological symptoms during their long-term confinement when compared to those who were not placed in segregation during the study period. One reason for this unexpected finding may be due to elements of a program that provides “incentive-based behavior modification and cognitive programs” (p. 51). In addition to programming, it also appeared that the unit was operated by staff who were more responsive to participant needs (see also O’Keefe et al., 2010). There is no one type of segregation practice, and segregation that is accompanied by treatment may represent an opportunity to reduce future violence while doing no further harm to the well-being of people who are isolated.

Studies are now appearing that examine whether a more therapeutically-informed approach to DS specifically can work to reduce subsequent violence and misconduct. *Masked for blind review*, evaluated outcomes of people placed in a DS program that required participants to complete self-study modules and group programming as they progressed through three stages of programming. The authors found that completion of the program produced a number of positive outcomes for participants, including individual-level reductions in both prisoner assaults and assaults on staff twelve-months following program completion (as compared to their behavior prior to the program). The study, however, was significantly limited in that there was no comparison group or counterfactual to isolate the true effect of the program.

Butler and colleagues (2018) used a quasi-experimental matching approach to determine the effectiveness of a cognitive-behavioral program in either an administrative or DS setting.

Specifically, the program employed staff trained in principles of Motivational Interviewing (Miller & Rollnick, 2012) to facilitate the completion of self-study modules designed to replace negative thoughts with prosocial thinking. Results from the study suggested that participants in the segregation program were no less likely to engage in three measures of institutional misconduct as compared to those in a matched-comparison group in a twelve-month follow-up. Importantly, however, not one participant successfully completed the program within its two year existence.

Building on these prior works, and in response to the methodological limitations of prior research, we examine the effect of therapeutic programming within DS on subsequent rates of institutional misconduct through the use of a quasi-experimental research design. We expand upon prior research by examining behavioral outcomes of violent misconduct amongst a sample of program participants who successfully completed a DS program, and we compare future misconduct outcomes between program graduates and people who were eligible for but did not participate in the program.

Current Study

Despite concerns over the use of segregation, the ability to separate an individual is a critical tool for the management of serious violent misconduct within correctional facilities. A form of DS that accomplishes the goals of safety and security while reducing the likelihood of future violence would be the optimal response to prison violence. Studies that examine the effect of traditional DS on future behavior, however, find that the practice has no impact. The purpose of our work is to explore the effectiveness of a DS program that moves beyond traditional segregation practices by including incentivized rehabilitative programming that is specifically designed for adult men who have engaged in violence in prison. Specifically, this study aims to ask the following research question: “Is completion of a rehabilitative DS program associated with

fewer instances of future behavioral misconduct?” We answer this question by comparing the misconduct records of program completers to the records of a matched comparison group that were not placed in the program, and our analyses examine different types of misconduct (major violations, assault on staff, assault on another prisoner) at one year after infraction conviction (comparison group) or program completion (treatment group). More broadly, our work here advances knowledge on alternative approaches to DS by determining if the implementation of programming can serve as a promising alternative as a response to violent institutional misconduct.

Study Setting

In the present study, we examine outcomes associated with placement in an alternative DS program in Arizona (hereafter referred to as the Restrictive Status Housing Program (RSHP)). The RSHP is managed using a number of guiding principles (see below) and targets adult males who have committed one of three forms of violent misconduct: 1) serious assault on staff, 2) aggravated assault on another inmate involving a weapon or serious injury, or an 3) aggravated assault on another inmate involving multiple aggressors and a single victim (collectively known as “Forbidden Three” acts).² Adult men found guilty of one of those three forms of violent misconduct are eligible for placement in the program.

Figure 1 depicts the intake model for the program. As noted, commission of a Forbidden Three act qualifies for program placement. When such an act occurs, the warden of the complex where the violation took place contacts the warden who oversees the alternative disciplinary program to discuss the incident. The Regional Operations Director (ROD) is then contacted and a placement decision is made by all three individuals based on the seriousness of the act and the security concerns involved. There are a number of situations in which the commission of a

² These terms represent the language and policy used by ADC and may not represent person-first language.

qualifying act may not result in placement in the program. For example, any person with a mental health score above three (3) (on a scale ranging from 1 – 5, with five (5) being the most serious mental health classification) is not eligible for placement and is housed in a mental health unit, neither are those who are housed in the Arizona Department of Corrections (ADC) but are under the age of 18. The primary reason for non-placement includes unavailable bed space, as the participants are single-bunked within a separate wing of the prison facility. The discretion of placement decisions into the alternative DS program during the study period allows for the creation of the comparison group of eligible adult men.

-Insert Figure 1 about here-

Once selected for the program, each participant is strip-searched and provided one change of clothing (i.e., one jumpsuit, one pair of boxers, socks, a t-shirt), basic hygiene items, and one book upon request. The Program Review Committee (PRC) meets with each participant within three days of placement to explain the reason for placement, develop a program plan, explain requirements for return to general population, and to document decisions on the program plan form. In addition, a number of physical and mental health assessments are conducted upon intake. Medical and mental health staff conduct an intake screening within 24 and 72 hours of the participant's arrival, respectively.

