Effectiveness of the Certified Peer Specialist Program in Wisconsin Prisons

By

Shelby Kottke-Weaver

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

(Psychology)

at the

UNIVERSITY OF WISCONSIN – MADISON

2023

Date of final oral examination: 7/11/2023
The dissertation is approved by the following members of the Final Oral Committee:

Michael Koenigs, Professor, Psychology
Kate Walsh, Professor, Psychology
James Li, Professor, Psychology
Cecelia Klingele, Professor, Law

ACKNOWLEDGMENTS

ABSTRACT

Mental health disorders are common among individuals incarcerated in prison and are associated with a host of negative outcomes both during and after incarceration. Unfortunately, the prison environment involves unique challenges for traditional mental healthcare (e.g., distrust, limited autonomy over treatment), which can prevent individuals from accessing care. Additionally, staff shortages and competing responsibilities make it so the Wisconsin Department of Corrections (DOC) is unable to offer mental healthcare to every individual in need. To address this widespread need for mental health services and challenges with traditional mental healthcare, the Wisconsin DOC implemented the Certified Peer Specialist (CPS) Program, which trains incarcerated individuals with mental health difficulties, substance use disorders, and/or a history of trauma to provide support to their peers. Limited research suggests positive effects of peer support in the US, but mainly anecdotal reports are available and suggest positive effects in carceral settings. The purpose of this dissertation was to 1) evaluate the effectiveness of the CPS program at improving critical DOC-defined outcomes (conduct reports, clinical observation placements, rate of recidivism) for individuals who participated compared to those who did not, and 2) evaluate whether there were facility-wide positive effects of the CPS program (e.g., overall reductions in restrictive housing placements, clinical observation placements, or conduct reports). Because participation in the CPS Program was not randomized, quasi-experimental methods (i.e., Propensity Score Matching, Time Series analysis) were used to estimate the effects of the program. Aim 1 analyses revealed that CPS Program participation was associated with reductions in major conduct reports and rates of recidivism, and for individuals involved in the CPS Program, attending more sessions with a CPS Provider was associated with fewer total and major conduct reports. Aim 2 analyses revealed facility-wide reductions in

restrictive housing placements at three facilities, but facility-wide impacts on clinical observation placements were mixed. These results suggest overall positive effects of the CPS Program for individuals who receive peer services and have far-reaching policy implications for the use of peer support in carceral settings.

TABLE OF CONTENTS

CHAPTER 1. GENERAL INTRODUCTION

There Is an Urgent Need for Mental Healthcare among Incarcerated Individuals

Among the approximately 20,000 individuals incarcerated in Wisconsin state prisons (over 19,000 males and 1,200 females), rates of mental health disorders are disproportionately higher than among individuals in the outside community (Wisconsin Department of Corrections, 2022). Based on Wisconsin Department of Correction (DOC) reporting, 41% of incarcerated males and 89% of incarcerated females have a mental health condition (Wisconsin Department of Corrections, 2022). Of those with mental health conditions, approximately 7% of males and 34% of females have a serious mental health disorder (i.e., bipolar disorder, psychotic disorder, personality disorder, or severe depression) (Wisconsin Department of Corrections, 2022). According to the University of Wisconsin – Madison Population Health Institute, approximately 56% of incarcerated adults meet criteria for a substance use disorder (Vigna & Connor, 2020). These disproportionately high rates of mental health disorders among incarcerated individuals are not unique to Wisconsin; according to national statistics, more than half of those incarcerated in state prisons and nearly two-thirds of those incarcerated in jails meet criteria for a substance use disorder (Bronson et al., 2017). Research also suggests that a high proportion of incarcerated people have experienced some form of trauma during their lives, and at relatively early ages. One study found that as many as 96% of males and 98% of females had experienced some form of trauma, and physical and sexual assault were more commonly experienced than among community members (Green et al., 2005; Gunter et al., 2012; Neller et al., 2006). Up to approximately 20% of community members experienced abuse before the age of 18, but up to nearly 60% of incarcerated males and 80% of incarcerated females experienced abuse before age 18 (Gunter et al., 2012; Scher et al., 2004).

While incarcerated, individuals with mental health symptoms are more likely to be victimized, creating a cycle of violence and further exacerbating mental health symptoms (Blitz et al., 2008; Wolff et al., 2009). Additionally, incarcerated individuals with mental health conditions show more difficulty adjusting to prison; they show higher rates of disciplinary problems, rule violations and physical assaults, and are more likely to receive severe disciplinary responses (including segregation) for minor rule violations than those without mental health conditions (Clark, 2018; Ditton, 1999; Felson et al., 2012; Houser & Belenko, 2015). Following incarceration, individuals with a history of trauma exposure or mental health conditions are at higher risk of substance use relapse (Kubiak, 2004), increased risk for violence perpetration (Baillargeon et al., 2010; Castillo & Fiftal Alarid, 2011), increased risk for recidivism (Baillargeon et al., 2009; Wallace & Wang, 2020), and return to prison faster than those without a mental health condition (Cloyes et al., 2010).

The high rates of mental health conditions for incarcerated individuals are likely due in part to difficulty adjusting to the prison environment. Prisons are unpredictable environments in which people have very little control over their daily lives and decisions. For newly incarcerated individuals, incarceration comes with new rules, a new environment, and new people (including facility staff and co-residents) to whom they must adjust. "Well-adjusted" incarcerated individuals are expected to follow institutional rules, desist from violence and aggression, and engage in programming. However, this adjustment is difficult for many, and "maladjusted" individuals often show violence, aggression, withdrawal and various other internalizing symptoms (De Viggiani, 2007; Rogers et al., 2022). Lack of autonomy and the unpredictability of the prison setting also increases feelings of distress, anxiety, depression, and hopelessness (Goomany & Dickinson, 2015; Nurse et al., 2003; Quandt & Jones, 2021).

Moreover, people in prison are cut-off from their family and friends in the community (Quandt & Jones, 2021), removing them from their most crucial social support systems. Multiple studies have reported that separation from family and friends is one of the most difficult aspects of prison life to deal with (Goomany & Dickinson, 2015; Nurse et al., 2003), and among women in prison, separation from children leads to additional feelings of guilt and distress (Lindquist & Lindquist, 1997; Poehlmann, 2005; Quandt & Jones, 2021). Social isolation is reported as a key factor in self-harm among incarcerated people (Kaba et al., 2014), and women who reported inadequate social support had greater symptoms of depression, hopelessness, and lower self-esteem (Asberg & Renk, 2014). While visitation from family or friends may reduce the strain of social isolation, it is impossible to recreate the social bonds a person would have outside of prison (Cochran & Mears, 2013). Promising research shows that increased social support while incarcerated is related to less physical/verbal aggression, reduced anger and hostility, and less instances of violence (Jordaan & Hesselink, 2022; Rocheleau, 2015), highlighting social support as a critical need for individuals in prison.

Mental Health Services in Prison are Unable to Meet These Needs

Much research has been dedicated to understanding whether mental health treatment during incarceration can improve behavior and attitudes during incarceration or reduce a person's likelihood for recidivism after release. A review conducted by French & Gendreau (2006) evaluated the effectiveness of various behavioral and non-behavioral treatment programs at reducing instances of prison misconduct. They found that behavioral programs (e.g., cognitive behavioral treatment (CBT)) had the largest effect at reducing misconduct during incarceration (French & Gendreau, 2006). Dialectical behavioral therapy (DBT), which focuses on emotion regulation and distress tolerance, among other skills, has also shown promising results at

improving mental health and behavior for people in prisons. Participation in DBT was associated with reductions in anger, violence, and uses of force (by correctional officers) during incarceration (Evershed et al., 2003; Shelton et al., 2009; Trupin et al., 2002) and was associated with reductions in recidivism after release (Nyamathi et al., 2018). In addition to traditional mental health treatment, more positive coping skills, such as getting support from others and venting emotions, were associated with fewer instances of serious misconduct in prison (Rocheleau, 2014).

Across many DOC facilities, cognitive behavioral programming, domestic violence counseling, substance use disorder treatment, anger management, various trauma-focused group treatments, and other programs and services are being offered (Office of Program Services Research and Policy Unit, 2022; Wisconsin Department of Corrections, 2022). These programs show varying degrees of effectiveness at reducing recidivism (rearrest, reincarceration, or reconviction after release) (Office of Program Services Research and Policy Unit, 2022), although no data was available on the efficacy of these programs at reducing symptoms of mental health disorders. Some facilities offer programs aimed at reducing symptoms of mental health disorders or trauma reactions, but these programs vary widely across institutions and are dependent on staffing availability (McDermott & Cooper, 2021).

Even with increased programming in recent years, the mental health services currently available in Wisconsin adult prisons are unable to meet the needs of the many people who need services. Per DOC policy, the Psychology Services Unit (PSU) is responsible for 25 competing responsibilities (Division of Adult Institutions, 2021). The first priorities are crisis intervention, urgent referrals, and other immediate requests. Conducting group therapy and supervising/leading programs are specifically listed as the 23rd and 25th priorities for the PSU,

respectively (Division of Adult Institutions, 2021). Made worse by the COVID-19 pandemic, understaffing in PSUs is a severe problem. In June 2023, PSUs across the DOC were 26.7% understaffed on average (Bureau of Budget & Facilities Management, n.d.). This has led to reduced programming and mental health treatment opportunities as facilities attempt to cope with the immediate needs of the population.

In addition to staff shortages, many other barriers make traditional mental healthcare difficult in the prison setting. Research shows that the quality of the therapeutic alliance predicts clinical outcomes, regardless of the type of psychotherapy used or outcomes assessed (i.e., better therapeutic alliance predicts better clinical outcomes) (Tschuschke et al., 2020). In the prison setting, therapeutic alliance is limited by distrust or perceived disrespect between staff and incarcerated people or a lack of privacy (Bright et al., 2022; Canada et al., 2022). Moreover, incarcerated individuals may be hesitant to seek treatment due to stigma regarding mental health disorders, privacy and confidentiality concerns, lack of autonomy over treatment decisions, variability in access to mental health services across institutions, and perceiving institution staff as "gatekeepers" to services (Bowen et al., 2009; Canada et al., 2022; Plugge et al., 2008). For those who do engage in treatment, they may be hesitant to disclose personal information to prison staff, limiting the effectiveness of traditional therapy. For example, one individual reported "Counseling did not alter my mood one way or the other. I did not feel comfortable enough to divulge any information because you never know what they may put in your records" (Ring & Gill, 2017, p. 17).

There are Additional Barriers to Mental Health Treatment in Prison

Aside from barriers specific to the prison setting, additional barriers apply for many individuals who are incarcerated. Black individuals are overrepresented in prisons across the

United States (Sabol & Johnson, 2022), and in the Wisconsin Department of Corrections, Black

individuals make up approximately 40% of the prison population compared to only 7% of the

community population (U.S. Census Bureau, 2021; Wisconsin Department of Corrections,

2022). In contrast, approximately 87% of Wisconsin DOC staff were White and 5% were Black

in 2020 (Wisconsin Department of Corrections: Bureau of Human Resources, 2020). One study

found that Black and Latinx individuals are less likely to access mental healthcare compared to

White individuals in prison (Steadman et al., 1991), and another found that both Black and

Latinx individuals reported inadequate cultural competence in the delivery of mental health

services across the criminal justice system (Primm et al., 2005). However, research on the

utilization of mental healthcare by specific cultural and ethnic groups while incarcerated is

lacking.

Outside of the carceral system, Black and Latinx individuals have less access to mental

healthcare, are less likely to utilize mental healthcare, show significant disparities in health care

expenditures, and report less adequate care when they do access mental healthcare (Alegría et al.,

2008; Lê Cook et al., 2010, 2014, 2017). These disparities are largely seen in the initiation of

care, meaning Black and Latinx individuals are less likely to reach their first mental healthcare

visit and less likely to fill their first medication prescription (Lê Cook et al., 2010). These

disparities in care are for numerous reasons, such as concerns over stigma, cost of treatment,

poor therapeutic alliance, minimization of mental healthcare needs, not believing treatment will

be effective, and are driven by historical abuses, mistrust or fears of mistreatment by

professionals in health care (Alang, 2019; Fripp & Carlson, 2017; Ojelade et al., 2011). Research

has found that a large percentage of racial and cultural minority groups (more than 50%) report

experiencing microaggressions from their therapists, even when those therapists are from racial

or ethnic minority groups as well (Owen et al., 2014), and perceived discrimination is associated

with poorer mental health outcomes (Pascoe & Smart Richman, 2009).

In prisons, these disparities may be even more pronounced. Stigma surrounding mental

health and a heightened sense of vulnerability likely make it difficult for individuals to seek

mental health care. Cultural and ethnic differences between providers of mental health care and

the individuals who seek care in prison likely exacerbate these fears, especially when considering

the high rates of microaggressions experienced during therapy by racial and cultural minorities

and constant concerns over security of information while in prison. When mental health

providers do not share a similar background or identity, it may be even more difficult for

incarcerated individuals to form a therapeutic alliance or trust the care they are receiving will be

beneficial, leading to a serious unmet need for mental healthcare among these individuals.

Peer-Led Programming Provides a Potential Solution to Treatment Barriers

Due to this combination of challenges (i.e., high number of residents needing care,

variety of responsibilities that PSUs must manage, staff shortages, barriers to therapeutic

alliance, concerns over confidentiality), additional methods to address mental health needs have

been explored within the Wisconsin DOC. Peer support has emerged as a promising option to

address these challenges. Peer support services do not fall under the traditional "medical model"

of mental health care, but instead are built on a foundation of shared experience and trust. A

contemporary definition of peer support is "social and/or emotional support that combines

expertise from lived experience that is delivered with mutual agreement by persons who self-

identify as having or had mental health as well as other social, psychological, and medical

challenges to bring about self-determined personal change to the service user" (Fortuna et al.,

2022). Typically, providers of peer support are individuals who are successfully managing their

mental health and substance use needs (e.g., have been sober for a number of years) and are often

referred to as "peer specialists," "peer support specialists," "peer navigators," or "consumer-

providers" in the literature (*Certified Peer Specialist*, n.d.; Fortuna et al., 2022). For the

purposes of this project, these individuals will be referred to as "peer specialists."

Depending on the agency in which a peer specialist operates, they can have a wide

variety of competencies and goals (Legere & Davidow, n.d.; Solomon, 2004). Commonly, these

competencies fall into three categories. The first, "one-on-one peer support," includes knowledge

of the peer support principles, self-determination, and empathic listening. The second, "being a

change agent," includes having knowledge of recovery approaches and relevant literature, being

focused on hope and recovery, and having knowledge and the ability to carry out conflict

resolution. The third, working from a stance of being "in" but not "of" the system, may be

especially relevant for incarcerated individuals. This involves knowledge and application of the

peer support code of ethics, knowledge of trauma-informed and trauma-sensitive approaches,

knowing how to identify power dynamics, and knowledge of human experience recovery

language (*Certified Peer Specialist*, n.d.; Legere & Davidow, n.d.).

Peer support services in mental and behavioral healthcare have been utilized for decades,

but research investigating the effectiveness of peer support services remains limited. Starting in

early adolescence, the influence of peers on an individual's behavior becomes critical

(Brechwald & Prinstein, 2011; Brier, 1995; Dubow et al., 2001). While much research has

established the potential negative effects of peer influence, peers can have positive influences as

well (Brier, 1995; Butman, 2009; Dubow et al., 2001; Huefner et al., 2018; Lee & Thompson,

2009), and recent research has found that positive peer influences can reduce problem behavior

for youth in group homes (Huefner et al., 2018). Other research has focused on the influence of

deviant peers on youth's behavior, and while there is a clear potential for negative outcomes (Dishion et al., 1999; Dubow et al., 2001), research suggests that deviant peers may not exert an insurmountable influence on a youth's behavior (Lee & Thompson, 2009). One study found that there was no relationship between exposure to deviant peers and a person's own externalizing behavior, especially when the majority of peers were not deviant (Huefner et al., 2018; Lee & Thompson, 2009). These results have important implications for the prison environment. If it is true that the number of peers engaging in deviant behavior (e.g., less than half) in a space (e.g., a group home or prison housing unit) directly impacts a person's likelihood to engage in deviant behavior, then reducing the number of deviant acts in a space should cause more and more individuals to desist from deviant behaviors.

Among adults, research investigating peer support services has shown reduced re-hospitalizations (Min et al., 2007), decreased substance use (Reif et al., 2014; Rowe et al., 2007), reduced substance relapse (Boisvert et al., 2008), and reduced number of homeless days (van Vugt et al., 2012) when a peer specialists was involved with a client's care, and other studies have shown similar improvements in self-esteem, depressive symptoms, and general well-being compared to traditional mental health services (Davidson et al., 2004). However, other studies have found no differences between peer led services and traditional mental health services, especially when considering clinical outcomes (Chinman et al., 2000; Pitt et al., 2013; Rivera et al., 2007; Sells et al., 2006; Solomon & Draine, 1995). Two meta-analyses suggest that peer support has positive effects on recovery and empowerment but shows no significant differences from traditional mental health services in reducing days hospitalized, psychiatric symptoms, or increasing quality of life (Lloyd-Evans et al., 2014; White et al., 2020). However, many believe that null results (i.e., no differences in peer-led services compared to traditional mental health

services) are actually a positive sign; peer-led services may work just as well as traditional

mental health services, so could be used in combination with or instead of these services on some

occasions. Meta-analyses and reviews of the peer support literature commonly cite limitations in

the quality of the extant data, including failure to define and describe the "peers" within a study,

small sample sizes, or heterogeneity in the peer delivered services and difficulties distinguishing

peer contributions to the peer programming (Bagnall et al., 2015; Chinman et al., 2014; White et

al., 2020). Despite the limitations of this developing literature, many states (including

Wisconsin) now allow peer support services to be reimbursed through Medicaid benefits,

increasing their accessibility (Medicaid and CHIP Payment and Access Commission

(MACPAC), 2022).

      Peer-delivered services may also be especially beneficial for people belonging to racial

groups that suffer additional stigma compared to White individuals. Peer support can validate

feelings of oppression and marginalization in ways that traditional mental healthcare might not,

especially when peers share common experiences as well as a common background (Faulkner &

Basset, 2012; Repper et al., 2013). Research suggests that Black students typically rely on

informal networks of support to deal with distress instead of formal counseling (Grier-Reed,

2013), and although this support does not always follow the formal peer specialist model,

stronger peer support has shown some protective factors against depression in those who

experienced trauma as a child (Brinker & Cheruvu, 2016; Juang et al., 2016). Among Veterans,

the stigma surrounding mental health conditions and receiving mental health care was a

significant barrier to initiating treatment (Greden et al., 2010). However, having another Veteran

involved in care for peer support resulted in increased utilization of mental health services

(Greden et al., 2010), suggesting that having peer support may reduce some of the stigma

surrounding these services. Similarly, for Black and Latinx youth in California, having access to more peer specialist programs was associated with increased utilization of outpatient mental health services (Ojeda et al., 2021).

Unfortunately, the data regarding efficacy of peer-delivered services is more limited for incarcerated populations. One review from 2015 found only three studies that investigated peer-support services or peer services aimed at mental health or behavioral outcomes for incarcerated populations in the United States (Goldstein et al., 2009; Junker et al., 2005; Walrath, 2001; for a review see Bagnall et al., 2015). One study from 2019 found that participants of a peer-support program in Pennsylvania jails stayed in the community longer after their release compared to national averages, however, this study did not include a direct comparison to individuals in Pennsylvania released during the same time period (Bellamy et al., 2019). Another found that increased social support while incarcerated resulted in a reduced likelihood for institutional misconduct, although this was not specific to peer-delivered mental health services (Gonçalves et al., 2014). Various carceral institutions across the country have employed different forms of peer support services. For example, Western Tennessee State Penitentiary utilizes incarcerated certified peer recovery specialists in their mental health and substance use treatment programs (McCrary et al., 2022). Similarly, the Vermont Department of Corrections employs trained peer recovery coaches to conduct group and one-on-one mentoring sessions (McCrary et al., 2022). The Pennsylvania Department of Corrections, which provided the framework for the CPS Program in Wisconsin, anecdotally reported reduced institutional rule infractions, reduced use of restrictive housing and improved staff/peer communication and professional relationships as a product of their CPS program (McCrary et al., 2022). Although anecdotal evidence suggests that peer support reduces conduct reports and placements in restrictive housing and fosters better

relationships between institutional staff and residents, few research studies have rigorously evaluated these outcomes (Patrone, 2020; Walrath, 2001), and an evaluation of the Pennsylvania DOC CPS program is currently listed as "in progress or under consideration" (Bucklen et al., 2022).