Broadly, the program takes a three-step contingency management approach that incorporates cognitive-based group counseling and self-study programs. Contingency management, in the context of this study, refers to a process of behavior management in which people are rewarded for adhering to (or punished for failing to adhere) to the rules and regulations of the institution; based on behavior, program participants can earn more incentives (e.g., phone calls, visits, out-of-cell time) (Gendreau et al., 2014). The program involves a rigid structure that

is designed to change violent behavior, enhance social skills, expand thinking processes, and provide support in understanding the importance of pro-social values and relationship building. These changes are facilitated by a number of therapeutic elements including group counseling delivered by the program case manager, completion of self-study and educational television (ETV) modules, practice of rigid adherence to the program's rules and regulations, disincentives for failures (e.g., loss of privileges) and incentives for achievements (e.g., increased recreation time), and frequent and supportive interactions with program staff and program participants in a DS environment.³

In contrast to many traditional forms of DS, the program under investigation requires participants to complete six group counseling programs that address topics like social values, self-control, responsible thinking, substance abuse, and feelings and emotions. These group sessions place participants in specialized chairs where their legs are shackled to the chair, but they are otherwise free to communicate and interact with other participants in the room. In addition, program participants are required to complete a number of self-study and ETV modules. More specifically, the self-study modules include Making Decisions, Values and Personal Responsibility, Refusal Skills, Attitudes and Beliefs (Hazelden Publishing), and Anger Management (Substance Abuse and Mental Health Services Administration). Importantly, this program maintains many of the punitive aspects of traditional DS, including stripping people of all property, restricting visitation and phone privileges, and requiring the person to spend most of his time in a small, single-bunked cell. In addition, every time the participant leaves their cell, they are strip-searched, shackled, and provided a two-officer escort.

³ The group counseling programs are products of The Change Companies and are described as cognitive and evidence-based programs that emphasize a writing process that motivates and guides participants toward change. These programs, while described as evidence-based, have not been subject to rigorous empirical evaluation of their effectiveness.

Program Steps

The PRC reviews men in the program at a minimum of every thirty days for participation and step progression. Overall, the program can be completed in 120 days. The committee includes a number of Offender Operations personnel and may include Support Services personnel and Mental Health professionals (i.e., Unit Psychologist, Psych-Associate, and Psych-Technician). Operations staff members include Unit Administrator(s), Captain(s), Correctional Officer IV(s), Correctional Sergeant(s), Correctional Officer(s) III, and Correctional Officer(s) II assigned to unit/housing area. Support Services staff members include teachers, chaplains, and treatment counselors. In addition, the team meets once a week to discuss individual cases, program advancements and reductions, as well as any operational issues. Participants are required to advance through three incentivized steps. In Step 1, the participant is restricted of all personal property with the exception of “the clothes on his back and one book to read” (ASPC-F, 2014, p. 3); contact and communication is also restricted. Participants in Step 1 are prohibited from receiving visits and phone calls, and store purchases are restricted to state-issued hygiene products. In this initial step, privileges are suspended so that the participant “can focus on his interactions with RSHP program staff, group counseling sessions, and the programming material provided to him” (ASPC-F, 2014, p. 4).

Participants need to accomplish a number of requirements in order to advance through the program steps. First, participants are expected to abide by all rules and directives. Any misconduct or infraction results in a disciplinary violation report and the possibility that the participant has to start the program over from day one. Failure to abide by program expectations may also result in a “time-out period” in which the participant is removed from the program housing area and placed in a detention unit. These time-out periods are determined by the treatment team and range from

one week to thirty days. In addition, participants are expected to participate in a group counseling session once a week as well as complete a self-study module in Step 1. Participants are also expected to participate in recreation in a one-man enclosed cell three times per week for two hours and to take a shower after recreation. Participants remain in Step 1 for at least thirty days and are required to remain disciplinary free throughout those thirty days.

Upon completion of the requirements for Step 1, the participant can advance to Step 2 of the program. The minimal amount of time in this step is sixty days. During Step 2, participants are expected to remain discipline free and active in their participation of both the self-study and group counseling sessions. Privileges are slightly increased during Step 2. Participants are allowed a television so that they can participate in ETV and for recreational use when not programming. Participants are also allowed to have one, 2 hour non-contact visit per month. In addition, store purchases are increased to \$15. Rule violations during Step 2 may result in dropping the participant to Step 1 as decided by the treatment team. Serious rule violations and program non-compliance may result in removal from the program or a time-out period as decided by the treatment team. To advance through Step 2, participants must complete all required assignments, abide by all rules, and “indicate to staff through his demeanor, attitude, behavior, interactions, and statements in group” that they are understanding the materials and developing new skills and thought processes (ASPC-F, 2014, pp. 4-5).

The final step of the program requires that participants make clear and consistent indications to program staff that they are gaining a more developed understanding of the program material. More specifically, the participant’s behavior and participation in group counseling should indicate an “understanding of the negative impacts of anger, aggressive actions, and heightened conflict” (ASPC-F, 2014, p. 5). As with all the steps in the program, participants are expected to

remain violation free. Any violation may result in a step reduction, time-out period, or removal from the program. Participants in Step 3 are further required to actively participate in group counseling and to complete any self-study or ETV modules as determined by the case manager. The minimal amount of time in Step 3 is thirty days. To successfully complete Step 3, and the program, participants must be recommended to the treatment team by the case manager as having satisfied the requirements of the program and demonstrated behavior consistent with skills gained from the program material. Upon approval from the treatment team for graduation, the case manager and program supervisor review the participant's classification score to determine the appropriate housing location. The program ends with a graduation ceremony where a certificate of completion is presented to the participant by members of the treatment staff.

Mears and colleagues (2019) argue for transparency and clarity in describing research and policy on the effects of segregation in prison. We agree. Within their suggested framework, the *goal* of the program in our study is discipline, the *duration* is moderate (i.e., one hundred twenty days), the *quality* of the program has participants entirely isolated in small cells for most of the day (dependent on step level) with access to self-study, ETV modules, group programming, and recreation (dependent on step level), and they have certainty with regard to their release (i.e., they are aware of the program components and when they could be expected to leave isolation pending their success within the program), and the *intentionality* of the program is such that it is used explicitly for discipline and the isolation experienced by participants is an intended consequence of program placement.

Methods

Data

Data used in this study build on a prior examination of a DS program that measured in-prison behavioral outcomes amongst program participants through the analysis of administrative data on program graduates with at least a six-month follow-up (*Masked for blind review*). Our work builds on that initial program assessment by using propensity score matching to compare program participants to those who were eligible for the placement in the DS program but received some other form of placement. The comparison group includes all adult men who committed an act that could have qualified for placement in the program (i.e., aggravated assault, staff assault, rioting) but were not placed in the program during the study period.⁴ The analyses described below will be performed on a sample of program participants (treatment group, $n = 307$) and nonparticipants (comparison group, $n = 1,926$). We also extend the previous work by including all program graduates who now have one full year of follow-up from program completion while housed in the Arizona Department of Corrections (ADC). The treatment group represents *all* adult males who were placed in the DS program between March 2014 and January 2017.

Data for this study are drawn from the ADC. At the end of the year 2017, the ADC housed a total of 42,297 individuals, of which 38,295 were male (90.5%). The majority of the confined population were Hispanic/Latino (39.9%), followed by Caucasian/White (39.0%), African American/Black (13.9%), Native American (5.2%), and “Other” race/ethnicity (2.0%) (Ryan, 2017). The ADC experiences a significant number of prisoner-on-prisoner assaults every year. In the 6 years prior to the implementation of the RSHP (i.e., 2009-2014), there was continued growth

⁴ A total of 30 individuals were removed from the comparison group as they had official mental health scores above “3” since placement in the program required an official mental health score of “3 or below” (see intake model in Figure 1).

in the number of prisoner-on-prisoner assaults. During this time there were a total of 9,234 prisoner assaults or an average of 1,539 assaults per year (Ryan, 2014). Staff assaults also occur with relative frequency in the ADC. Between 2009 and 2014, the ADC experienced a total of 2,250 assaults on staff, resulting in an average of 375 staff assaults per year (Ryan, 2014).⁵ The RSHP was implemented in March 2014 as a means to reduce the number of violent assaults that occur within the state's correctional facilities.

Dependent Variables

The outcome measures for this study include *major violations* (e.g., promoting prison contraband, possession of a weapon), *inmate assaults* (e.g., aggravated assault, rioting) and *staff assaults*. We measure these outcomes dichotomously to determine whether or not the form of misconduct occurred during the one-year follow-up period (0 = no; 1 = yes).

Independent Variable

Program Participation in the alternative DS program is the key independent variable of interest in this study. Individuals who were placed in the program were given a value of "1," while the comparison group of non-participants (i.e., those who were eligible but were not placed in the program) were assigned a value of "0".

Matching Criteria

A number of theoretically-relevant covariates were included in an attempt to reduce bias within our models. These covariates have been found to be significant predictors of prison misconduct (see generally, Cunningham & Sorensen, 2007; Gendreau et al., 1997; Steiner et al., 2014). Covariates included *age* (in years), *race/ethnicity* as measured by dichotomous variables for *White/Caucasian* (1 = yes; 0 = not White/Caucasian), *Black/African-American* (1 = yes; 0 =

⁵ This figure includes both physical assaults resulting in injury as well as non-physical assaults such as the throwing of bodily fluids.

not Black/African-American), *Hispanic/Latino* (1 = yes; 0 = not Hispanic/Latino), and *Other* (1 = yes; 0 = any of other racial/ethnic categories). Educational attainment included a measure of whether the individual had a *GED* (1 = yes; 0 = no). A dummy variable is included to measure whether an individual was classified as security threat group membership (*STG*) (1 = suspected/validated STG member; 0 = no official STG designation). Covariates in this study also include a variety of criminal history measures including the individual's *arrest type* (1 = violent arrest; 0 = non-violent), number of *prior incarcerations* (range = 0-8), the *custody level* of the unit where the individual committed the qualifying offense (range = 2-5), the *qualifying offense* (i.e., assault on an inmate, assault on a staff member, and group assault/rioting), lifetime history of institutional misconduct measures including the number of *lifetime major violations*, *lifetime inmate assaults*, and *lifetime staff assaults*.⁶ We also control for the length of *time served* (in years; 1 = ≤ 3.0 years; 2 = 3.01 to 6.0 years; 3 = 6.01 to 10.0 years; 4 = 10 or more years).⁷