More research regarding peer support services for individuals involved in the criminal legal system focuses on services offered after release (Barrenger et al., 2018; Goldstein et al., 2009; Marlow et al., 2015; Ray et al., 2021). These studies find that individuals released from prison who engaged with a peer support program showed high rates of abstinence from substances, were able to find stable housing, followed mental health treatment programming, and self-reported improvements to mental and physical health (Goldstein et al., 2009; Marlow et al., 2015; Ray et al., 2021). A recent qualitative study from 2021 detailed the accounts of youth who had committed a crime and were receiving peer support services from older individuals who had also been involved in the criminal legal system (Lenkens et al., 2021). This study found that a shared experience with incarceration (especially "the loss of freedom and autonomy") was foundational to the peer-to-peer relationship (Lenkens et al., 2021). However, no mental health outcomes were assessed as part of this study.

Because many peer support services are implemented and used in different ways, the key factors driving benefits of the programs remain to be fully elucidated. Some studies have proposed disclosure (Marino et al., 2016), being a role model, using experiential knowledge, and building relationships based on empathy and trust as critical aspects (Davidson et al., 2012; Gillard et al., 2015). Across studies, the idea of social support, built on social learning, social comparison, and self-determination theory, is often cited as a key driver of peer support benefits. These theories posit that peers may be more credible role models to others with the same lived

experiences because people, in general, are drawn to others that share commonalities (Solomon, 2004). Self-determination theory also suggests that individuals may be more motivated towards recovery when they feel a sense of autonomy, self-sufficiency, competence, and connectedness to others (Fortuna et al., 2022; Ryan & Deci, 2000). This idea may be especially important among incarcerated people, who are subject to some of the harshest social stigmas. Peer specialists with lived criminal justice involvement reported being able to share their experiences with incarceration and the criminal legal system was foundational to their ability to help peers who also had criminal justice histories (Barrenger et al., 2018), and similar insights were reported from legal system involved youth receiving peer support (Lenkens et al., 2021).

Summary and Study Aims

The mental health treatment programs of state prison systems, including Wisconsin, cannot meet the needs of all incarcerated individuals. People in prison report feeling socially isolated and suffer from higher rates of nearly all mental health disorders than individuals in the community. Unfortunately, traditional mental healthcare faces unique challenges within the prison system, especially regarding limitations of staff availability and the difficult trust dynamics between facility staff who provide mental health services and incarcerated people who need those services. Because of these challenges, it is possible that peer support programs may fill a critical gap in mental health programming for state prison systems by providing support services to those who need them, increasing feelings of social support, and addressing feelings of discrimination or marginalization that can only be understood by people who have been involved in the criminal legal system. However, the effectiveness of these peer support programs must be understood in order to best meet the needs of those engaging with them. The purpose of this

study is to conduct a Program Evaluation of the Certified Peer Specialist (CPS) Program in Wisconsin State correctional institutions.

This Program Evaluation has two overall aims.

1) **Evaluating the effectiveness of the CPS Program at reducing negative institutional outcomes for incarcerated individuals.** The first aim is to compare institutional behavior (e.g., conduct reports, placements in clinical observation) and recidivism for incarcerated individuals who participated in the CPS Program (i.e., CPS Clients) versus those who did not. Then, the relationship between the number of sessions with a Certified Peer Specialist (i.e., CPS Provider) and each outcome (conduct reports, placements in clinical observation, recidivism) will be explored for only CPS Clients. I hypothesized that CPS Clients would have less negative institutional behavior and lower rates of recidivism compared to matched individuals who did not receive peer support services, and for CPS Clients, more sessions with a CPS Provider would be related to fewer instances of conduct reports and placements in clinical observation as well as lower risk for recidivism after release. Building on prior literature suggesting peer support may be more impactful for different racial groups, the impact of the CPS Program will also be evaluated for Black versus non-Black incarcerated individuals.

2) **Characterizing the facility-wide impact of the CPS Program.** The second aim is to determine whether there were widespread positive impacts of the CPS program in each correctional facility. Anecdotal reports from various prisons across the country have noted overall better relationships between staff and incarcerated individuals, more buy-in from correctional officers as they see the positive impacts of the CPS program, and fewer negative confrontations between staff and residents. I hypothesized that the start of the CPS program

would result in a reduction in the overall number of institutional outcomes (e.g., placements

in clinical observation, placements in restrictive housing) at each facility where the CPS

program is operating, compared to levels before the implementation of the CPS program

CHAPTER 2. GENERAL METHODS

All data for this Program Evaluation were provided by the Wisconsin DOC – Research and Policy Unit. Data sharing was agreed to by the University of Wisconsin – Madison and The Wisconsin DOC with a Business Associate Agreement and Data Use Agreement. Information about CPS Providers and CPS Clients was included from twenty-five institutions. The DOC provided additional data regarding various institutional outcomes (described below) for all CPS Providers and CPS Clients, as well as individuals incarcerated at the same institutions who did not participate in the CPS program. Because the data for these analyses were provided by the Wisconsin DOC for the purposes of a Program Evaluation of the CPS Program, individuals did not provide written consent. The University of Wisconsin Institutional Review Board reviewed the nature of these analyses and determined that informed consent was not necessary for the purposes of this Program Evaluation.

Institutions Providing Data:

1. Black River Correctional Center (BRCC)
2. Chippewa Valley Correctional Treatment Facility (CVTF)
3. Columbia Correctional Institution (CCI)
4. Dodge Correctional Institution (DCI)
5. Drug Abuse Correctional Center (DACC)
6. Fox Lake Correctional Institution (FLCI)
7. Green Bay Correctional Institution (GBCI)
8. Jackson Correctional Institution (JCI)
9. Kettle Moraine Correctional Institution (KMCI)
10. Milwaukee Secure Detention Facility (MSDF)
11. Milwaukee Women's Correctional Center (MWCC)
12. New Lisbon Correctional Institution (NLCI)
13. Oakhill Correctional Institution (OCI)
14. Oshkosh Correctional Institution (OSCI)
15. Racine Correctional Institution (RCI)
16. Redgranite Correctional Institution (RGCI)
17. Robert E. Ellsworth Correctional Center (REECC)
18. St. Croix Correctional Center (SCCC)
19. Stanley Correctional Institution (SCI)
20. Sturtevant Transitional Facility (STF)

21. Taycheedah Correctional Institution (TCI)
22. Waupun Correctional Institution (WCI)
23. Wisconsin Resource Center (WRC) & Wisconsin Women's Resource Center (WWRC)
24. Wisconsin Secure Program Facility (WSPF)

Wisconsin Department of Corrections Certified Peer Specialist (CPS) Program

In Wisconsin, peer specialists are individuals who have lived experience with mental health difficulties, substance use disorders, or exposure to trauma and who support and encourage their peers towards their wellness goals. Peer Specialists model prosocial communication and skills and are trained to help their peers use positive coping skills and decision-making. After they have completed a 40-hour formal training course and passed the certification exam (created in partnership by the Wisconsin Department of Health Services (DHS), Access to Independence, Inc, and the UW-Milwaukee School of Continuing Education), individuals can become CPS Providers. The first CPS Providers passed their exams in early 2010, and by the end of 2010 there were approximately 100 across the State of Wisconsin (*Wisconsin Peer Specialists: About Us*, n.d.). CPS Providers in Wisconsin must adhere to a clear Scope of Practice and abide by a list of Core Competencies and Code of Ethics (*Certified Peer Specialist*, n.d.). Core Competencies are divided into four domains: Values, In-depth knowledge of recovery, Roles and Responsibilities of a CPS, and Skills. Currently, CPS Providers in Wisconsin are employed in dozens of departments across the state, including inpatient and outpatient settings and the Wisconsin DOC.

The Wisconsin CPS Program (*Certified Peer Specialist*, n.d.) was introduced in the Wisconsin DOC in April 2017 at WSPF. At that time, eight incarcerated people from OSCI and ten from WSPF completed an intensive, week-long training program and began working as Peer Specialists. To be certified as a CPS Provider in the Wisconsin DOC, individuals must meet the following criteria:

1. General population status
2. Lived experience with mental health difficulties, a substance use disorder, or exposure to trauma
3. GED or High School diploma unless a waiver in accordance with DAI Policy 309.55.04 has been approved.
4. Positive work and institution adjustment.
5. No findings of guilt on a major conduct report for at least one year.
6. No findings of guilt on a conduct report for an assaultive offense for at least two years (five years for staff assault, solicitation of staff, any sexually-related or any drug related offense).
7. Completion of program needs or no refusal of identified primary program needs.
8. No suicide attempts or self-injurious behavior in the past year.
9. Clearance by the facility STG coordinator.
10. Clearance by Security, HSU and PSU staff.
11. More than two years remaining before release.

Once selected, individuals attend a 48-hour training program administered by DHS staff or DHS approved trainers. Then, all individuals are eligible to complete the State of Wisconsin CPS exam. To be certified by the Wisconsin DHS, individuals must pass with a score of 85% or greater. If an individual does not pass the CPS exam, they are still able to operate as a Peer Specialist within their institution as long as they have completed the 48-hour training. In addition to following the Wisconsin CPS Code of Ethics, CPS Providers within the Wisconsin DOC have a variety of roles and expectations. According to DAI Policy #309.70.01, Certified and uncertified Peer Specialist Roles include:

1. Approaching peers as equals.
2. Maintaining appropriate boundaries (as outlined in the WI CPS Code of Ethics).
3. Attempting to understand the difficulties and concerns of peers through active listening.
4. Providing positive encouragement and support; assist peers to identify and use their strengths.
5. Teaching skills such as communication and conflict resolution.
6. Assisting peers with the identification of goals and steps to accomplish these.
7. Demonstrating and modeling coping skills in a way that inspires peers and helps to maintain a positive environment within the facility.
8. Sharing personal experience as appropriate to assist peers in changing negative patterns and behaviors.
9. Notify staff of immediate concerns related to psychological, health or security.

Expectations include:

1. Meeting with peers as scheduled by the Facility CPS Coordinator to provide peer specialist services.
2. Wearing a CPS identification pass next to the inmate ID whenever performing CPS services.
3. Completing a DOC-2874A by the end of each workday and turning into the Facility CPS Coordinator as directed.
4. Participating in Facility PSOC meetings when required.
5. Participating in recertification training, when offered, involving 20 hours of continued training every 2 years.
6. Keeping information from contacts with peers confidential, except as noted below.
7. Immediately reporting to any staff member thoughts, intent or plans of peers to engage in any of the following:
   a. Self-harm or suicide.
   b. Assault or harm to others.
   c. Any threats to safety or security of facility.
   d. Manufacture of weapons.
8. Submitting to random personal searches, in accordance with DAI Policy 306.17.02

To provide oversight of the CPS program there is a DOC Peer Specialist Oversight Committee (PSOC), with members appointed by the Wisconsin DOC Secretary's office. These members include the CPS Director(s), the Mental Health Director, a Department of Community Corrections Regional Chief (or designee), a DAI Administrator (or designee), the Wisconsin Resource Center Director (or designee), and other members. One member is designated as Chairperson of the PSOC. The PSOC also manages policy and program development related to the CPS program and coordinates the training of new and recertification of existing CPS Providers.

Participation in the CPS Program is voluntary; any person incarcerated at a facility operating the CPS Program can request peer services by submitting a request form. There are no *a priori* exclusion criteria from receiving peer services, although the Facility PSOC can suspend or remove an individual from the program if they believe services are being misused. Individuals receiving peer services can withdraw from participation at any time.

Measures

Institutional Outcomes

Clinical Observation Placements. While incarcerated, individuals can be placed under Clinical Observation if they are at risk of harming themselves or if they are in an acute mental health episode. For Aim 1, the start and end dates of each Clinical Observation placements for each individual were provided by the DOC. For Aim 2, the monthly total of Clinical Observation placements at each institution was provided.

Conduct Reports. Conduct Reports are institutional infractions (e.g., assault, disobeying orders, disruptive conduct) committed by an individual during their incarceration. For Aim 1, the date of each CR, a description of the infraction, and a classification of the Conduct Report (Major, Minor, Undecided) was provided for each individual. Major Conduct Reports consisted of infractions such as assault, sexual assault, or theft, while Minor Conduct Reports consisted of infractions such as having a dirty assigned area, leaving an assigned area, loitering, or inadequate work or school performance. For Aim 2, the monthly total of Conduct Reports at each institution was provided.

Recidivism. Recidivism is defined by the Wisconsin Department of Corrections as a new criminal conviction after release from prison. Arrests that did not result in a new conviction, or extended supervision violations resulting in a return to prison are not classified as recidivism events (unless the violation led to new criminal charges). For Aim 1, Recidivism data was provided for all eligible individuals (i.e., those who were released before were provided to the research team). Recidivism was not evaluated for Aim 2.

Restrictive Housing (RH) Placements. RH placements, including disciplinary segregation and administrative confinement data, was requested for program evaluation analyses.

Individual level data was unavailable at the time of this project and could not be analyzed. For

Aim 2, the number of RH placements each month at each facility was provided.

Use of Force. Information was requested evaluating the number of instances between

correctional officers and an incarcerated individual where force was used. Unfortunately, this

data was unavailable and could not be provided for this project.

CHAPTER 3. AIM 1: EVALUATING THE EFFECTIVENESS OF THE CERTIFIED PEER SPECIALIST PROGRAM AT REDUCING NEGATIVE INSTITUTIONAL OUTCOMES FOR INCARCERATED INDIVIDUALS

Introduction

A wealth of research has shown that individuals who are incarcerated have extremely high rates of mental health disorders and report feelings of social isolation, depression, distress, anxiety and hopelessness associated with the prison environment (Goomany & Dickinson, 2015; Nurse et al., 2003; Quandt & Jones, 2021; Wisconsin Department of Corrections, 2022). Those with mental health disorders have a more difficult time adjusting to the prison environment, often showing higher rates of misconduct while incarcerated and suffering harsher consequences (e.g., segregation) for rule infractions (Clark, 2018; Ditton, 1999; Felson et al., 2012; Houser & Belenko, 2015). In general, poor adjustment to the prison environment is associated with higher rates of violence, aggression, anger and withdrawal (De Viggiani, 2007; Rogers et al., 2022), and people in prisons report being cut-off from their support systems outside of prison is one of the most difficult adjustments to handle (Goomany & Dickinson, 2015; Nurse et al., 2003). This literature highlights the critical importance of mental health treatment and increased social support for individuals who are incarcerated to improve institutional adjustment and reduce instances of violence and misconduct.

The CPS Program aims to fill a critical gap in the availability of mental health services in prison by offering one-on-one peer support from individuals who are successfully managing their mental health needs to individuals who are in need of support. Promising research has found that increasing social support while in prison can reduce instances of aggression and violence feelings of anger or hostility (Jordaan & Hesselink, 2022; Rocheleau, 2015). Additionally, more positive coping skills, such as getting support from others and venting emotions, have been

associated with fewer instances of serious misconduct for people in prison (Rocheleau, 2014).

Critically, increasing positive social support and using positive coping skills are two core goals

of the Certified Peer Specialist Program (DAI Policy #309.70.01. Certified Peer Specialists,

2020). For individuals released from prison living in the community, engaging with a peer who

has experienced incarceration was critical to the peer-to-peer relationship (Lenkens et al., 2021).

Additionally, this program may be uniquely beneficial for individuals from different racial

backgrounds, such as Black individuals, where peer support may help validate feelings of

marginalization and reduce stigma surrounding traditional mental health services offered in the

institution (Faulkner & Basset, 2012; Ojeda et al., 2021; Repper et al., 2013), especially given

the low number of Black Wisconsin DOC employees. Nonetheless, individuals in prison suffer

from some of the highest rates of mental health disorders and face some of the harshest stigma

surrounding their circumstances, leaving a critical gap in services that the CPS program may be

able to address.

  This study investigated the effectiveness of the CPS program for individuals who receive

support services from a CPS (i.e., CPS Clients) compared to individuals in the same prisons who

did not receive peer support services. Although there is reason to believe that peer support

services provided in prison will show positive impacts on individuals' wellbeing and behavior

during incarceration as well as their outcomes after release, no studies have rigorously

investigated the impact of these services for individuals who receive peer support compared to

those who do not.

Methods

Data Cleaning

Population data

A full Population file was provided by the DOC containing information for every individual (N = 39,024) that was incarcerated at a facility that operated the CPS Program during a time the CPS Program was in operation. For example, if an individual was incarcerated at TCI from 2010-2011, information about that period of incarceration would not be included because TCI did not start the CPS Program until 2020. The following demographic information was contained in the Population file: birth year, race, ethnicity, sex, highest grade level of education, marital status, mental health status, prison admission date, prison release date (if applicable), admission facility, custody classification, and risk score (i.e., risk assessment score, as measured by the Correctional Officer Management Profiles for Alternative Sanctions (COMPAS) risk assessment (Brennan & Dieterich, 2017)). For individuals who were released from prison before December 31st, 2022 (the last date of data included), the following information was provided: whether they had recidivated, the year in which they recidivated (1, 2 or 3 years after release), the date of recidivism and the recidivism offense type and category.

Because only an individual's birth year, but not exact birthdates, were provided, a birthday of June 1st was used to calculate each individual's approximate age at incarceration. Additionally, because demographic information was provided for each incarceration period, some individuals had multiple reported values for each demographic variable.

Using the Population file, a long format data frame was constructed containing one row for each month that an individual was incarcerated at a CPS facility. For example, if an individual was incarcerated from February 2017 until January 2020, then again from September 2021 until August 2022, they would have a total of 48 rows indicating the months they were

incarcerated (36 rows from February 2017 to January 2020 and 12 rows from September 2021 to August 2022). All demographic data corresponding to each period of incarceration were matched with the months corresponding to that period of incarceration. For the above individual, any demographic information reported for their first incarceration would be matched with rows containing months between February 2017 and January 2020, and demographic information reported for their second incarceration would be matched with rows containing months between September 2021 and August 2022. To eliminate within-person variability of demographic information and to ensure all baseline characteristics were measured before an individual entered the CPS Program, only demographic information from a person's earliest period of incarceration was utilized for analyses. In cases where demographic information was missing for the earliest period of incarceration, the next earliest reported demographic information was retained. Next, because data would be evaluated longitudinally, individuals who were incarcerated for less than 60 days (i.e., less than 2 rows of data in the long format data frame) were excluded.

In a separate file, information about every prior charge (and corresponding statute) an individual was found guilty of and resulted in either incarceration or supervision within the DOC was provided. For each individual, the total number of past guilty charges was calculated. This file also contained information on the most serious offense category an individual had ever been convicted of, which was retained for analyses.

<u>CPS Program data</u>

The following data were provided for CPS Clients: the number of meetings with a CPS Provider, the date of enrollment in the CPS Program or first session date, the date of the last session with a CPS (if services were terminated) or the date of suspension of services, and the reason for terminating their participation in the CPS program (if applicable). Data was provided

as separate files from 10 different prisons as well as one data file containing data from 25 facilities.

Table 1

CPS Program start dates for all institutions providing CPS information.