Analysis Plan

The primary goal of this study is to examine whether placement in DS that incorporates programming is effective in reducing subsequent levels of institutional misconduct amongst program participants when compared to those who did not participate in the program. In the absence of random assignment, this study uses a propensity score matching (PSM), to estimate treatment effects of the program (Gau & Fraser, 2015; Rosenbaum & Rubin, 1985; Rosenbaum, 2002). Specifically, the propensity score represents the probability that a given individual receives a treatment (i.e. program assignment) conditional on a vector of observed variables. As a result,

⁶ Few individuals had more one violation in terms of a history of lifetime inmate or staff assaults and therefore we collapsed this item as a binary indicator. However, analyses using a frequency of the total number of lifetime inmate or staff assaults yielded substantively similar findings.

⁷ In the absence of a risk score available to us for matching, we balance on several static risk indicators that are typically used in the creation of these scores (e.g., demographics, prior criminal justice involvement, prior history of prison violence). The ADC does not currently collect accessible information on dynamic risk indicators.

PSM creates a matched set by balancing across observed confounders, thereby creating a counterfactual estimate of what would have happened to the program participants had they not been placed in the program (Gau & Fraser, 2015; Rosenbaum & Rubin, 1985).

Our analyses proceed in several primary stages. First, we examined imbalance between the participants (i.e., treatment group) and non-participants by comparing the difference in means for each covariate using independent sample *t*-tests, considering a covariate out of balance if a *t*-statistic was greater than 1.65 ($\alpha = .10$) or the standardized bias statistic (SBS) was greater than 20 (Rosenbaum & Rubin, 1985). For the creation of the matched comparison groups, we test several different matching procedures from robustness: (1) one-to-one nearest neighbor matching without replacement, (2) one-to-one nearest neighbor matching with replacement, (3) two-to-one nearest neighbor matching with replacement, and (4) three-to-one nearest neighbor matching with replacement. We use a caliper .25 times the standard error across all models, per the recommendation of Rosenbaum and Rubin (1985). For each of the matching procedures, we estimate the average treatment on the treated (ATT) on misconduct outcomes one year after program completion.⁸

Results

The summary statistics of the full analytic sample are presented in Table 1. Approximately 13.7% of the sample was assigned to the treatment DS. Across violations measured at the 12-month follow up period, major violations are the most common (37.3%), whereas staff violations (3.9%) and inmate violations occurred less frequently (5.3%). On average the sample is approximately 33 years old, and the majority of the sample are Hispanic/Latino (53.9%).

⁸ All analyses were also conducted using a doubly robust estimation procedure which further adjusts for all covariates used to generate the propensity score and uses the propensity score as an analytic weight in logistic regression models for the binary violations outcome and negative binomial regression for the frequency of violations outcome (Schafer & Kang, 2008). The results of these models remain substantively similar to those presented in the main analysis.

-Insert Table 1 about here-

Table 2 presents the summary statistics for the matched and unmatched samples using the 1:1 nearest neighbor matching with a caliper of .037 (e.g., .25 times the standard deviation of the propensity score).⁹ Details on matching from alternative matching specifications (e.g., 1:1 with replacement; 2:1 matching; 3:1 matching) are presented in the appendix.¹⁰ As shown in Table 2, the matching approach sufficiently minimized the significant differences amongst the covariates between the treatment group of program participants and the comparison group of non-participants. Prior to matching, program participants differed from the comparison group on non-participants on 13 of the 20 covariates used to match the groups based on either the *t*-statistic or SBS. Program participants in the treatment group were significantly younger than those in the comparison group at the time of data collection ($t = -2.88, p = .004$). There were also significant racial and ethnic differences. The comparison group was more likely to be White/Caucasian than the treatment group ($t = -5.32, p < .001$), while the treatment group had a greater percentage of Hispanic/Latino participants ($t = -4.89, p < .001$). The treatment group were also more likely to be classified in terms of security threat group (STG) membership ($t = -5.41, p < .001$) and have a violent arrest ($t = 2.05, p = .041$). In terms of qualifying infractions, those in the treatment were more likely to have a qualifying offense for an assault on staff ($t = 8.67, p < .001$), or group assault ($t = 10.52, p < .001$), but less likely to have an assault on inmate ($t = -14.92, p < .001$). Regarding the life history of infractions those assigned to DS treatment were less likely to have history of an assault of an inmate ($t = -14.51, p < .001$), but more likely to have an assault on staff ($t = 3.14, p =$

⁹ Models using alternative caliper specifications ranging from .01 to .05 yielded similar findings.