DOC Facility	Start Date
Wisconsin Secure Program Facility (WSPF)	April 2017
Oshkosh Correctional Institution (OSCI)	May 2017
Wisconsin Resource Center (WRC)	June 2017
Dodge Correctional Institution (DCI)	January 2018
Columbia Correctional Institution (CCI)	September 2019
Wisconsin Women's Resource Center (WWRC)	September 2019
Green Bay Correctional Institution (GBCI)	October 9th, 2019
Waupun Correctional Institution (WCI)	October 2018
Taycheedah Correctional Institution (TCI)	January 12th, 2020
Robert E. Ellsworth Correctional Center (REECC)	January 25th, 2021
Fox Lake Correctional Institution (FLCI)	June 1st, 2021
Jackson Correctional Institution (JCI)	July 2021
New Lisbon Correctional Institution (NLCI)	November 15th, 2021
Stanley Correctional Institution (SCI)	March 19th, 2022
Milwaukee Women's Correctional Center (MWCC)	April 4th, 2022
Kettle Moraine Correctional Institution (KMCI)	May 31st, 2022
Redgranite Correctional Institution (RGCI)	June 27th, 2022
Milwaukee Secure Detention Facility (MSDF)	*Not provided*
St. Croix Correctional Center (SCCC)	*Not provided*
Sturtevant Transitional Facility (STF)	*Not provided*
Black River Correctional Center (BRCC)	*Not provided*
Chippewa Valley Correctional Treatment Facility (CVTF)	*Not provided*
Oakhill Correctional Institution (OCI)	*Not provided*
Racine Correctional Institution (RCI)	*Not provided*
Drug Abuse Correctional Center (DACC)	*Not provided*

Data were consolidated across sources to ensure no participants were duplicated and the most updated CPS Program information was obtained for each CPS Client. If individuals were listed in multiple sources with duplicated information, data was consolidated such that the greater number of sessions, earliest date of enrollment, and latest date of suspension of services were retained. A total of 5,116 individuals were included in the full CPS Program file. CPS Clients

were excluded from analyses for the following reasons: first session date or enrollment date was
not available, no session information was reported, DOC number or name could not be found,
CPS session dates did not correspond with a period of incarceration reported in the Population
file, or the individual was not listed in the Population file. For individuals who were reported as
receiving CPS services at multiple facilities, all information was retained as long as information
on their first CPS session date or enrollment date at each facility was available. For participants
listed as receiving services at multiple CPS facilities who were missing enrollment information
at one facility, the total number of sessions with a CPS Provider were added to the sessions
reported at the facility reporting start dates. If final session dates were not provided, the date an
individual left the facility or was released from incarceration was used, if available. CPS
Program operation timelines were not available for Milwaukee Secure Detention Facility, St.
Croix Correctional Center, Chippewa Valley Correctional Treatment Facility, Sturtevant
Transitional Facility, Black River Correctional Center, Oakhill Correctional Institution, Racine
Correctional Institution or the Drug Abuse Correctional Center, therefore data from participants
residing at these facilities was excluded. Data from MWCC contained information from only one
individual, however, CPS enrollment information was missing and so this individual was
excluded from analyses. A total of 4,686 CPS Clients across 16 facilities were retained at this
stage. Then, records with missing demographic and baseline information or with less than 60
days of incarceration were removed. A total of 4,282 individuals with complete data were
retained in the final CPS Client data. Demographic and baseline information for the full sample
of participants, as well as CPS Clients, CPS Providers, and non-CPS individuals can be found in
Table 2.

Table 2

Demographic and baseline information for all data samples

	Full sample N = 34,602	CPS Clients n = 4,282	Non-CPS n = 30,320	CPS Providers n = 117
Sex (% Male)	92.6	79.8	94.4	74.8
Age at incarceration	34.84 (11.44)	32.25 (10.72)	35.21 (11.49)	31.81 (10.35)
Years incarcerated (total)	4.24 (5.75)	3.55 (4.58)	4.34 (5.89)	12.90 (8.20)
Prior charges (total)	7.92 (6.69)	7.84 (6.54)	7.93 (6.71)	6.95 (5.44)
Race (%)				
American Indian/Alaska Native	5.9	6.9	5.7	1.9
Asian/Pacific Islander	1.3	1.9	1.2	1.9
Black	38.0	42.3	37.4	59.8
White	54.8	48.9	55.6	36.4
Highest Level of Education (%)				
0-4th Grade	0.3	0.6	0.3	0.0
5-8th Grade	2.5	3.2	2.4	0.9
9-12th Grade, No degree	23.5	28.7	22.8	20.6
High School Degree	47.8	43.6	48.3	48.6
1-2 Years College or Vocational	18.4	17.3	18.5	19.6
Associate Degree	3.8	3.2	3.9	4.7
3 Years College	1.2	0.9	1.2	2.8
Bachelor's Degree or Higher	2.5	2.5	2.5	2.8
Marital Status (%)				
Single, Never Married	71.0	75.6	70.3	68.2
Unmarried Partner	0.1	0.1	0.1	0.0
Common Law Marriage	0.1	0.2	0.1	0.0
Married	10.4	9.6	10.6	14.0
Separated	2.7	2.4	2.7	2.8
Divorced	14.5	11.2	15.0	11.2
Widowed	1.1	0.9	1.2	3.7
Mental Health Status (%)				
No Mental Illness/Unknown	52.5	28.4	55.9	62.6
Has Mental Illness	38.3	55.4	35.9	23.4
Has Serious Mental Illness	9.1	16.2	8.1	14.0
Risk Score (%)				
Low	29.7	26.2	30.2	53.3
Medium	39.1	36.8	39.4	30.8
High	31.2	37.0	30.4	15.9
Custody Classification (%)				
Minimum	24.5	15.8	25.6	13.1
Medium	63.8	60.3	64.3	63.6
Maximum	11.8	23.9	10.1	23.4
MSO at incarceration (%)				
Public Order Offense	15.1	11.7	15.5	0.0

Property Offense	15.8	15.9	15.8	3.7
Drug Offense	16.1	12.6	16.6	6.5
Violent Offense	53.1	59.8	52.1	89.7

Outcome data

Date files containing information about Conduct Reports (CRs), Restrictive Housing

(RH) Placements, and Observation Placements were provided separately.

Conduct Reports

The Conduct Report data file contained the following information: incident date, Conduct

Report type, and description of the violation. Only individuals who had received a Conduct

Report during a period of incarceration included in the Population file were included. For

example, if a person was incarcerated from 2017-2018 at a CPS facility, Conduct Reports from

prior to 2017 would not be included. Additionally, Conduct Report data was digitized in the

Wisconsin DOC in January 2019. Therefore, only data from after January 2019 (the first full

month of digitalized Conduct Report data was in February 2019) was utilized for analyses.

Information regarding the facility at which the Conduct Report was reported was not provided,

meaning some of the reported Conduct Reports in this data file could have occurred at a facility

not operating the CPS Program.

The total number of Conduct Reports, the number of Major Conduct Reports and the

number of Minor Conduct Reports each person was found guilty of per month was calculated

using R (R Core Team, 2022). Then, Conduct Reports were merged with the long format data

file such that each Conduct Report instance was matched with the row containing the month in

which it occurred. For individuals with more than one Conduct Report in a given month, the

earliest Conduct Report date was retained. For each individual in the Population file, a binary

variable was created indicating whether they were found guilty of a Conduct Report during each

month (0 = months without a Conduct Report incident date; 1 = months with a Conduct Report incident date).

Additionally, because Conduct Reports were relatively rare in the data sample (mean across participants = 0.19 Conduct Reports per month), individuals were only included for analyses if they had at least 6 months of incarceration before and after enrolling in the CPS Program (to ensure most participants would have at least one Conduct Report before and after). Participants were not required to be active in the CPS Program for the full 6 months after enrollment. A total of 1,210 CPS Clients were included for analyses evaluating Conduct Reports.

<u>Clinical Observation Placements</u>

The Clinical Observation Placement file contained the following information: Clinical Observation start date and Clinical Observation end date. The Clinical Observation data file was converted to long format such that for each individual there was one row for each month they were placed in Clinical Observation. Then, the total number of days spent in Clinical Observation during a given month was calculated using R. For individuals with more than one placement in Clinical Observation in a month, the earliest start date was retained for that month. For Clinical Observation placements that spanned multiple months, the number of days in Observation were calculated for each month during the Clinical Observation period. For each individual in the Population file, a binary variable was created indicating whether they were in Clinical Observation during that month (0 = not in Clinical Observation during that month; 1 = individual received a Clinical Observation placement or stayed in Clinical Observation that month). Again, because Clinical Observation placements were relatively rare in the data sample (mean days in Clinical Observation per month across all participants = 0.04 days), individuals were only included for analyses if they were incarcerated for at least 6 months before and after

enrolling in the CPS Program. A total of 1,407 CPS Clients were included for analyses evaluating Clinical Observation Placements.

Recidivism

All participants who were released from prison before December 31, 2022 were included in recidivism analyses. For individuals with multiple periods of incarceration that ended in a release, data were evaluated to ensure revocations were not included for recidivism analyses (i.e., if an individual returned to prison for a new period of incarceration but did not have a previous recidivism event listed). For individuals who were revoked and started a new period of incarceration, only the later release date was retained for recidivism analyses. To evaluate the effectiveness of the CPS Program on recidivism, individuals were classified as a CPS Client only if they had been enrolled in the CPS Program prior to their release from prison. For example, if an individual was incarcerated during three separate periods that ended in a release, but was only enrolled in the CPS Program prior to one of those release dates, they would be considered a CPS Client only for that period. Then, the number of days until a recidivism event was calculated for each person and each period of incarceration resulting in a release. For individuals who did not recidivate, the number of days between their release date and December 31, 2022 was used. A total of 1,538 individuals were classified as CPS Clients before their release and were retained for recidivism analyses.

Propensity Score Matching

A limitation of quasi-experimental and observational studies is the inability of the researcher to randomly assign participants to intervention and control groups, which can lead to systematically unbalanced baseline covariates between groups and makes data interpretation difficult. For example, a person's mental health status at the beginning of their incarceration

likely influences whether they decide to participate in the CPS Program, meaning this variable

would be unbalanced between those in the CPS Program and those who were not. However,

inferences about a program's effectiveness are near impossible to make without the ability to

compare outcomes to individuals who did not participate in the program. Therefore, methods

must be used to generate a sample of participants who did not participate in the program but can

be reasonably be compared to individuals who did.

      Various statistical methods have been developed to address these limitations and allow

for causal inference using observational data. Propensity Score Analysis (PSA) is a statistical

method that attempts to mimic randomized controlled trials by "matching" treated and untreated

participants and balancing the groups on a large set of baseline covariates (Rosenbaum & Rubin,

1983). This method uses propensity scores, which are derived from a model predicting a binary

outcome (assignment to the treatment group) based on the set of baseline covariates. A

participant's propensity score reflects their probability of assignment to the treatment group

based on the observed baseline covariates. The main limitation of PSA is the assumption that the

covariates included in the propensity score model represent all possible confounders. In most

cases, this is impossible to determine, but it is recommended to include as many reasonable

covariates in the propensity score model as possible to account for possible hidden bias

(Benedetto et al., 2018).

      For each outcome (Conduct Reports, Clinical Observation Placements, Recidivism) PSA

was conducted separately due to the different number CPS Clients available for each outcome.

For the purposes of this program evaluation, PSA was used only to generate a matched group on

which outcomes could be compared with CPS Clients, on a group level. The purpose was not to

compare CPS Clients to their matched non-CPS individuals at an individual level. Additionally,

although PSA is traditionally utilized to mimic randomization and estimate causality, limitations

of the PSA method make it difficult to prove causality. Because of this, all analyses are

considered correlational in nature. The following steps were carried out for each outcome.

<u>Estimating Propensity Scores</u>

<u>Covariate selection</u>

The first step in PSA is estimating the covariates to be included in the propensity score

model. One assumption in PSA is that the covariates included in the model represent every

known confounder that could influence self-selection into the intervention or control group

(Austin, 2011). Participation in the CPS Program is entirely voluntary, and there are no a priori

exclusions for participation. While all potential confounders that could influence CPS Program

participation cannot be known, all demographic and baseline characteristics provided by the

DOC were included in the PSA to ensure the most robust matching algorithm possible. The

following variables were included for PSA for all three outcomes: sex, race, highest level of

education, marital status, mental health status, age at earliest incarceration, total time

incarcerated, total past number of charges adjudicated as guilty, recidivism risk score, custody

level (minimum, medium or maximum), and most serious offense category. All covariate

information was taken from the earliest period of incarceration provided to ensure information

was collected before enrollment in the CPS Program, if possible. Covariate comparisons between

CPS Clients and unmatched non-CPS individuals are presented in Table 3 (Conduct Reports),

Table 4 (Clinical Observation Placements) and Table 5 (Recidivism).

Table 3

Covariate comparisons for CPS Clients and non-CPS individuals in unmatched and matched Conduct Reports sample

	Unmatched sample				Matched Sample			
	CPS Clients n = 1,210	**Non-CPS** n = 13,490	**SMD**	***p***	**CPS Clients** n = 1,130	**Non-CPS** n = 1,130	**SMD**	***p***
Sex (% Male)	64.0	96.8	-0.68	**< .001**	68.6	68.7	0.0	.96
Age at incarceration	30.75 (9.84)	34.23 (11.60)	-0.35	**< .001**	30.91 (10.02)	31.21 (9.88)	-0.03	.48
Years incarcerated (total)	6.35 (6.15)	7.53 (7.06)	-0.19	**< .001**	6.50 (6.29)	6.26 (5.91	0.04	.35
Prior charges (total)	8.40 (7.45)	7.88 (6.94)	0.07	**.02**	8.33 (7.09)	8.85 (9.99)	-0.07	.16
Race (%)								
American Indian/Alaska Native	5.5	4.5	0.05	.12	5.8	6.3	-0.02	.60
Asian/Pacific Islander	1.2	1.3	-0.01	.73	1.2	1.4	-0.02	.58
Black	44.0	42.0	0.04	.19	43.5	43	0.01	.83
White	49.3	52.2	-0.06	**.05**	49.6	49.3	0.01	.87
Highest Level of Education (%)								
0-4th Grade	0.2	0.4	-0.04	.20	0.3	0.2	0.02	.66
5-8th Grade	3.7	3.2	0.03	.36	3.5	3.3	0.01	.73
9-12th Grade, No degree	31.1	25.1	0.13	**< .001**	31.5	31	0.01	.79
High School Degree	44.2	46.5	-0.05	.12	44	42.9	0.02	.61
1-2 Years College or Vocational	14.7	17.4	-0.07	**.01**	14.6	16.5	-0.05	.22
Associate Degree	2.6	3.4	-0.05	.10	2.7	3.3	-0.03	.46
3 Years College	1.1	1.3	-0.02	.54	1.1	1.2	-0.01	.84
Bachelor's Degree or Higher	2.4	2.8	-0.02	.44	2.3	1.8	0.03	.37
Marital Status (%)								
Single, Never Married	75.0	70.0	0.12	**< .001**	74.5	74.6	0.0	.96
Unmarried Partner	0.1	0.0	0.03	.37	0.0	0.1	-0.03	.32
Common Law Marriage	0.2	0.1	0.01	.79	0.2	0.1	0.02	.56
Married	9.8	11.5	-0.06	.06	10.2	10.1	0.0	.95
Separated	2.3	2.7	-0.03	.35	2.3	2.4	-0.01	.89
Divorced	11.8	14.3	-0.08	**.01**	11.9	12.0	-0.01	.90
Widowed	0.9	1.3	-0.04	.17	1.0	0.7	0.03	.49
Mental Health Status (%)								
No Mental Illness/Unknown	24.7	58.4	-0.78	**< .001**	26.4	26. 5	0.0	.92
Has Mental Illness	48.3	33.3	0.30	**< .001**	49.6	50.4	-0.02	.71
Has Serious Mental Illness	26.9	8.3	0.42	**< .001**	24.1	23.1	0.02	.59
Risk Score (%)								
Low	24.7	35.4	-0.25	**< .001**	25.6	22.7	0.07	.11

Medium	37.7	36.6	0.02	.48	37.3	39.5	-0.05	.28
High	37.6	28.0	0.20	**< .001**	37.2	37.9	-0.01	.73
Custody Classification (%)								
Minimum	18.8	17.9	0.02	.48	19.0	21.2	-0.05	.21
Medium	49.8	67.4	-0.35	**< .001**	49.6	49.0	0.01	.80
Maximum	31.4	14.6	0.36	**< .001**	31.4	29.8	0.03	41
MSO at incarceration (%)								
Public Order Offense	7.6	10.2	-0.10	.86	7.6	8.3	-0.03	.53
Property Offense	16.9	12.3	0.12	**< .001**	15.9	16.2	-0.01	.86
Drug Offense	11.8	12.0	-0.01	**.001**	12.0	13.0	-0.03	.49
Violent Offense	63.7	65.5	-0.04	.21	64.4	62.5	0.04	.34

Table 4

Covariate comparisons for CPS Clients and non-CPS individuals in unmatched and matched Clinical Observation sample

	Unmatched sample				Matched Sample			
	CPS Clients n = 1,407	Non-CPS n = 16,621	SMD	*p*	CPS Clients n = 1,357	Non-CPS n = 1,357	SMD	*p*
Sex (% Male)	97.1	69.1	0.61	**< .001**	71.6	72.4	0.02	.64
Age at incarceration	30.51 (10.19)	34.21 (11.61)	0.36	**<.001**	30.63 (10.28)	30.94 (9.66)	0.03	.42
Years incarcerated (total)	6.37 (6.09)	7.06 (6.83)	0.11	**< .001**	6.41 (6.11)	6.28 (6.16)	0.02	.58
Prior charges (total)	8.56 (7.36)	7.87 (6.82)	0.09	**< .001**	8.62 (7.42)	9.08 (10.18)	0.06	.18
Race (%)								
American Indian/Alaska Native	6.0	4.6	0.06	**.03**	6.0	6.6	0.02	.53
Asian/Pacific Islander	1.4	1.2	0.02	.55	1.4	1.9	0.04	.29
Black	45.8	41.4	0.09	**< .01**	45.2	43.0	0.04	.25
White	46.8	52.7	0.12	**< .001**	47.4	48.5	0.02	.57
Highest Level of Education (%)								
0-4th Grade	0.2	0.4	0.05	.08	0.2	0.1	0.03	.32
5-8th Grade	3.8	3.2	0.04	.20	3.8	4.1	0.02	.69
9-12th Grade, No degree	31.4	24.8	0.14	**< .001**	31.0	31.7	0.01	.71
High School Degree	43.6	46.8	0.06	**.02**	44.0	41.8	0.04	.25
1-2 Years College or Vocational	15.1	17.5	0.07	**.01**	15.0	16.6	0.04	.27
Associate Degree	2.6	3.3	0.04	.11	2.7	2.7	0.00	1.0
3 Years College	1.0	1.3	0.03	.25	1.0	1.3	0.04	.37
Bachelor's Degree or Higher	2.2	2.6	0.03	.29	2.3	1.8	0.04	.34
Marital Status (%)								
Single, Never Married	76.1	70.2	0.14	**< .001**	75.8	75.8	0.00	1.0
Unmarried Partner	0.1	0.0	0.02	.36	0.1	0.1	0.00	1.0
Common Law Marriage	0.1	0.1	0.00	.97	0.1	0.2	0.02	.66
Married	9.2	11.2	0.07	**.02**	9.4	9.9	0.02	.70
Separated	2.3	2.7	0.03	.27	2.4	2.0	0.02	.51
Divorced	11.2	14.4	0.10	**< .001**	11.3	11.0	0.01	.76
Widowed	0.9	1.2	0.03	.26	0.9	1.1	0.02	.56
Mental Health Status (%)								

No Mental Illness/Unknown	24.5	57.9	0.78	**< .001**	25.4	24.0	0.03	.40
Has Mental Illness	48.8	32.8	0.32	**< .001**	49.8	51.7	0.04	.32
Has Serious Mental Illness	26.7	9.4	0.39	**< .001**	24.8	24.2	0.01	.76
Risk Score (%)								
Low	23.4	34.8	0.27	**< .001**	24.0	23.6	0.01	.79
Medium	36.9	37.2	0.01	.81	36.6	35.7	0.02	.60
High	39.7	28.0	0.24	**< .001**	39.4	40.8	0.03	.46
Custody Classification (%)								
Minimum	17.1	20.3	0.08	**< .01**	17.7	17.3	0.01	.80
Medium	49.0	65.6	0.33	**< .001**	48.8	49.6	0.02	.67
Maximum	33.9	14.1	0.42	**< .001**	33.5	33.1	0.01	.81
MSO at incarceration (%)								
Public Order Offense	8.1	10.5	0.09	**< .01**	8.2	8.3	0.01	.89
Property Offense	17.5	13.2	0.11	**< .001**	17.3	18.0	0.02	.65
Drug Offense	10.7	12.5	0.06	**.04**	10.9	11.6	0.02	.59
Violent Offense	63.7	63.8	0.00	.92	63.6	62.1	0.03	.43

Table 5

Covariate comparisons for CPS Clients and non-CPS individuals in unmatched and matched Recidivism sample

	Unmatched sample				Matched Sample			
	CPS Clients n = 1,538	**Non-CPS** n = 18,242	**SMD**	*p*	**CPS Clients** n = 1,532	**Non-CPS** n = 1,532	**SMD**	*p*
Sex (% Male)	71.5	94.3	-0.51	**<.001**	71.7	73.6	-0.04	.24
Age at incarceration	31.8 (10.3)	34.9 (11.0)	-0.31	**<.001**	31.8 (10.2)	32.0 (9.6)	-0.01	.70
Years incarcerated (total)	2.37 (2.07)	2.87 (3.67)	-0.24	**<.001**	2.37 (2.07)	2.31 (2.40)	0.07	.06
Prior charges (total)	8.2 (6.4)	8.3 (6.2)	-0.01	.75	8.2 (6.4)	8.3 (6.8)	-0.02	.55
Race (%)								
American Indian/Alaska Native	9.8	6.6	0.11	**<.001**	9.7	9.5	0.01	.85
Asian/Pacific Islander	2.2	1.4	0.06	**.03**	2.1	2.1	0.0	1.0
Black	40.4	36.6	0.08	**<.01**	40.6	39	0.03	.36
White	47.6	55.5	-0.16	**<.001**	47.6	49.4	-0.04	.31
Highest Level of Education (%)								
0-4th Grade	0.5	0.2	0.04	.11	0.5	0.7	-0.02	.64
5-8th Grade	2.9	2	0.05	**.05**	2.9	3.3	-0.02	
9-12th Grade, No degree	28.2	21.6	0.14	**<.001**	28	28	0.0	
High School Degree	44.6	49.4	-0.10	**<.001**	44.6	46.1	-0.03	.40
1-2 Years College or Vocational	17.6	19.6	-0.05	**.05**	17.7	15.9	0.05	.19
Associate Degree	2.8	3.9	-0.06	**.02**	2.8	2.3	0.03	.36
3 Years College	0.8	1.1	-0.04	.13	0.8	1.0	-0.03	.45
Bachelor's Degree or Higher	2.6	2.1	0.03	.22	2.6	2.6	0.0	1.0
Marital Status (%)								
Single, Never Married	78.2	72.8	0.13	**<.001**	78.1	78.3	0.0	.90
Unmarried Partner	0.1	0.0	0.01	.75	0.1	0.1	0.0	1.0
Common Law Marriage	0.1	0.1	-0.02	.47	0.1	0.1	-0.03	.56
Married	8.4	9.5	-0.04	.12	8.4	8.6	-0.01	.85
Separated	2.6	2.6	0.0	.94	2.6	2.9	-0.02	.58
Divorced	9.7	14	-0.15	**<.001**	9.7	9.1	0.02	.58
Widowed	1.0	0.8	0.02	.43	1.0	0.8	0.02	.58

Mental Health Status (%)

No Mental Illness/Unknown	25.0	55.3	-0.70	**<.001**	25.1	21.8	0.08	**.03**
Has Mental Illness	54.7	36	0.38	**<.001**	54.9	59.0	-0.08	**.02**
Has Serious Mental Illness	20.3	8.7	0.29	**<.001**	20.0	19.2	0.02	.55
Risk Score (%)								
Low	20.2	25.3	-0.13	**<.001**	20.3	20.0	0.01	.86
Medium	40.6	41.9	-0.03	.33	40.7	39.8	0.02	.61
High	39.1	32.8	0.13	**<.001**	39.0	40.2	-0.02	.51
Custody Classification (%)								
Minimum	23.3	31.7	-0.20	**<.001**	23.4	22.7	0.02	.64
Medium	57.9	60.2	-0.05	.08	58.0	58.9	-0.02	.61
Maximum	18.7	8.0	0.27	**<.001**	18.5	18.3	0.01	.89
MSO at incarceration (%)								
Public Order Offense	14.2	16.9	-0.08	**<.01**	14.2	13.4	0.02	.50
Property Offense	23.5	19.9	0.08	**<.01**	23.5	25.9	-0.06	.12
Drug Offense	16.6	20.2	-0.10	**<.001**	16.6	17.0	-0.01	.77
Violent Offense	45.7	43.0	0.05	**.04**	45.6	43.7	0.04	.28

<u>Propensity score model and matching</u>

Logistic regression was used to estimate propensity scores (Austin, 2011; Benedetto et al., 2018). All demographic and baseline characteristics were included in the model with no interaction terms and used to predict CPS Client status (0 or 1). 1-to-1 nearest neighbor pair matching with a caliper distance of .25x the standard deviation of the propensity scores was used to select non-CPS individuals for analysis (Rosenbaum & Rubin, 1985). This method ensures that each CPS Client was matched to exactly one non-CPS individual based on their propensity score. Cenzer et al., 2020 found that PSA performs adequately in various sample sizes, and 1-to-1 matching can be used even in moderately small sample sizes (e.g., 100-300 treated participants).

After the groups were matched, bivariate analyses were used to investigate whether significant differences on covariates remain between the two groups. Covariate comparisons between CPS Clients and matched controls are presented in Table 3 (Conduct Reports), Table 4 (Clinical Observation) and Table 5 (Recidivism). After matching, all Standardized Mean Differences were below the critical threshold of 0.1 (Austin, 2011). Then, to allow for models comparing CPS Clients to their matched controls on outcomes (Conduct Reports or Clinical Observation) before and after enrollment in the CPS Program, matched controls were assigned a "hypothetical enrollment date" based on their matched CPS Client. For example, if a CPS Client enrolled in the CPS Program during month 7 of their incarceration, their matched non-CPS individual would be assigned a hypothetical enrollment time of month 7 (Duwe & McNeeley, 2020). Matched controls were excluded from analyses if they had less than 6 months of incarceration before or after their hypothetical enrollment date.

Participants

Conduct Report Data

Before matching, 1,210 CPS Clients and 13,490 unmatched non-CPS individuals were available for PSA. Matching resulted in a final sample of 1,130 CPS Clients and 1,130 matched non-CPS individuals. Figure 1 shows the Absolute Standardized Mean Difference between all variables included in the PSM before (clear) and after (black) matching. After excluding matched non-CPS individuals with less than 6 months of incarceration before and after their hypothetical

Figure 1

Absolute Standardized Mean Difference (SMD) values for unmatched and matched covariates used in Conduct Reports PSA

Note: Clear circles = unmatched covariates; Black circles = matched covariates

enrollment date, 954 matched non-CPS individuals were included for analyses. Demographic

and baseline information for the final Conduct Report data sample can be found in Table 6.

Table 6

Covariate comparisons for final Conduct Report sample

	CPS Clients n = 1,130	Non-CPS n = 954	*p*
Sex (% Male)	68.6	69.2	.77
Age at incarceration	30.91 (10.02)	30.81	.82
Years incarcerated (total)	6.50 (6.29)	6.82 (6.21)	.25
Prior charges (total)	8.33 (7.09)	8.79 (10.51)	.26
Race (%)			
American Indian/Alaska Native	5.8	6.2	.68
Asian/Pacific Islander	1.2	1.6	.41
Black	43.5	44.0	.79
White	49.6	48.2	.52
Highest Level of Education (%)			
0-4th Grade	0.3	0.2	.79
5-8th Grade	3.5	3.4	.82
9-12th Grade, No degree	31.5	31.4	.98
High School Degree	44	42.7	.55
1-2 Years College or Vocational	14.6	16.0	.37
Associate Degree	2.7	3.1	.59
3 Years College	1.1	1.4	.53
Bachelor's Degree or Higher	2.3	1.8	.40
Marital Status (%)			
Single, Never Married	74.5	74.3	.92
Unmarried Partner	0.0	0.1	.32
Common Law Marriage	0.2	0.0	.16
Married	10.2	10.5	.82
Separated	2.3	2.3	.99
Divorced	11.9	11.9	.95
Widowed	1.0	0.8	.75
Mental Health Status (%)			
No Mental Illness/Unknown	26.4	26.9	.77
Has Mental Illness	49.6	49.2	.86
Has Serious Mental Illness	24.1	23.9	.93
Risk Score (%)			
Low	25.6	23.5	.27
Medium	37.3	38.5	.57
High	37.2	38.1	.68
Custody Classification (%)			
Minimum	19.0	19.5	.79
Medium	49.6	48.8	.75

Maximum	31.4	31.7	.91
MSO at incarceration (%)			
Public Order Offense	7.6	6.9	.54
Property Offense	15.9	15.5	.80
Drug Offense	12.0	12.6	.71
Violent Offense	64.4	65.0	.79

Clinical Observation Data

Before matching, 1,407 CPS Clients and 16,621 unmatched non-CPS individuals were

available for PSA. Matching resulted in a final sample of 1,357 CPS Clients and 1,357 matched

non-CPS individuals. Figure 2 shows the Absolute Standardized Mean Difference between all

variables included in the PSM before (clear) and after (black) matching. After excluding matched

Figure 2

Absolute Standardized Mean Difference (SMD) values for unmatched and matched covariates used in Clinical Observation PSA
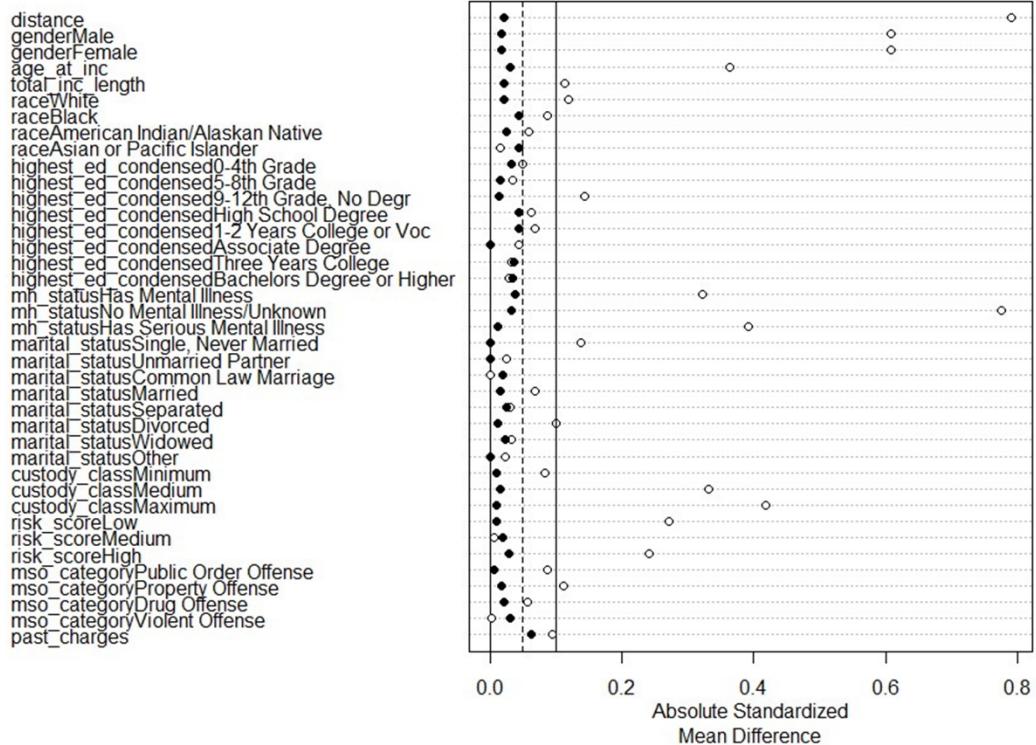
Note: Clear circles = unmatched covariates; Black circles = matched covariates

non-CPS individuals with less than 6 months of incarceration before and after their hypothetical enrollment date, 862 matched non-CPS individuals were included for analyses. Demographic and baseline information for the final Clinical Observation data sample can be found in Table 7.

Table 7

Covariate comparisons for final Clinical Observation sample

	CPS Clients n = 1,357	Non-CPS n = 862	*p*
Sex (% Male)	71.6	71.5	.93
Age at incarceration	30.63 (10.28)	30.38 (9.62)	.57
Years incarcerated (total)	6.41 (6.11)	7.82 (7.12)	**< .001**
Prior charges (total)	8.62 (7.42)	8.90 (11.26)	.52
Race (%)			
American Indian/Alaska Native	6.0	5.7	.73
Asian/Pacific Islander	1.4	2.0	.32
Black	45.2	44.4	.73
White	47.4	47.9	.81
Highest Level of Education (%)			
0-4th Grade	0.2	0.0	.08
5-8th Grade	3.8	4.4	.46
9-12th Grade, No degree	31.0	32.4	.51
High School Degree	44.0	42.6	.51
1-2 Years College or Vocational	15.0	15.7	.69
Associate Degree	2.7	2.4	.67
3 Years College	1.0	1.3	.49
Bachelor's Degree or Higher	2.3	1.3	.07
Marital Status (%)			
Single, Never Married	75.8	75.9	.95
Unmarried Partner	0.1	0.1	.76
Common Law Marriage	0.1	0.0	.16
Married	9.4	9.7	.81
Separated	2.4	1.6	.22
Divorced	11.3	11.0	.81
Widowed	0.9	1.6	.14
Mental Health Status (%)			
No Mental Illness/Unknown	25.4	25.5	.96
Has Mental Illness	49.8	47.8	.31
Has Serious Mental Illness	24.8	26.7	.20
Risk Score (%)			
Low	24.0	26.5	.20
Medium	36.6	35.7	.67
High	39.4	37.8	.47
Custody Classification (%)			

Minimum	17.7	17.2	.75
Medium	48.8	48.3	.81
Maximum	33.5	34.6	.61
MSO at incarceration (%)			
Public Order Offense	8.2	6.3	.09
Property Offense	17.3	16.0	.42
Drug Offense	10.9	11.3	.80
Violent Offense	63.6	66.5	.17

Recidivism Data

Before matching, 1,538 CPS Clients and 18,242 unmatched non-CPS individuals were

available for PSA. Matching resulted in 1,532 CPS Clients and 1,532 matched non-CPS

individuals. Figure 3 shows the Absolute Standardized Mean Difference between all variables

Figure 3

Absolute Standardized Mean Difference (SMD) values for unmatched and matched covariates used in Recidivism PSA

Note: Clear circles = unmatched covariates; Black circles = matched covariates
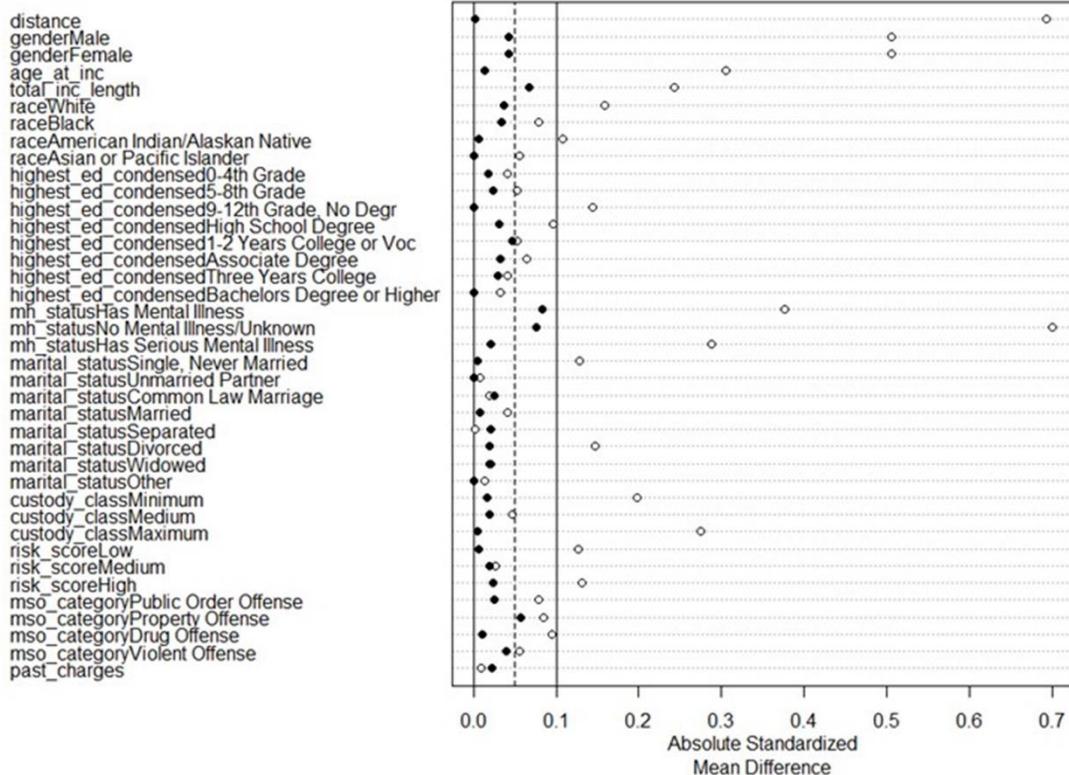
included in the PSM before (clear) and after (black) matching. Because some individuals had multiple periods of incarceration ending in a release, there were 1,533 records available for periods of incarceration during which someone was a CPS Client, and 1,791 records available for periods of incarceration during which individuals were not a CPS Client.

Data Analysis

For Conduct Report and Clinical Observation analyses, multilevel linear regression models were used, where monthly observations were nested within individuals and individuals were nested within facilities. All person-level covariates included in regression models were mean-centered within cluster (facilities) (Brincks et al., 2017). All categorical variables were converted into binary variables for each level of the original categorical variable before clustering. For example, the categorical variable "custody_classification" with levels "Minimum," "Medium," and "Maximum" was converted to three separate variables ("custody_minimum" "custody_medium" and "custody_maximum"). Then, each binary variable was mean-centered within cluster.

For Conduct Report data, four models were specified to evaluate the effect of the CPS Program on monthly Conduct Reports, Major and Minor Conduct Reports were evaluated separately, thus 12 total models were evaluated (four evaluating total Conduct Reports, four evaluating Major Conduct Reports, and four evaluating Minor Conduct Reports). First, one model was specified using a Difference-in-Difference design to determine whether there was a group (CPS Client vs non-CPS individual) difference in the change in monthly Conduct Reports after enrollment (or hypothetical enrollment) in the CPS Program. Then, a separate model was run to evaluate whether any impact of CPS enrollment was influenced by a participant's race (Black vs not Black). Then, two models were specified to evaluate the effect of the CPS Program

only within CPS Clients. First, the linear relationship between the number of sessions with a CPS Provider and monthly Conduct Reports was evaluated. Then, the relationship between the number of sessions with a CPS Provider and monthly Conduct Reports for Black vs not Black individuals was evaluated. All models included random intercepts for individuals and facilities as well as the following covariates: age at first incarceration, the year of incarceration, and the total length of time incarcerated. For all models, only estimated values for fixed effects are presented in results tables.

For Clinical Observation data, eight models were specified to evaluate the effect of the CPS Program on monthly days in Clinical Observation as well as monthly Clinical Observation placements. First, two models were specified using the same Difference-in-Difference design to determine whether there was a group (CPS Client vs non-CPS individual) difference in the change in monthly Clinical Observation Placements or days in Clinical Observation after enrollment (or hypothetical enrollment) in the CPS Program. Then, two models evaluated whether any impact of CPS enrollment on Clinical Observation Placements or days in Clinical Observation was influenced by a participant's race (Black vs not Black). Then, four models were specified to evaluate the effect of the CPS Program only within CPS Clients. First, the linear relationship between the number of sessions with a CPS Provider and monthly Clinical Observation Placements and days in Clinical Observation was evaluated. Then, the relationship between the number of sessions with a CPS Provider and monthly Clinical Observation Placements and days in Clinical Observation for Black vs not Black individuals was evaluated. All models included random intercepts for individuals and facilities as well as the following covariates: age at first incarceration, the year of incarceration, and the total length of time

incarcerated. For all models, only estimated values for fixed effects are presented in results tables.