¹⁰ Covariate balance was generally achieved with alternative matching procedures. However, in the case of 2:1 and 3:1 matching procedure the lifetime history of staff assault variable remained slightly out of balance. Accordingly, these models were re-estimated while controlling for the lifetime history of staff assault and other covariates in subsequent multivariate analyses Muftić et al., 2016. The results of these models remained substantively similar.

.002). Finally, there was some differences in terms of time served, with those in the treatment group having been more likely to be in the 3.01 - 6 year range ($t = 3.14, p = .002$), but less likely to be in the 3 or less year range ($t = -3.72, p < .001$) compared to the control group. Following the matching procedure, all covariates were balanced according to the t -statistic and SBS, indicating that the PSM procedure was successful at creating balance between the two groups across all observable covariates. Covariate balance is visually displayed in Figure 2a and 2b.

-Insert Table 2 about here-

-Insert Figure 2a about here-

-Insert Figure 2b about here-

Table 3 presents the average treatment on the treated estimates (ATT) for program participants in comparison to their matched non-participant counterparts on *dichotomous* measures on a major misconduct violation, inmate assault, and a staff assault in the twelve months following release from the program (i.e., treatment group) or the qualifying offense (i.e., comparison group). During the twelve-month follow-up period, there were no significant differences that emerged between the program participants and the matched comparison group on non-participants across all matching procedures. Table 4 includes the average treatment on the treated estimates (ATT) for program participants in comparison to their matched non-participant counterparts on *frequency* measures of major misconduct violations, inmate assaults, and staff assaults in the twelve-months following release from the program or the qualifying offense. Consistent with the outcomes described in the analyses of dichotomous misconduct outcomes, across the twelve-month follow up, there were no statistically significant differences that emerged between the program

participants and the matched comparison group on non-participants on frequency misconduct measures.¹¹

-Insert Table 3 about here-

-Insert Table 4 about here-

Discussion

DS, and incarceration more generally, need not make people worse. Lost in the larger ethical and moral debates on solitary confinement is the fact that violence is indeed an unfortunate yet inevitable reality of prison life. Segregation is by necessity going to exist in some form, and so scholars and practitioners could work together to find a form of DS that does no further harm to people held in isolation. Beyond that, DS can be thought of as an opportunity—rather than simply a punishment—to deliver a therapeutic intervention to an individual that may be at a higher risk for continued antisocial and violent behavior. The purpose of the present study was to determine whether a contingency management-based approach to DS reduced the occurrence of future violence and serious institutional misconduct of men incarcerated in the state of Arizona. Findings revealed generally null results of the alternative DS program, suggesting it was unsuccessful in reducing future violent behavior. Why is that?

One possible explanation of these null results is that the quasi-experimental research design may not approximate a true experiment and our treatment and comparison groups may fall short of isolating a treatment effect. Human beings determined selection into the treatment group. Although we have attempted to balance treatment and comparison groups on critical characteristics such as age, prior history of violence, mental health and STG status, we are unable to account for

¹¹ Two other types of violations were also available in the data: drug violations and minor violations. Supplemental analyses showed that there were not differences between the treatment and control group in terms of drug violations in the 12 months follow up period. However, results did demonstrate that assignment to the treatment was associated with significantly more minor violations.

all of the complexities involved in this critical decision. It could be that the most difficult-to-manage men with greater propensities toward violent misconduct are placed into the treatment program. The treatment and comparison groups could therefore still be unequal on critical, unobserved attributes associated with the potential for future violence. We also do not know what happened to the men in the comparison group after commission of a Forbidden Three act. They could have received traditional DS at a detention unit, for any amount of time, or may have received a less harsh punishment like loss of privileges. Their follow-up period begins after they are determined to be guilty of a Forbidden Three act, and so we are unaware of both the “intervention” that they receive and for how long that intervention may impact their opportunities for future violent acts. Assignment to the alternative DS program is not random, and we cannot be sure that the only difference between treatment and comparison groups is placement and graduation from the program.

The RSHP could be alternative DS on paper and traditional DS in practice. This alternative program retains many of the existing components of traditional segregation—stripping of property, long hours isolated in a small cell, and removal from the general population. By design, the program is more intensive than traditional segregation in its expectations of participants, which could produce perceptions of unfairness and resistance. Whereas a person may accept (and expect) that thirty days in segregation is the response for what they did, they may not accept (and expect) that one hundred twenty days in programming is the appropriate response for what they did. Procedural injustice therefore mingles with existing challenges of mandatory programming (see Prendergast et al., 2002), and the end result could be a defiant program graduate (Sherman, 1993). When an already resource-challenged unit experiences resistance to a new approach, it is often

easiest for staff to revert back to what is known and what is comfortable (Rothman, 1980). There ultimately may have been nothing alternative about this DS program in practice.