Because individuals were released from prison at different time points and had different periods of follow-up, Cox Proportional Hazard regression was chosen to examine differences in the time to recidivism, as it corrects for differences in the length of follow-up period (Fox & Weisberg, 2002). Three Cox Proportional Hazard regression models were specified to evaluate the impact of the CPS Program. First, the impact of CPS Program participation (i.e., if someone was enrolled in the CPS Program before their release) was examined. Then, for only CPS Clients, the influence of the total number of sessions with a CPS Provider on the time to recidivism was evaluated. Last, a model was estimated to examine whether any difference in the time to recidivism between CPS Clients vs non-CPS individuals was influenced by race. For all Cox Proportional Hazard regression models, age and total past charges were included as covariates, given the strong relationship between age, past criminal history, and future likelihood of recidivism (Bonta et al., 1998; Hoffman & Beck, 1984).

Results

CPS Program

A total of 4,282 individuals with complete data were retained in the final CPS Client data set and were utilized to provide descriptive information about the CPS Program. These individuals participated in the CPS Program across 16 different facilities providing information. Data from WWRC is included in program information listed under WRC. CPS Program start dates were largely unavailable from OSCI (only two participants had exact start dates listed and full baseline data), and the majority of individuals reported as CPS Clients at FLCI (97%) were listed as having 0 sessions with a CPS Provider. Therefore, data are not provided from these two

institutions. To calculate the mean and median days until enrollment in the CPS Program after an individuals' incarceration, only individuals incarcerated after the CPS Program was initiated in their respective institutions were utilized. Summary info for the CPS Program is provided in Table 8. Figures 4 and 5 show the total number of sessions with a CPS Provider and the total number of days enrolled in the CPS Program across the 13 facilities, respectively.

Table 8

CPS Program information

	Minimum and Medium-security facilities					
	JCI n = 50	**KMCI** n = 40	**NLCI** n = 148	**REECC** n = 139	**RGCI** n = 38	**SCI** n = 48
Mean (SD) Total Sessions	18.8 (16.9)	3.9 (4.8)	12.4 (11.3)	11.5 (12.5)	10.0 (6.6)	8.5 (8.8)
Median Total Sessions	12	3	10	6	9	6
# 0 sessions	2	14	5	2	2	7
# CPS Providers	10	7	7	15	4	8
Days to enrollment	142.3 (88.2)	78.6 (19.7)	149.6 (74.3)	162.2 (129.6)	170.2 (109.3)	57.0 (46.5)
Median days to enrollment	119.9	78.0	124.5	134.0	119.0	60.0
Length of enrollment	243.0 (145.8)	91.1 (90.7)	179.4 (134.3)	150.30 (141.3)	114.2 (54.0)	142.6 (105.9)

	Maximum-security facilities						
	CCI n = 111	**DCI** n = 2,484	**GBCI** n = 49	**TCI** n = 729	**WCI** n = 53	**WRC** n = 92	**WSPF** n = 248
Mean (SD) Total Sessions	24.4 (36.7)	5.5 (6.0)	18.1 (17.9)	13.7 (16.9)	6.3 (7.3)	16.3 (15.3)	21.1 (24.1)
Median Total Sessions	10	4	10	6	4	11	11
# 0 sessions	9	449	5	8	21	1	1
# CPS Providers	10	24	13	22	15	10	16
Days to enrollment	429.9 (226.8)	39.3 (90.9)	435.0 (293.3)	99.2 (128.8)	523.5 (323.5)	585.8 (446.5)	740.9 (454.5)
Median days to enrollment	396.5	22.0	374.0	57.0	483.0	466.5	687.0
Length of enrollment	256.0 (282.6)	79.3 (175.9)	262.1 (239.2)	192.6 (223.2)	160.8 (149.4)	214.8 (340.0)	

Note: Participant numbers do not add up to the total number of individual participants in the CPS Program (N = 4,282) because some individuals moved facilities, and others participated in the CPS Program at a facility not listed.

Figure 4

Boxplot showing means and distribution of total sessions with a CPS Provider attended by CPS Clients
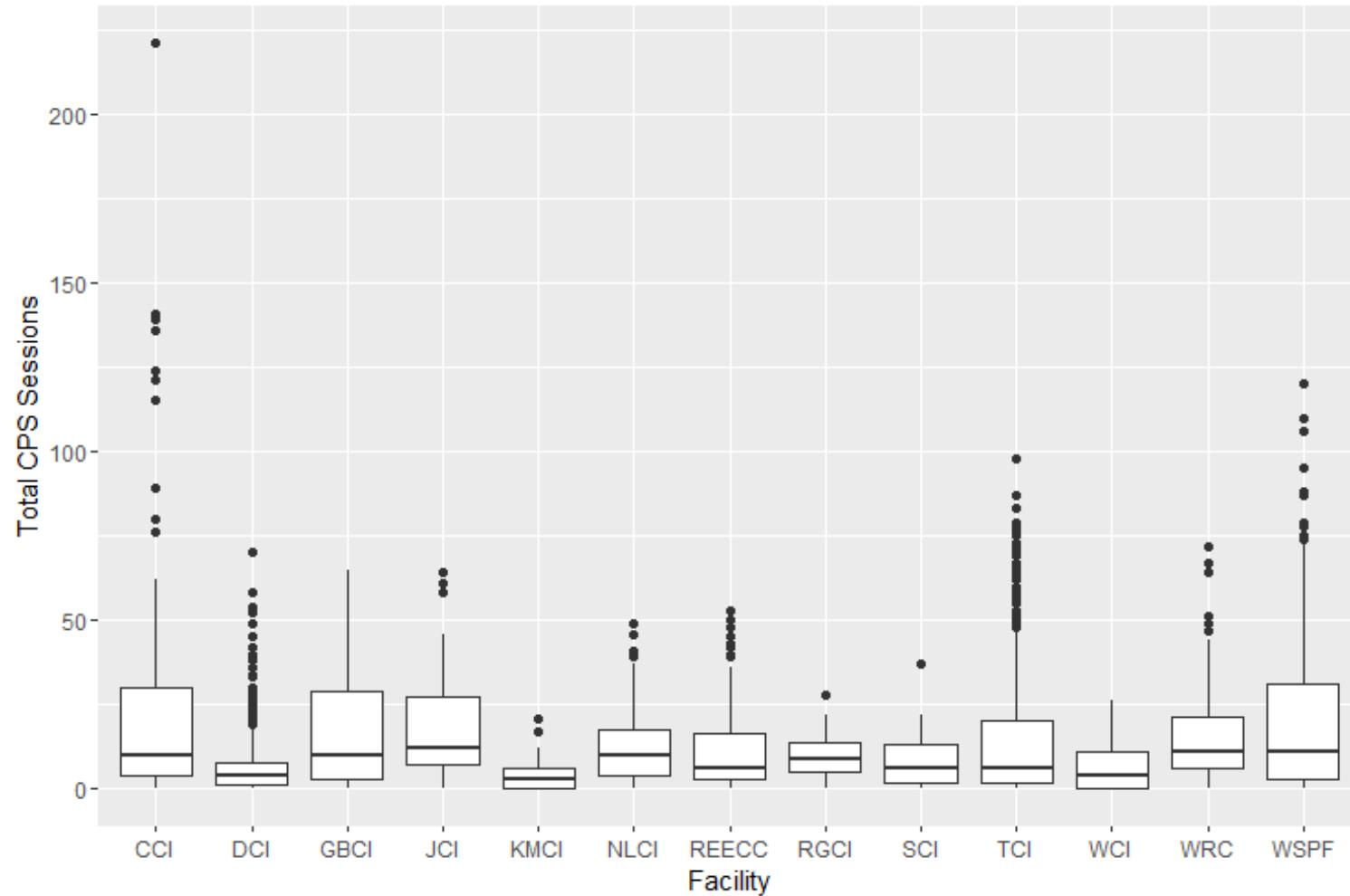
Figure 5

Boxplot showing means and distribution of the total number of days enrolled in the CPS Program by CPS Clients
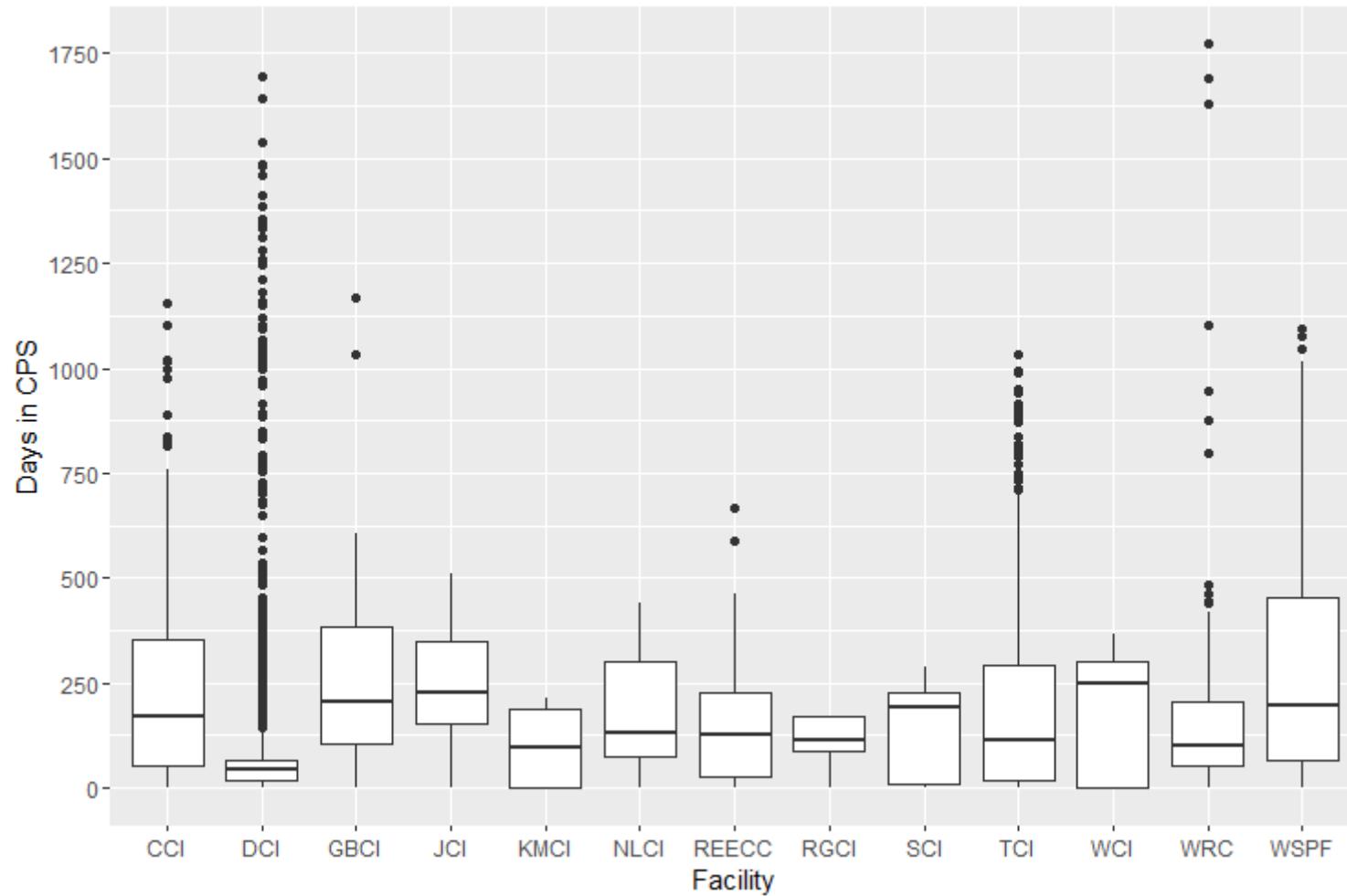
Conduct Reports

Effect of CPS Program Participation

Tables 9, 10, and 11 show model output for Total Conduct Reports, Minor Conduct

Reports, and Major Conduct Reports, respectively. Being a CPS Client was associated with a

higher overall average number of Total Conduct Reports (β = 0.028, 95% CI[0.014, 0.043], t =

3.75, p < .001; Figure 6), Minor Conduct Reports (β = 0.014, 95% CI[0.005, 0.023], t = 2.94, p <

.01; Figure 7), and Major Conduct Reports (β = 0.014, 95% CI[0.006, 0.022], t = 3.39, p < .01;

Figure 8). Group assignment (CPS Client vs non-CPS individuals) was not associated with a

change in the number of Total Conduct Reports (β = -0.001, 95% CI[-0.006, 0.004], t = -0.54, p

= .59; Figure 6) or Minor Conduct Reports after CPS enrollment (β = 0.002, 95% CI[-0.001,

0.006], t = 1.20, p = .23; Figure 7). However, although CPS Clients showed greater Major

Conduct Reports overall, after enrollment, CPS Clients showed a significant decrease in Major

Conduct Reports while non-CPS individuals showed an increase in Major Conduct Reports (β =

-0.003, 95% CI[-0.006, -0.000], t = -2.25, p = .02; Figure 8).

Table 9

CPS Program participation predicting Total Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	-0.382	-10.501 – 9.738	-0.074	.94
CPS Participation	0.028	0.014 – 0.043	3.754	**< .001**
Enrollment	0.003	-0.002 – 0.008	1.079	.28
Age	-0.119	-0.135 – -0.103	-14.477	**< .001**
Year of incarceration	0.581	-9.543 – 10.705	0.113	.91
Length of incarceration	-0.104	-0.149 – -0.060	-4.590	**< .001**
CPS Participation*Enrollment	-0.001	-0.006 – 0.004	-0.537	.59

Note: Marginal R^2 = 0.03, Conditional R^2 = 0.26

Table 10

CPS Program participation predicting Minor Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	0.272	-6.739 – 7.283	0.076	.94
CPS Participation	0.014	0.005 – 0.023	2.937	**< .01**
Enrollment	0.003	-0.001 – 0.006	1.365	.17
Age	-0.076	-0.086 – -0.066	-14.658	**<.001**
Year of incarceration	-0.146	-7.160 – 6.868	-0.041	.97
Length of incarceration	-0.070	-0.101 – -0.040	-4.504	**<.001**
CPS Participation*Enrollment	0.002	-0.001 – 0.006	1.199	.23

Note: Marginal R^2 = 0.02, Conditional R^2 = 0.17

Table 11

CPS Program participation predicting Major Conduct Reports (monthly)

|	β	CI	t	p
(Intercept)	-4.238	-10.113 – 1.636	-1.414	.16
CPS Participation	0.014	0.006 – 0.022	3.391	**< .01**
Enrollment	-0.000	-0.003 – 0.003	-0.312	.76
Age	-0.042	-0.051 – -0.033	-9.227	**< .001**
Year of incarceration	4.316	-1.562 – 10.193	1.439	.15
Length of incarceration	-0.020	-0.046 – 0.005	-1.550	.12
CPS Participation*Enrollment	-0.003	-0.006 – -0.000	-2.253	**.02**

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.20

Figure 6

CPS Program participation predicting Total Conduct Reports (monthly)
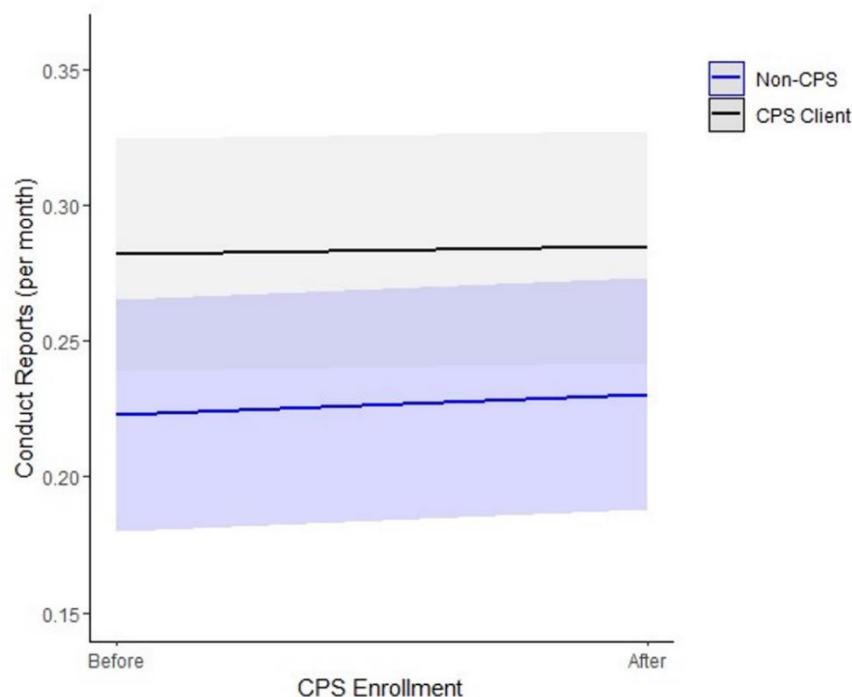
Figure 7

CPS Program participation predicting Minor Conduct Reports (monthly)
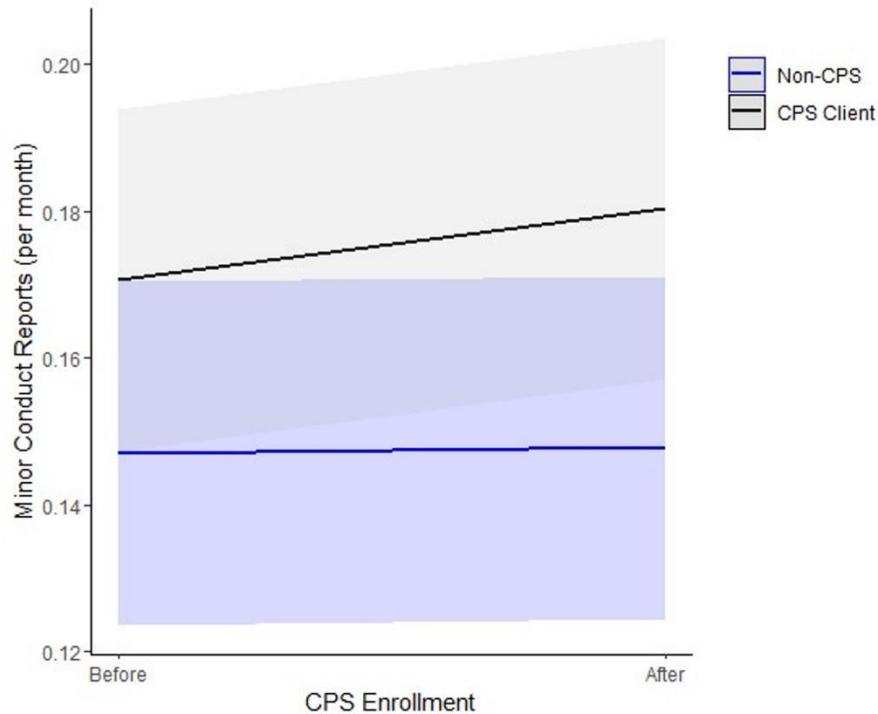
Figure 8

CPS Program participation predicting Major Conduct Reports (monthly)
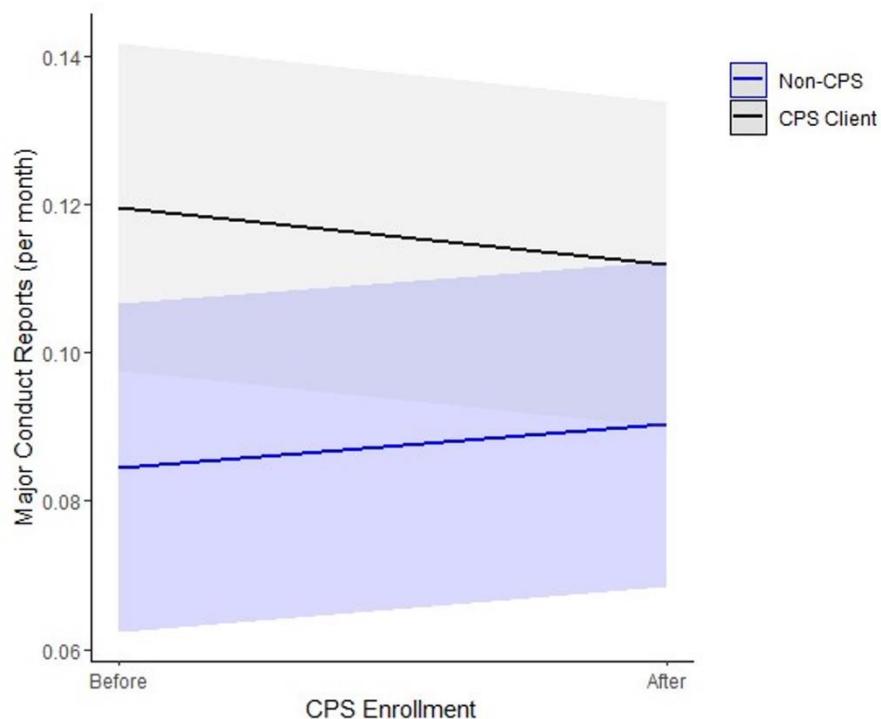
Effect of Race and CPS Program Participation

Tables 12, 13, and 14 show model output for the impact of Race on CPS Program

participation predicting monthly Total, Minor and Major Conduct Reports, respectively. Black

individuals were found guilty of significantly greater Total Conduct Reports ($\beta = 0.12$, 95%

CI[0.091, 0.152], $t = 7.74$, $p < .001$; Figure 9), Minor Conduct Reports ($\beta = 0.094$, 95%

CI[0.075, 0.114], $t = 9.61$, $p < .001$; Figure 10), and Major Conduct Reports ($\beta = 0.027$, 95%

CI[0.009, 0.044], $t = 3.03$, $p = .002$; Figure 11) compared to non-Black individuals. There was

no difference in the effect of enrolling the CPS Program on Total Conduct Reports ($\beta = -0.002$,

95% CI[-.012, 0.007], $t = -0.47$, $p = .64$; Figure 9), Minor Conduct Reports ($\beta = 0.001$, 95% CI[-

0.007, 0.008], $t = 0.162$, $p = .87$; Figure 10), or Major Conduct Reports ($\beta = -0.003$, 95% CI[-

0.009, 0.002], $t = -1.15$, $p = .25$; Figure 11) based on whether or not an individual was Black.