The program in practice, even if implemented as intended, could fall short of a truly therapeutic model of alternative DS. Smith (2016) identifies the components of segregation programs that could be expected to change the attitudes and behaviors of violent individuals. These programs would follow the well-established *principles of effective intervention* (see Smith et al., 2009), and a more rigorous assessment of the current program would include process measures that can quantify the integrity of programming delivered to participants (Latessa, 2018). The program uses cognitive-behavioral therapy delivered through a step-management approach that rewards positive behavior (Gendreau & Listwan, 2018), but we are unable to verify things like the evidence-based nature of that cognitive behavioral therapy or that the dosage received is enough to counteract years of antisocial attitudes and behaviors. Importantly, people committed Forbidden Three acts (and ended up in the treatment program) for a variety of reasons, and yet the response assumed that all these reasons were the same. Participants in a riot, where they might be punished by their own race for not joining in, sat alongside individuals in group programming who had calculated attacks on specific others. For the current RSHP, the traditional response to DS was modified to be more therapeutic (see Rubin & Reiter, 2018). A better approach might be to scrap tradition, and to build a response to violence in prison that starts with what is known about the causes of violence and what effectively modifies attitudes and behaviors.

These are all of course limitations to our work and readers should interpret our findings with a critical eye. But this is also the reality of the complexities involved with dealing with violence when someone is already incarcerated, and these are challenges for nearly every other scholar doing work in this space—whether they acknowledge it or not. Our work here determined

the impact of an alternative DS program by comparing over 300 participants to similarly-situated men not receiving treatment on multiple measures of future behavior over a full year. The program was well-thought out and well-intentioned, and the program team put in countless hours of effort beyond what is expected of them in their work. So where do we go from here? The above discussion identifies a number of implications for future research and policy, and it makes clear that both scholars and practitioners should be involved in answering critical questions related to participant selection and program delivery. Most critically, we believe the next step in this line of work is to talk to the men and women who deliver and receive alternative DS programming (see especially recommendations in the discussion of DS in Mears et al., 2019, p. 1435). Our study should be added to the existing quantitative studies on both traditional and alternative DS that find no impact on future behavior. None of these studies answer *why* that is the case.

Segregation of any sort could simply be an ineffective response to violence in prison. Segregation is prison within a prison, and there is evidence that prison in general does little to reduce future criminal behavior and may even increase it (Cid, 2009; Cullen et al., 2011; Vieraitis et al., 2007; see also Gaes & Camp, 2009). Why would we expect isolation in prison to have any different impact on future in-prison behavior? If the goals of DS are retribution and incapacitation, then they are surely accomplished through an increase in the harshness of conditions of confinement and pains experienced through imprisonment. But if a goal of DS is rehabilitation of a person who has signaled that they have a propensity for violent behavior, then there is much work to do to find a form of effective intervention. We believe that, like prison in general, people who leave DS should be no worse (and ideally better) than when they went in to ensure the safety of the prison population and the general community to which they will likely one day return. So, when someone engages in violence, and they are already incarcerated, what should we do?

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Table 1: Summary Statistics

Variable	Mean/%	SD	Minimum	Maximum
<i>Dependent Variables (Binary)</i>				
Major Violations	37.3%		0	1
Staff Assaults	3.9%		0	1
Inmate Assaults	5.3%		0	1
<i>Dependent Variables (Frequency)</i>				
Major Violations	0.698	1.307	0	14
Staff Assaults	0.057	.344	0	6
Inmate Assaults	0.057	.247	0	2
<i>Independent Variable</i>				
Program Participation	13.7%		0	1
Age	33.07	8.243	19	67
<i>Race/Ethnicity</i>				
White	22.4%		0	1
Black	15.2%		0	1
Hispanic	53.9%		0	1
Other Race/Ethnicity	8.5%		0	1
GED	51.3%		0	1
STG	50.2%		0	1
Violent Arrest	49.3%		0	1
Prior Admissions	.963	1.190	0	8
Custody Level	3.421	.885	2	5
<i>Qualifying Offense</i>				
Inmate Assault	76.6%		0	1
Staff Assault	8.2%		0	1
Group Assault	15.3%		0	1
<i>History of Violations</i>				
Lifetime Major Violations	7.101	7.582	0	96

Lifetime Inmate Assault	79.9%	0	1
Lifetime Staff Assault	19.5%	0	1
<i>Time Served</i>			
3 or less years	37.9%	0	1
3.01-6 years	35.4%	0	1
6.01-10 years	18.2%	0	1
More than 10 years	8.5%	0	1

Table 2: Results of Propensity Score Matching

Variable	Sample	Treated	Control	SBS	<i>t</i>-statistic	<i>p</i>-value
Age	Unmatched	31.817	33.274	-18.4	-2.88	.004
	Matched	32.283	31.548	9.3	1.01	.311
White	Unmatched	.107	.243	-36.2	-5.32	.000
	Matched	.154	.178	-6.4	-.66	.511
Black	Unmatched	.137	.154	-4.9	-.79	.430
	Matched	.144	.111	9.5	1.03	.304
Hispanic	Unmatched	.668	.519	30.7	4.89	.000
	Matched	.587	.577	2.0	.20	.843
Other Race	Unmatched	.088	.084	1.4	.22	.823
	Matched	.115	.135	-6.9	-.59	.554
GED	Unmatched	.521	.512	1.8	.30	.764
	Matched	.538	.553	-2.9	-.29	.768
STG	Unmatched	.645	.480	33.7	5.41	.000
	Matched	.615	.625	-2.0	-.20	.840
Violent Arrest	Unmatched	.547	.484	12.6	2.05	.041
	Matched	.524	.529	-1.0	-.10	.922
Prior Admissions	Unmatched	.984	.960	2.0	.32	.746
	Matched	.986	.918	5.6	.59	.553
Custody Level	Unmatched	3.564	3.399	19.4	3.03	.002
	Matched	3.519	3.553	-4.0	-.41	.681
Inmate Assault	Unmatched	.446	.817	-83.1	-14.92	.000
	Matched	.659	.639	4.3	.41	.682
Staff Assault	Unmatched	.205	.062	43.1	8.67	.000
	Matched	.096	.149	-15.9	-1.65	.101
Group Assault	Unmatched	.349	.122	55.5	10.52	.000
	Matched	.245	.212	8.2	.82	.415
Lifetime Major Violations	Unmatched	6.625	7.177	-8.2	-1.18	.237