Table 12

Impact of race on CPS Program participation predicting Total Conduct Reports (monthly)

	β	*CI*	*t*	*p*
(Intercept)	0.936	-9.118 – 10.990	0.182	.86
CPS Participation	0.033	0.014 – 0.052	3.384	**< .01**
Enrollment	0.002	-0.005 – 0.009	0.586	.56
Race (Black)	0.121	0.091 – 0.152	7.744	**< .001**
Age	-0.107	-0.124 – -0.091	-13.066	**< .001**
Year of incarceration	-0.793	-10.852 – 9.266	-0.155	.88
Length of incarceration	-0.110	-0.154 – -0.066	-4.890	**< .001**
CPS Participation*Enrollment	-0.000	-0.007 – 0.006	-0.084	.93
CPS Participation*Race (Black)	-0.011	-0.040 – 0.017	-0.775	.44
Enrollment*Race (Black)	0.001	-0.008 – 0.011	0.286	.78
CPS Participation*Enrollment*Race (Black)	-0.002	-0.012 – 0.007	-0.472	.64

Note: Marginal $R^2 = 0.04$, Conditional $R^2 = 0.26$

Table 13

Impact of race on CPS Program participation predicting Minor Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	1.015	-5.926 – 7.956	0.287	.77
CPS Participation	0.020	0.008 – 0.032	3.300	**< .01**
Enrollment	0.003	-0.002 – 0.008	1.075	.28
Race (Black)	0.094	0.075 – 0.114	9.609	**< .001**
Age	-0.067	-0.078 – -0.057	-13.071	**< .001**
Year of incarceration	-0.933	-7.877 – 6.012	-0.263	.79
Length of incarceration	-0.074	-0.104 – -0.043	-4.771	**< .001**
CPS Participation*Enrollment	0.002	-0.003 – 0.007	0.763	.45
CPS Participation*Race (Black)	-0.015	-0.033 – 0.003	-1.588	.11
Enrollment*Race (Black)	-0.001	-0.008 – 0.007	-0.146	.88
CPS Participation*Enrollment*Race (Black)	0.001	-0.007 – 0.008	0.162	.87

Note: Marginal R^2 = 0.03, Conditional R^2 = 0.18

Table 14

Impact of race on CPS Program participation predicting Major Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	-3.914	-9.771 – 1.942	-1.310	.19
CPS Participation	0.013	0.002 – 0.023	2.280	**.02**
Enrollment	-0.001	-0.005 – 0.003	-0.689	.49
Race (Black)	0.027	0.009 – 0.044	3.026	**< .01**
Age	-0.039	-0.048 – -0.030	-8.523	**< .001**
Year of incarceration	3.979	-1.880 – 9.839	1.331	.18
Length of incarceration	-0.022	-0.047 – 0.004	-1.654	.10
CPS Participation*Enrollment	-0.002	-0.006 – 0.002	-0.889	.37
CPS Participation*Race (Black)	0.004	-0.012 – 0.020	0.454	.65
Enrollment*Race (Black)	0.002	-0.004 – 0.008	0.661	.51
CPS Participation*Enrollment*Race (Black)	-0.003	-0.009 – 0.002	-1.149	.25

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.20

Figure 9

*Impact of Race on CPS Program participation predicting Total Conduct Reports (monthly)*
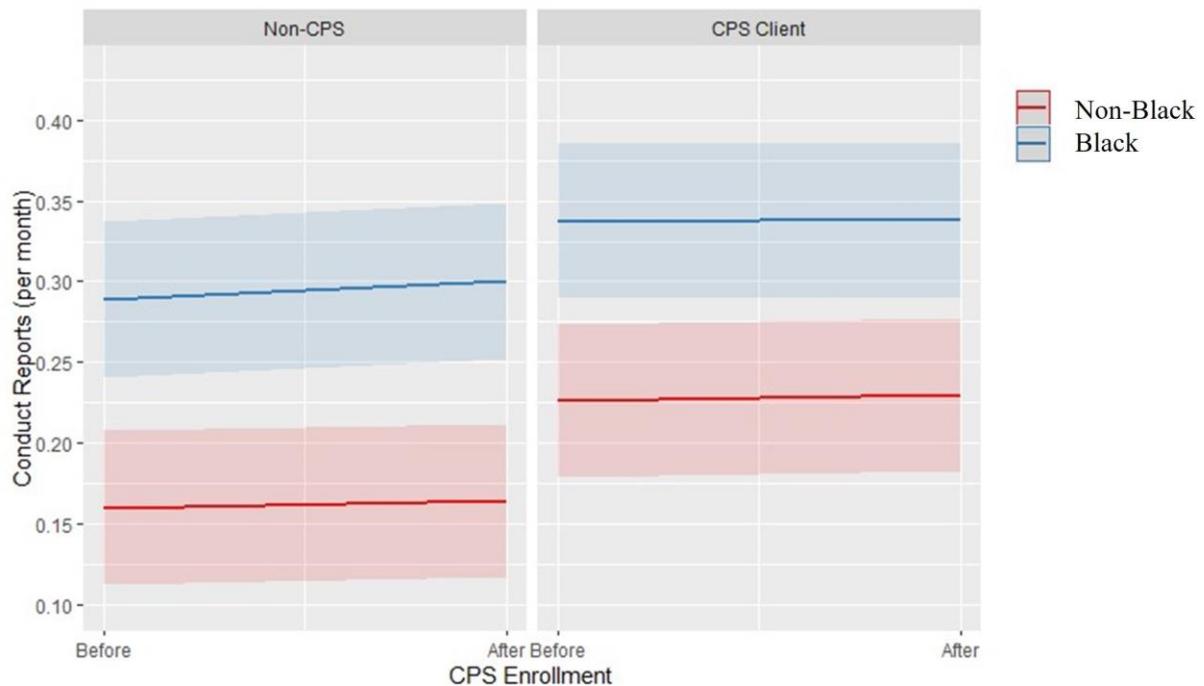
Figure 10

Impact of Race on CPS Program participation predicting Minor Conduct Reports (monthly)
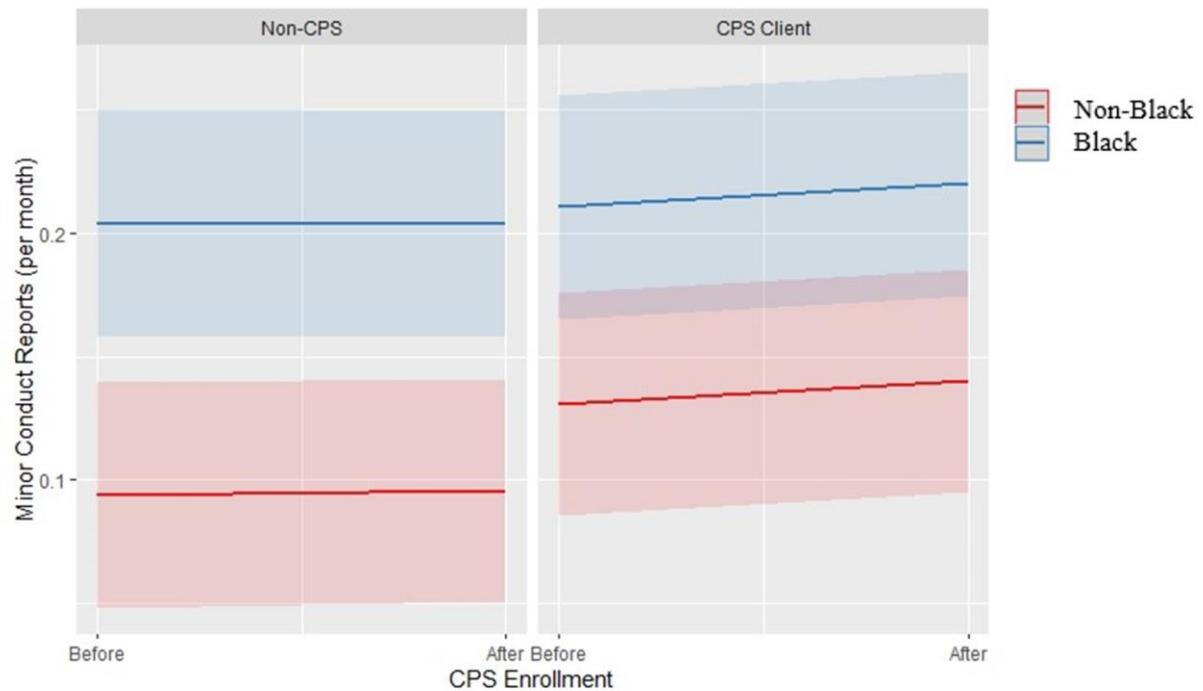
Figure 11

Impact of Race on CPS Program participation predicting Major Conduct Reports (monthly)
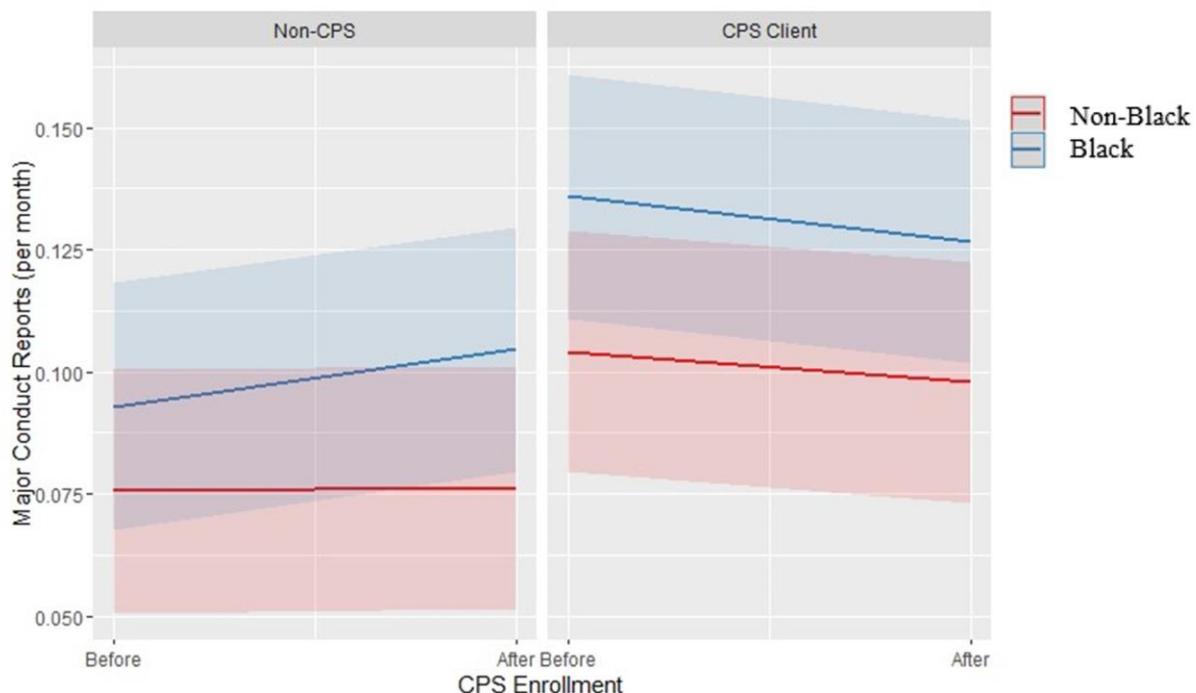
Effect of Number of Sessions with a CPS Provider

Tables 15, 16, and 17 show the relationship between the total number of sessions with a CPS Provider and monthly Total Conduct Reports, Major Conduct Reports and Minor Conduct Reports, respectively. For CPS Clients, a greater number of sessions with a CPS Provider was associated with fewer Total Conduct Reports (β = -0.04, 95% CI[-0.069,-0.011], t = -2.69, p = .007; Figure 12) and Major Conduct Reports (β = -0.028, 95% CI[-0.045, -0.010], t = -3.05, p = .002; Figure 13), but was not significantly associated with Minor Conduct Reports (β = -0.014, 95% CI[-0.032, 0.005], t = -1.42, p = .15; Figure 14).

Table 15

Relationship between total sessions with a CPS Provider and Total Conduct Reports (monthly)

	β	*CI*	*t*	*p*
(Intercept)	-4.311	-17.821 – 9.198	-0.626	.53
Total CPS Sessions	-0.040	-0.069 – -0.011	-2.690	**< .01**
Age	-0.115	-0.146 – -0.084	-7.234	**< .001**
Year of incarceration	4.614	-8.872 – 18.100	0.671	.50
Length of incarceration	-0.123	-0.187 – -0.059	-3.754	**< .001**

Note: Marginal R^2 = 0.03, Conditional R^2 = 0.32

Table 16

Relationship between total sessions with a CPS Provider and Major Conduct Reports (monthly)

	β	*CI*	*t*	*p*
(Intercept)	1.167	-6.989 – 9.323	0.281	.78
Total CPS Sessions	-0.028	-0.045 – -0.010	-3.049	**< .01**
Age	-0.045	-0.063 – -0.026	-4.673	**< .001**
Year of incarceration	-1.040	-9.182 – 7.102	-0.250	.80
Length of incarceration	-0.065	-0.104 – -0.026	-3.286	**< .01**

Note: Marginal R^2 = 0.02, Conditional R^2 = 0.30

Table 17

Relationship between total sessions with a CPS Provider and Minor Conduct Reports (monthly)

	β	*CI*	*t*	*p*
(Intercept)	-6.191	-14.881 – 2.499	-1.397	.16
Total CPS Sessions	-0.014	-0.032 – 0.005	-1.424	.15
Age	-0.070	-0.090 – -0.050	-6.896	**< .001**
Year of incarceration	6.365	-2.310 – 15.040	1.438	.15
Length of incarceration	-0.055	-0.096 – -0.014	-2.605	**< .01**

Note: Marginal R^2 = 0.02, Conditional R^2 = 0.20

Figure 12

*Relationship between total sessions with a CPS Provider (mean-centered on graph) and Total Conduct Reports (monthly)*
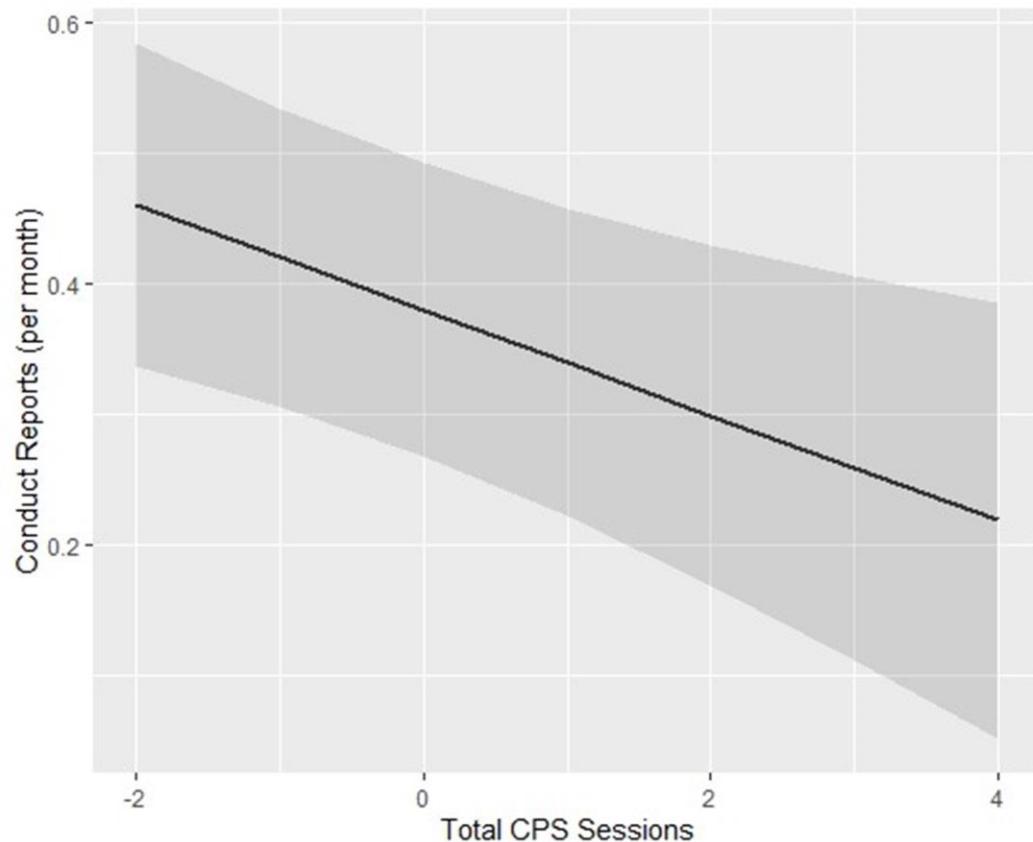
Figure 13

Relationship between total sessions with a CPS Provider (mean-centered on graph) and Major Conduct Reports (monthly)
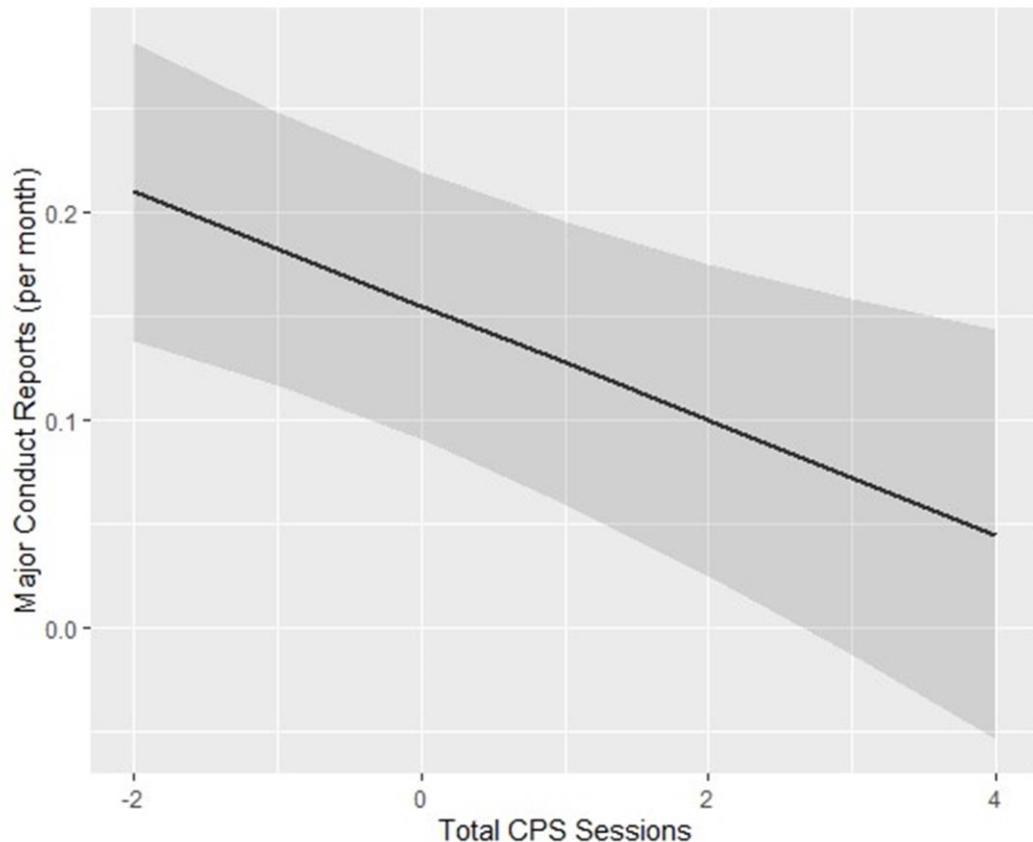
Figure 14

Relationship between total sessions with a CPS Provider (mean-centered on graph) and Minor Conduct Reports (monthly)
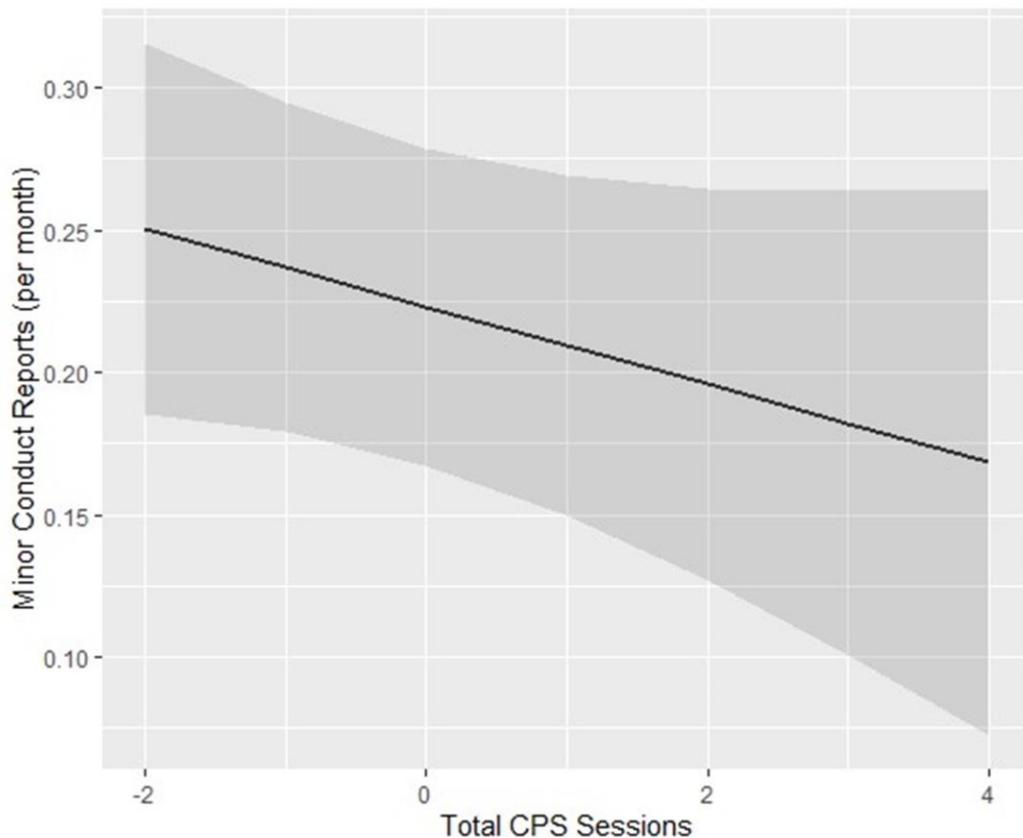
Tables 18, 19, and 20 show the impact of Race on the relationship between total sessions with a CPS Provider and monthly Total, Minor and Major monthly Conduct Reports, respectively. There was no difference in the association between the total number of sessions with a CPS Provider and the number of Total Conduct Reports (β = -0.016, 95% CI[-0.076, 0.045], t = -0.51, p = .61; Figure 15) or Minor Conduct Reports (β = 0.021, 95% CI[-0.018, 0.059], t = 1.06, p = .29; Figure 16) depending on whether an individual was Black or not Black. However, for Black individuals, the relationship between total number of sessions with a CPS Provider and the total number of Major Conduct Reports was stronger (i.e., more negative) than for non-Black individuals (β = -0.041, 95% CI[-0.078, -0.005], t = -2.20, p = .03; Figure 17).

Table 18

Impact of Race on the relationship between total sessions with a CPS Provider and Total Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	-6.022	-19.490 – 7.446	-0.876	.38
Total CPS Sessions	-0.033	-0.070 – 0.004	-1.734	.08
Race (Black)	0.118	0.057 – 0.179	3.806	**< .001**
Age	-0.101	-0.133 – -0.070	-6.294	**<. 001**
Year of incarceration	6.270	-7.174 – 19.715	0.914	.36
Length of incarceration	-0.116	-0.180 – -0.052	-3.564	**< .001**
Total CPS Sessions*Race (Black)	-0.016	-0.076 – 0.045	-0.511	.61

Note: Marginal R^2 = 0.04, Conditional R^2 = 0.32

Table 19

Impact of Race on the relationship between total sessions with a CPS Provider and Minor Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	-7.069	-15.700 – 1.562	-1.605	.11
Total CPS Sessions	-0.020	-0.044 – 0.003	-1.672	.10
Race (Black)	0.094	0.056 – 0.133	4.831	**< .001**
Age	-0.059	-0.079 – -0.039	-5.736	**< .001**
Year of incarceration	7.201	-1.415 – 15.816	1.638	.10
Length of incarceration	-0.051	-0.092 – -0.010	-2.417	**.02**
Total CPS Sessions*Race (Black)	0.021	-0.018 – 0.059	1.057	.29

Note: Marginal R^2 = 0.03, Conditional R^2 = 0.20

Table 20

Impact of Race on the relationship between total sessions with a CPS Provider and Major Conduct Reports (monthly)

	β	CI	t	p
(Intercept)	0.211	-7.971 – 8.393	0.051	.96
Total CPS Sessions	-0.011	-0.034 – 0.011	-0.998	.32
Race (Black)	0.024	-0.013 – 0.060	1.250	.21
Age	-0.042	-0.061 – -0.023	-4.293	**< .001**
Year of incarceration	-0.097	-8.264 – 8.070	-0.023	.98
Length of incarceration	-0.062	-0.101 – -0.023	-3.134	**< .01**
Total CPS Sessions*Race (Black)	-0.041	-0.078 – -0.005	-2.202	**.03**

Note: Marginal R^2 = 0.02, Conditional R^2 = 0.30

Figure 15

Impact of Race on the relationship between total sessions with a CPS Provider (mean-centered on graph) and Total Conduct Reports (monthly)
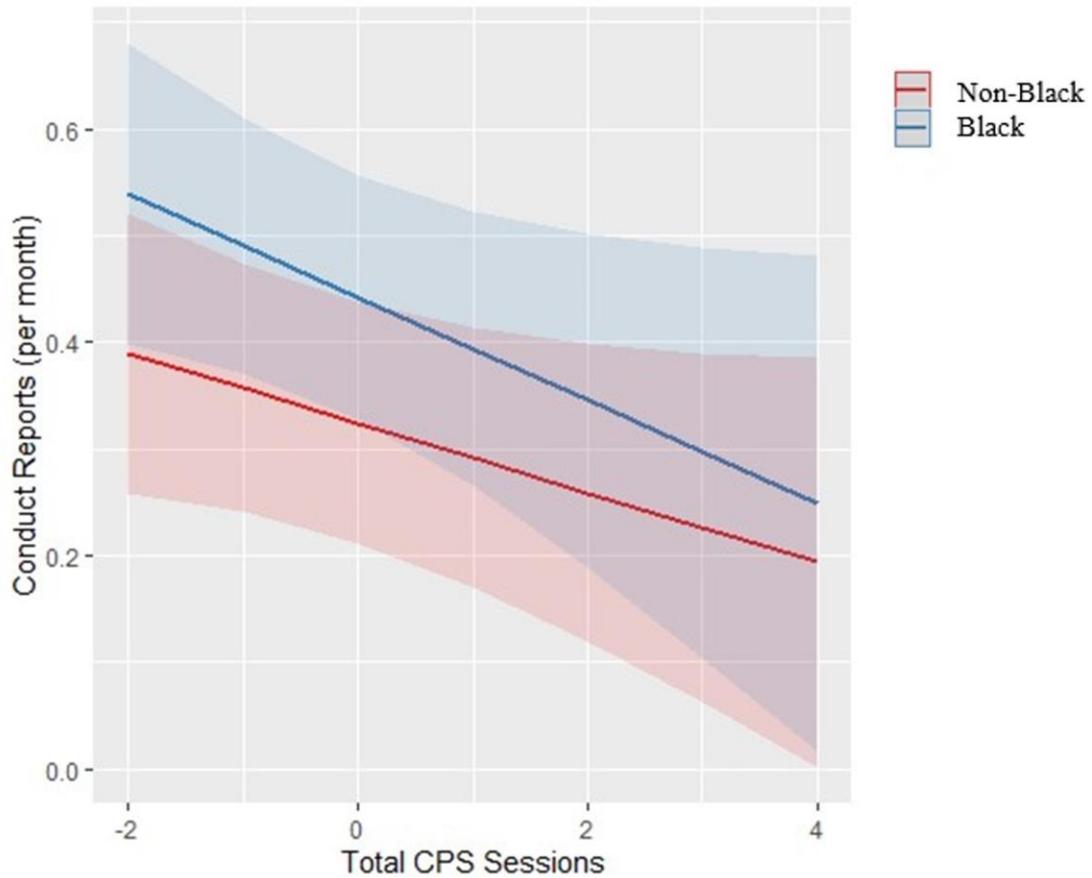
Figure 16

Impact of Race on the relationship between total sessions with a CPS Provider (mean-centered on graph) and Minor Conduct Reports (monthly)
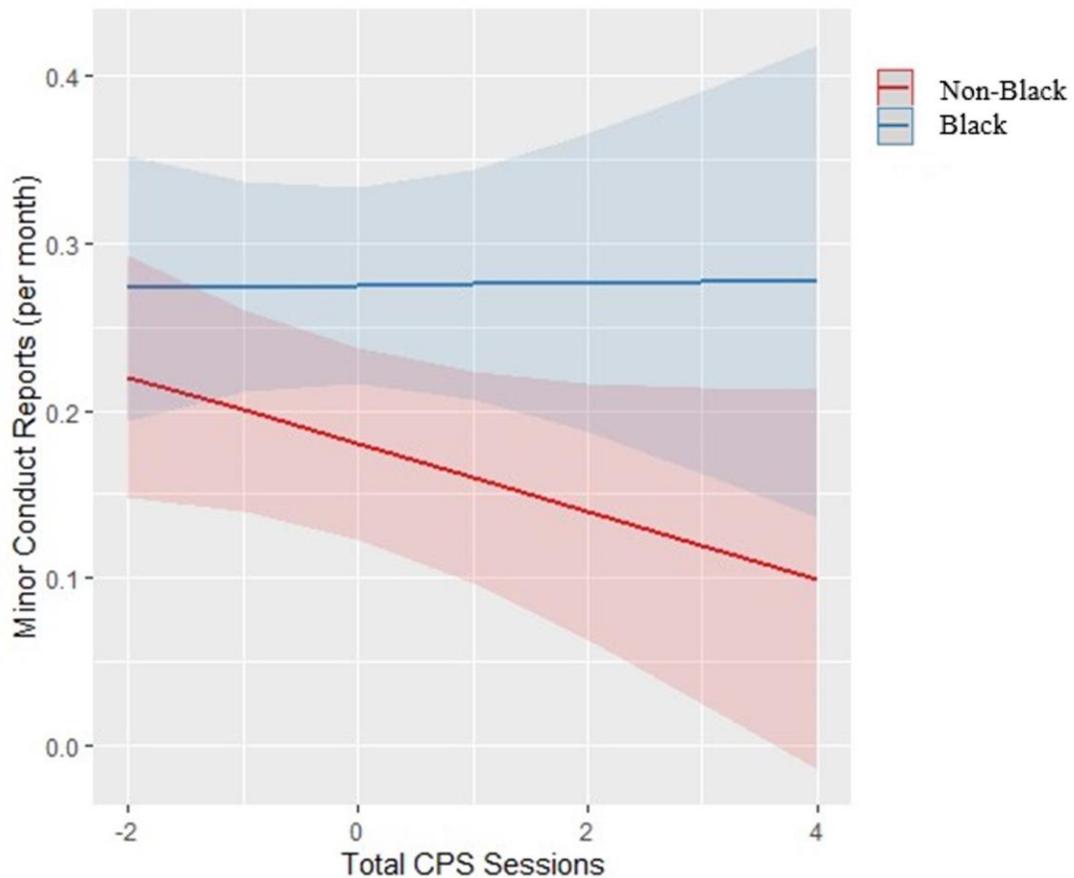
Figure 17

Impact of Race on the relationship between total sessions with a CPS Provider (mean-centered on graph) and Major Conduct Reports (monthly)
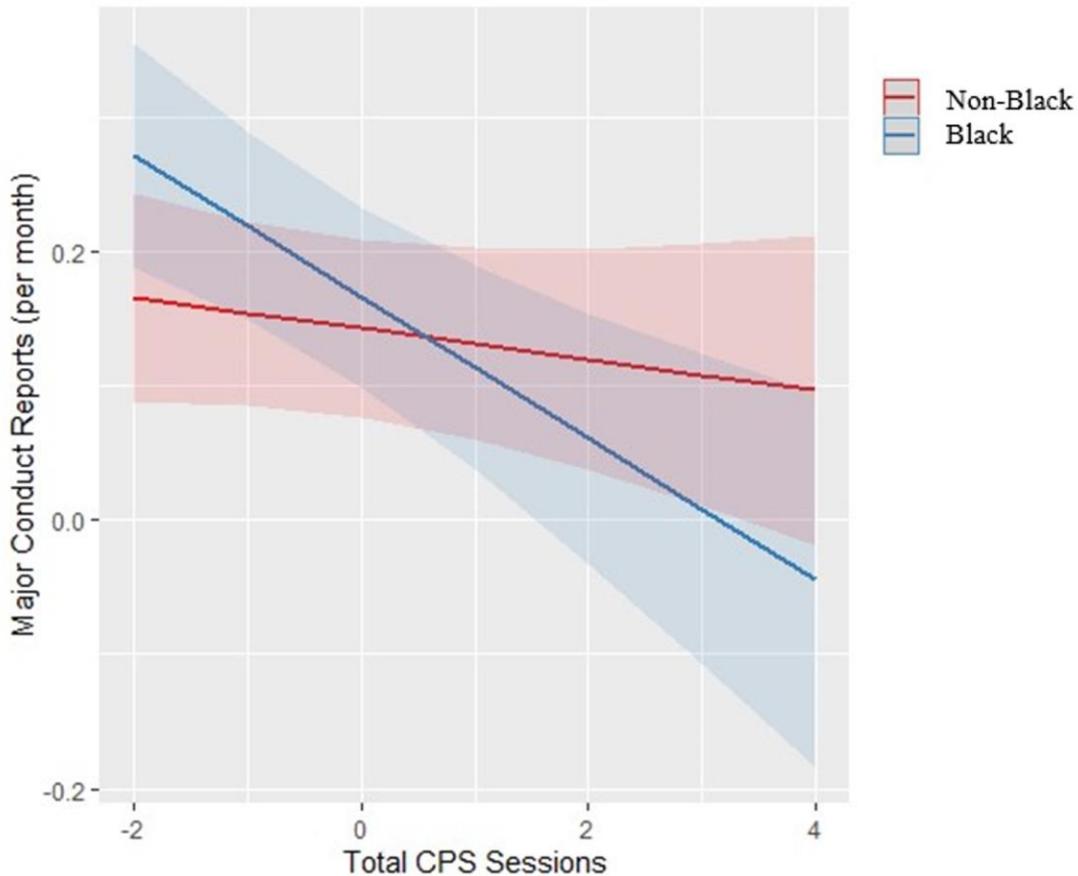
Clinical Observation

Effect of CPS Program Participation

Tables 21 and 22 show model output for models examining the impact of CPS Program participation on Clinical Observation placements and days in Clinical Observation, respectively. CPS Clients showed a greater number of monthly placements ($\beta = 0.006$, 95% CI[0.003, 0.010], $t = 3.37$, $p < .001$; Figure 18), but not days ($\beta = 0.017$, 95% CI[-0.007, 0.041], $t = 1.42$, $p = .16$; Figure 19) in Clinical Observation compared to non-CPS individuals. Group assignment (CPS Client vs non-CPS individual) was not significantly associated with a difference in the change in

Clinical Observation placements (β = 0.001, 95% CI[-0.000, 0.002], t = 1.24, p = .21; Figure 18)

or days (β = 0.002, 95% CI[-0.006, 0.009], t = 0.441, p = .66; Figure 19) per month after

enrollment; both CPS Clients and non-CPS individuals showed an increase in both outcomes

after enrollment.