	Matched	6.692	7.279	-8.7	-.98	.329
Lifetime Inmate Assault	Unmatched	.505	.846	-78.2	-14.51	.000
	Matched	.740	.760	-4.4	-.45	.652
Lifetime Staff Assault	Unmatched	.261	.184	18.4	3.14	.002
	Matched	.192	.178	3.5	.38	.706
3 or less years	Unmatched	.283	.394	-23.5	-3.72	.000
	Matched	.332	.327	1.0	.10	.917
3.01-6 years	Unmatched	.433	.341	19	3.14	.002
	Matched	.380	.365	3.0	.30	.762
6.01-10 years	Unmatched	.208	.178	7.7	1.28	.201
	Matched	.192	.245	-13.4	-1.30	.193
More than 10 years	Unmatched	.075	.087	-4.3	-.69	.492
	Matched	.096	.063	12.3	1.27	.205

Table 3: Effect of Solitary Treatment on Matched Samples using Binary Measures of Violations

Major Violations					
Matching	Treatment	Control	Difference	SE	t-statistic
1-1 without replacement	.385	.351	.034	.047	.71
1-1 with replacement	.368	.277	.091	.061	1.49
2-1	.368	.280	.088	.056	1.58
3-1	.368	.303	.065	.054	1.20
Staff Assault					
Matching	Treatment	Control	Difference	SE	t-statistic
1-1 without replacement	.038	.029	.010	.018	.54
1-1 with replacement	.033	.023	.010	.022	.44
2-1	.033	.018	.015	.020	.74
3-1	.033	.017	.015	.018	.83
Inmate Assault					
Matching	Treatment	Control	Difference	SE	t-statistic
1-1 without replacement	.077	.053	.024	.024	.99
1-1 with replacement	.072	.039	.033	.031	1.07
2-1	.072	.047	.024	.029	.86
3-1	.072	.064	.008	.027	.28

Table 4: Effect of Solitary Treatment on Matched Samples using Frequency Measures of Violations

Major Violations					
Matching	Treatment	Control	Difference	SE	t-statistic
1-1 without replacement	.577	.659	-.082	.112	-.73
1-1 with replacement	.599	.495	.104	.169	.62
2-1	.599	.485	.114	.151	.75
3-1	.599	.501	.098	.146	.67
Staff Assaults					
Matching	Treatment	Control	Difference	SE	t-statistic
1-1 without replacement	.038	.038	.000	.021	.00
1-1 with replacement	.033	.033	.000	.030	.00
2-1	.033	.029	.003	.033	.10
3-1	.033	.025	.008	.028	.27
Inmate Assaults					
Matching	Treatment	Control	Difference	SE	t-statistic
1-1 without replacement	.082	.058	.024	.027	.90
1-1 with replacement	.075	.042	.033	.034	.96
2-1	.075	.050	.024	.032	.77
3-1	.075	.066	.009	.030	.29

Figure 1: RSHP Intake Model

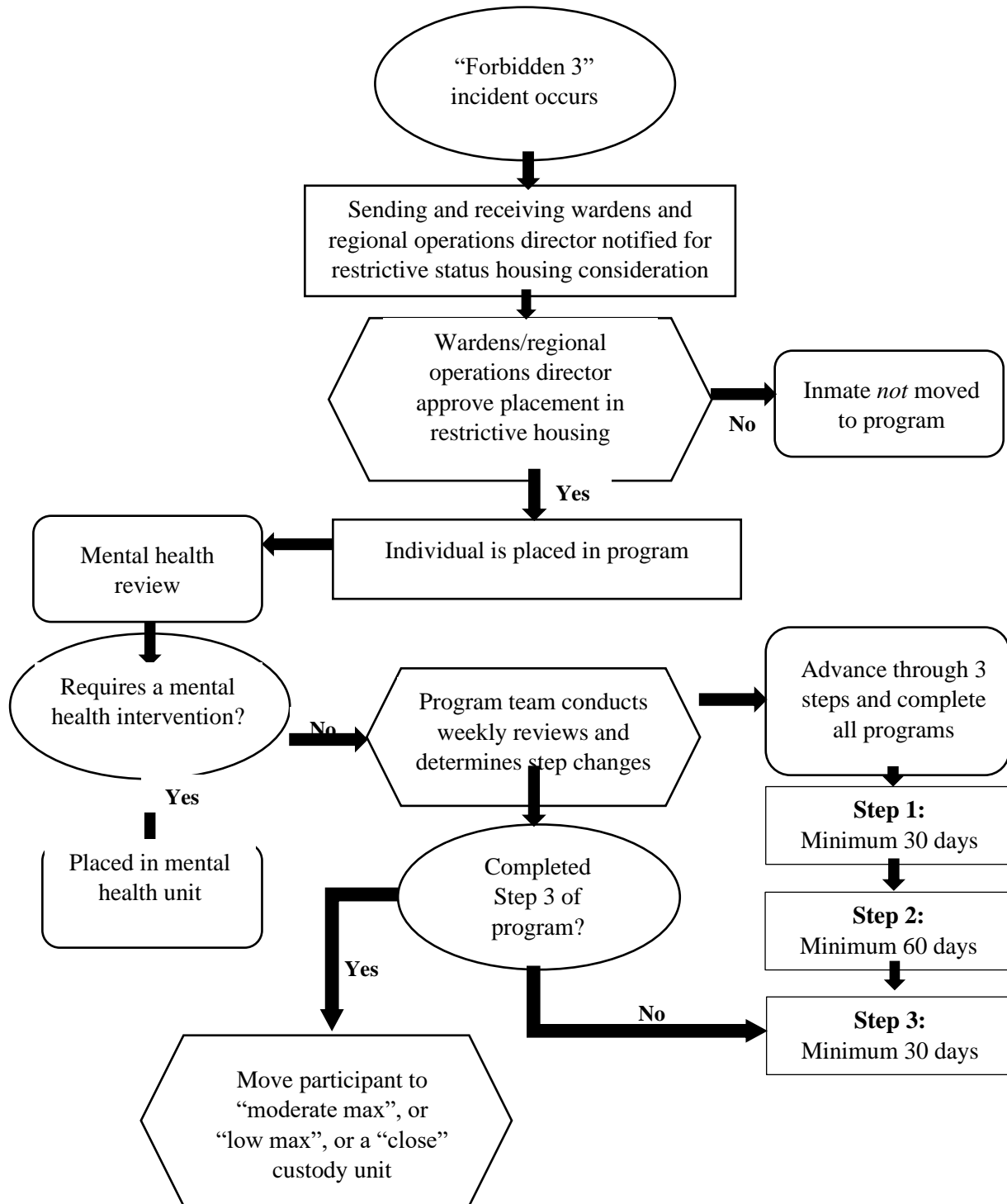


Figure 2A: Propensity Score distributions of treatment and Controls: Full Sample

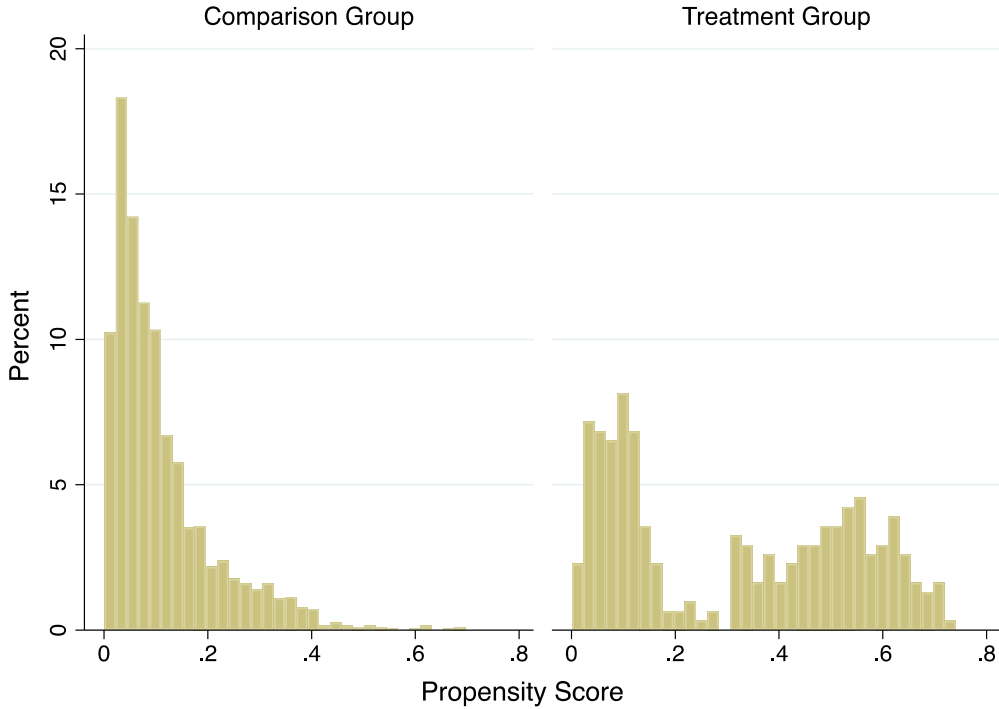


Figure 2B: Propensity Score distributions of treatment and Controls: 1:1 Nearest Neighbor Matching