Table 21

CPS Program participation predicting monthly Clinical Observation placements

	β	CI	t	p
(Intercept)	-5.114	-7.036 – -3.193	-5.218	**< .001**
CPS Participation	0.006	0.003 – 0.010	3.369	**< .01**
Enrollment	0.002	0.001 – 0.003	3.174	**< .01**
Age	-0.016	-0.020 – -0.012	-8.474	**<.001**
Year of incarceration	5.140	3.218 – 7.062	5.241	**<.001**
Length of incarceration	0.014	0.005 – 0.022	3.210	**< .01**
CPS Participation*Enrollment	0.001	-0.000 – 0.002	1.244	.21

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.21

Table 22

CPS Program participation predicting monthly Clinical Observation days

	β	CI	t	p
(Intercept)	-38.528	-51.664 – -25.393	-5.749	**< .001**
CPS Participation	0.017	-0.007 – 0.041	1.422	.16
Enrollment	0.009	0.002 – 0.017	2.526	**.01**
Age	-0.068	-0.093 – -0.043	-5.291	**< .001**
Year of incarceration	38.649	25.508 – 51.790	5.764	**< .001**
Length of incarceration	0.136	0.079 – 0.193	4.703	**< .001**
CPS Participation*Enrollment	0.002	-0.006 – 0.009	0.441	.66

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.19

Figure 18

CPS Program participation predicting monthly Clinical Observation placements
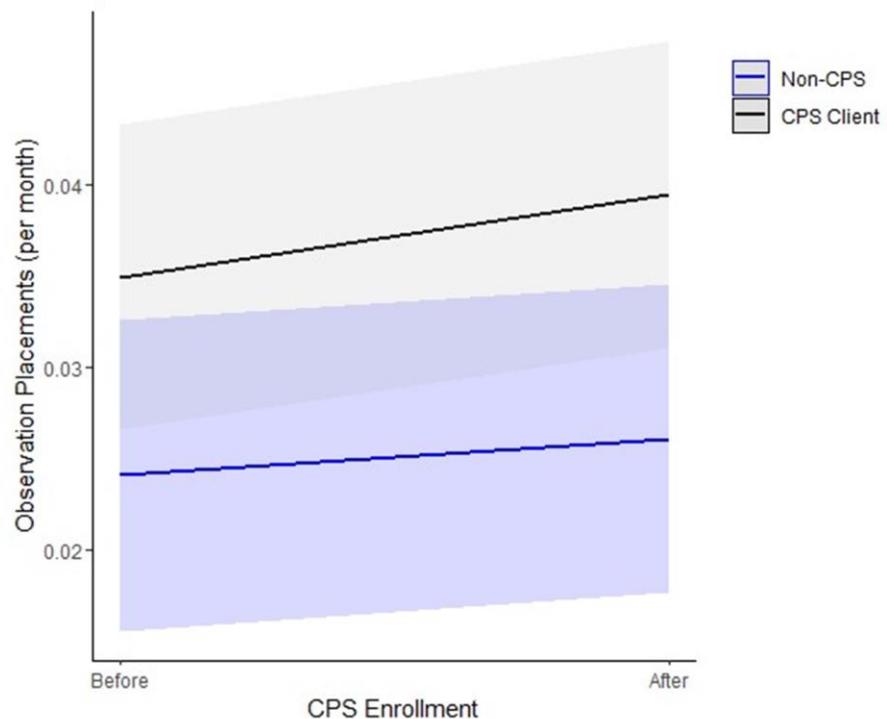
Figure 19

CPS Program participation predicting monthly days in Clinical Observation
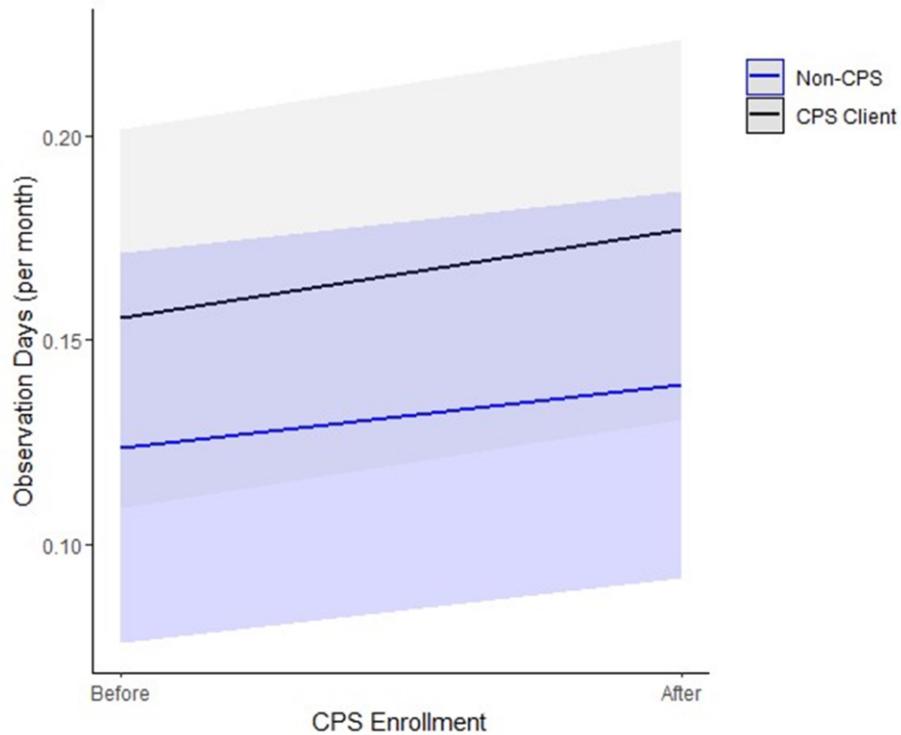
<u>Effect of Race and CPS Program Participation</u>

Tables 23 and 24 show model output for models examining the impact of CPS Program

participation on Clinical Observation placements and days in Clinical Observation, respectively.

Overall, Black participants did not show higher monthly Clinical Observation placements (β =

0.006, 95% CI[-0.001, 0.014], $t = 1.69$, $p = .09$; Figure 20) or days in Clinical Observation (β =

0.021, 95% CI[-0.029, 0.071], $t = 0.82$, $p = .42$; Figure 21) compared to non-Black individuals.

However, Black individuals showed a trending difference in the change in monthly Clinical

Observation placements ($\beta = 0.002$, 95% CI[-0.000, 0.004], $t = 1.93$, $p = .05$; Figure 20) based

on group assignment, such that Black CPS Clients showed an increase in Clinical Observation

placements after CPS enrollment, while non-CPS individuals showed a slight decrease in

Clinical Observation placements over time. Black CPS Clients did not show a significant

difference in the change in monthly days in Clinical Observation after enrollment (β = -0.011,

95% CI[-0.026, 0.003], t = -1.58, p = .11; Figure 21) compared to non-CPS individuals.

Table 23

Impact of Race on CPS Program participation predicting monthly Observation placements

	β	*CI*	*t*	*p*
(Intercept)	-4.893	-6.814 – -2.971	-4.990	**< .001**
CPS Participation	0.004	-0.001 – 0.009	1.657	.10
Enrollment	-0.002	-0.003 – -0.000	-2.163	**.03**
Race (Black)	0.006	-0.001 – 0.014	1.691	.09
Age	-0.015	-0.019 – -0.012	-7.981	**< .001**
Year of incarceration	4.915	2.992 – 6.838	5.010	**< .001**
Length of incarceration	0.013	0.004 – 0.021	2.955	**< .01**
CPS Participation*Enrollment	-0.000	-0.002 – 0.001	-0.466	.64
CPS Participation*Race (Black)	0.005	-0.002 – 0.011	1.295	.20
Enrollment*Race (Black)	0.007	0.005 – 0.009	6.681	**< .001**
CPS Participation*Enrollment*Race (Black)	0.002	-0.000 – 0.004	1.932	**.05**

*Note:* Marginal R^2 = 0.01, Conditional R^2 = 0.21

Table 24

Impact of Race on CPS Program participation predicting monthly days in Clinical Observation

|	*β*	*CI*	*t*	*p*
(Intercept)	-37.660	-50.784 – -24.536	-5.624	**< .001**
CPS Participation	0.011	-0.021 – 0.043	0.679	.50
Enrollment	-0.006	-0.015 – 0.004	-1.123	.26
Race (Black)	0.021	-0.029 – 0.071	0.815	.42
Age	-0.065	-0.091 – -0.040	-4.993	**< .001**
Year of incarceration	37.771	24.639 – 50.902	5.638	**< .001**
Length of incarceration	0.132	0.075 – 0.189	4.563	**< .001**
CPS Participation*Enrollment	0.007	-0.003 – 0.016	1.354	.18
CPS Participation*Race (Black)	0.014	-0.033 – 0.061	0.577	.56
Enrollment*Race (Black)	0.032	0.018 – 0.047	4.473	**< .001**
CPS Participation*Enrollment*Race (Black)	-0.011	-0.026 – 0.003	-1.581	.11

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.18

Figure 20

Impact of Race on CPS Program participation predicting monthly Clinical Observation placements
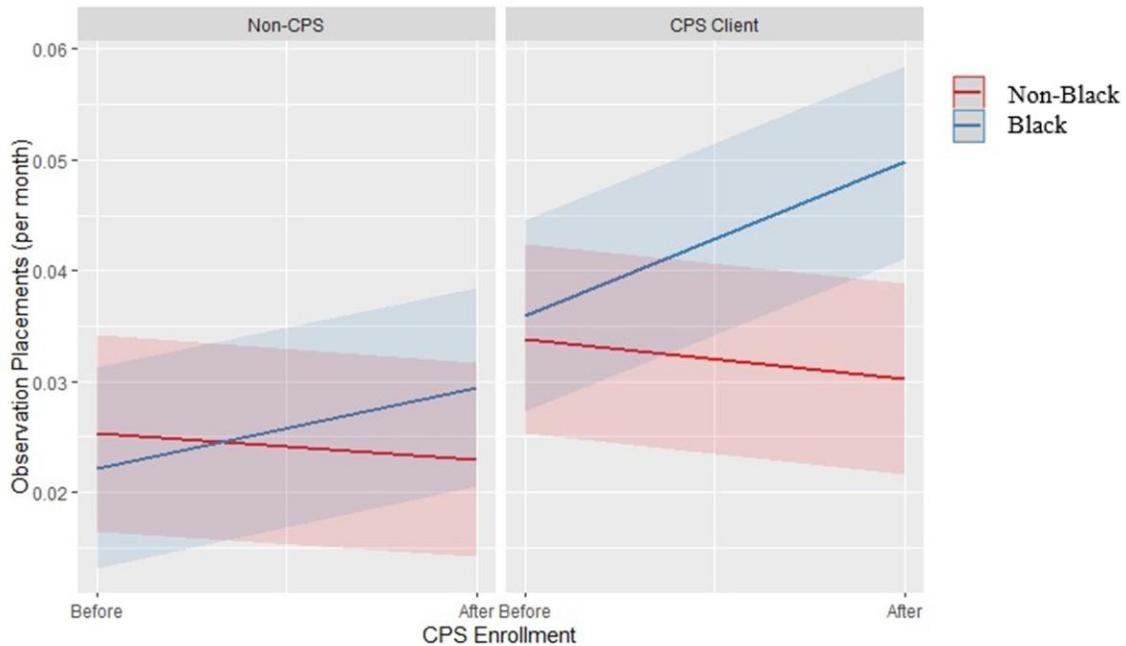
Figure 21

Impact of Race on CPS Program participation predicting monthly days in Clinical Observation
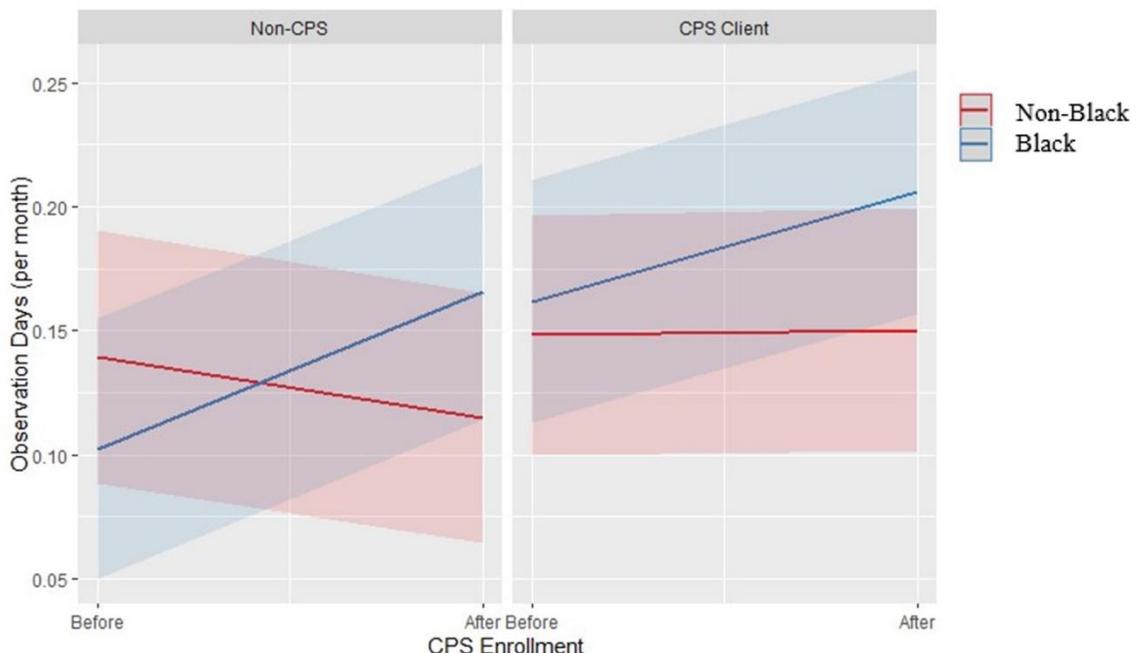
Effect of Number of Sessions with a CPS Provider

Tables 25 and 26 show model output for models examining the impact of the total

number of sessions with a CPS Provider on Clinical Observation placements and days in Clinical

Observation, respectively. For CPS Clients, a greater total number of sessions with a CPS

Provider was not associated with a significant reduction in the number of Clinical Observation

placements (β = -0.003, 95% CI[-0.011, 0.005], t = -0.81, p = .42; Figure 22) or days in Clinical

Observation (β = -0.023, 95% CI[-0.070, 0.025], t = -0.94, p = .35; Figure 23).

Table 25

Relationship between total CPS Sessions and total monthly Clinical Observation placements

	β	CI	t	p
(Intercept)	1.065	-2.522 – 4.652	0.582	.56
Total CPS Sessions	-0.003	-0.011 – 0.005	-0.814	.42
Age	-0.023	-0.031 – -0.015	-5.513	**< .001**
Year of incarceration	-1.026	-4.606 – 2.555	-0.561	.58
Length of incarceration	-0.025	-0.041 – -0.008	-2.954	**< .01**

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.31

Table 26

Relationship between total CPS Sessions and total monthly days in Clinical Observation

|	β	CI	t	p
(Intercept)	19.924	-1.646 – 41.495	1.811	.07
Total CPS Sessions	-0.023	-0.070 – 0.025	-0.941	.35
Age	-0.091	-0.141 – -0.042	-3.604	**< .001**
Year of incarceration	-19.760	-41.294 – 1.774	-1.799	.07
Length of incarceration	-0.172	-0.270 – -0.073	-3.420	**< .01**

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.35

Figure 22

Relationship between total CPS Sessions and total monthly Clinical Observation placements
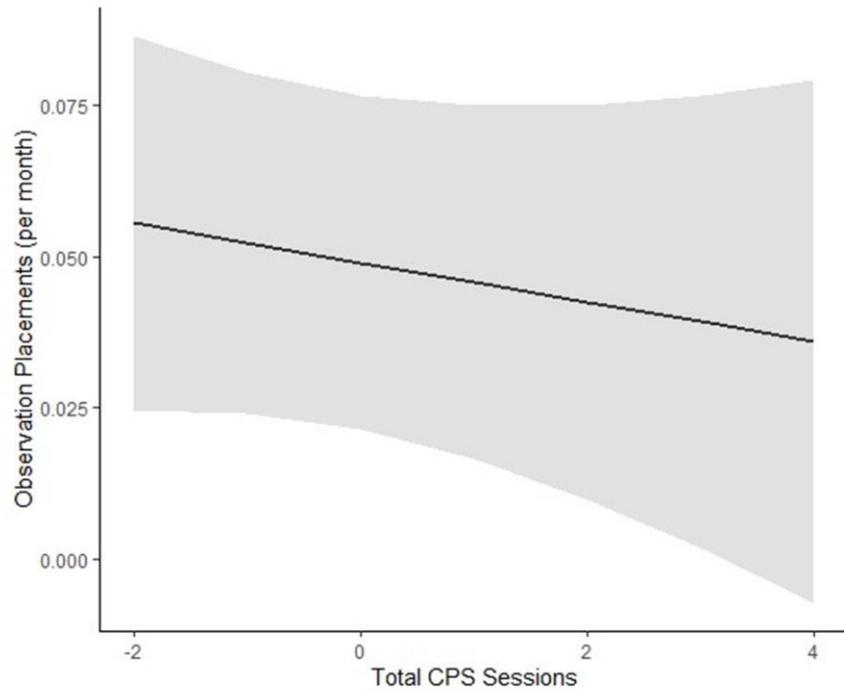
Figure 23

Relationship between total CPS Sessions and total monthly days in Clinical Observation
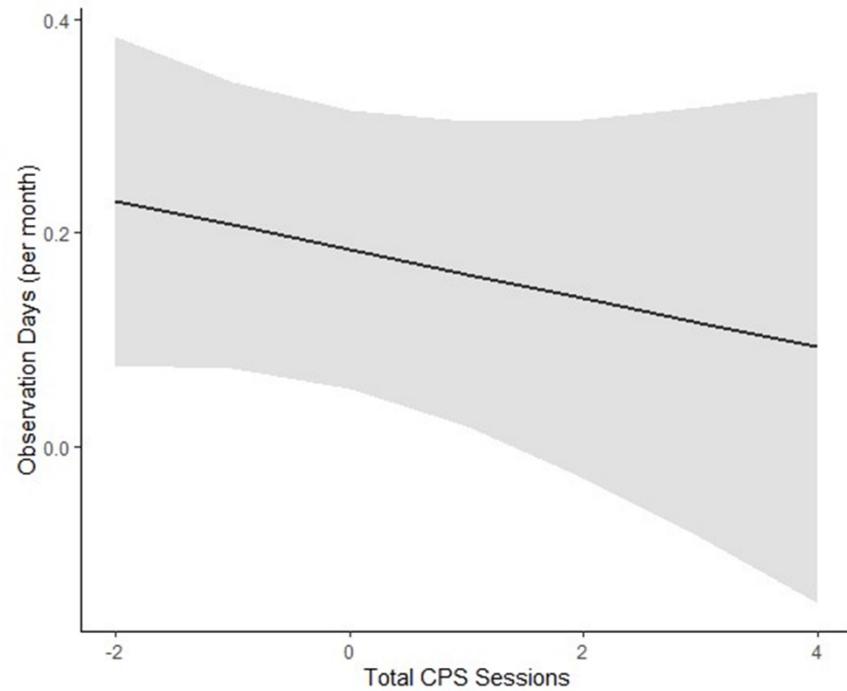
Tables 27 and 28 show model output from models examining the impact of Race on the

relationship between the total number of sessions with a CPS Provider and Clinical Observation

placements and days in Clinical Observation, respectively. For Black CPS Clients, the total

number of sessions with a CPS Provider was associated with significantly fewer Clinical

Observation placements (β = -0.017, 95% CI[-0.032, -0.001], t = -2.06, p = .04; Figure 24) but

not days (β = -0.084, 95% CI[-0.180, 0.012], t = -1.72, p = .09; Figure 25), while non-Black CPS

Clients showed a slight positive association between total sessions with a CPS Provider and

monthly Clinical Observations days and placements.

Table 27

Impact of Race on the relationship between total sessions with a CPS Provider and total monthly Clinical Observation placements

	β	CI	t	p
(Intercept)	0.724	-2.867 – 4.314	0.395	.69
Total CPS Sessions	0.004	-0.006 – 0.014	0.747	.46
Race (Black)	0.014	-0.003 – 0.030	1.617	.11
Age	-0.021	-0.030 – -0.013	-5.060	**< .001**
Year of incarceration	-0.691	-4.276 – 2.893	-0.378	.71
Length of incarceration	-0.024	-0.040 – -0.007	-2.831	**< .01**
Total CPS Sessions*Race (Black)	-0.017	-0.032 – -0.001	-2.056	**.04**

Note: Marginal R^2 = 0.02, Conditional R^2 = 0.31

Table 28

Impact of Race on the relationship between total sessions with a CPS Provider and total monthly days in Clinical Observation

	β	CI	t	p
(Intercept)	18.337	-3.278 – 39.951	1.663	.10
Total CPS Sessions	0.013	-0.049 – 0.075	0.423	.67
Race (Black)	0.051	-0.050 – 0.153	0.989	.32
Age	-0.086	-0.136 – -0.035	-3.311	**< .01**
Year of incarceration	-18.201	-39.777 – 3.376	-1.653	.10
Length of incarceration	-0.167	-0.266 – -0.069	-3.326	**< .01**
Total CPS Sessions*Race (Black)	-0.084	-0.180 – 0.012	-1.719	.09

Note: Marginal R^2 = 0.01, Conditional R^2 = 0.35

Figure 24

Impact of Race on the relationship between total number of sessions with a CPS Provider (mean-centered on graph) and total monthly Clinical Observation placements
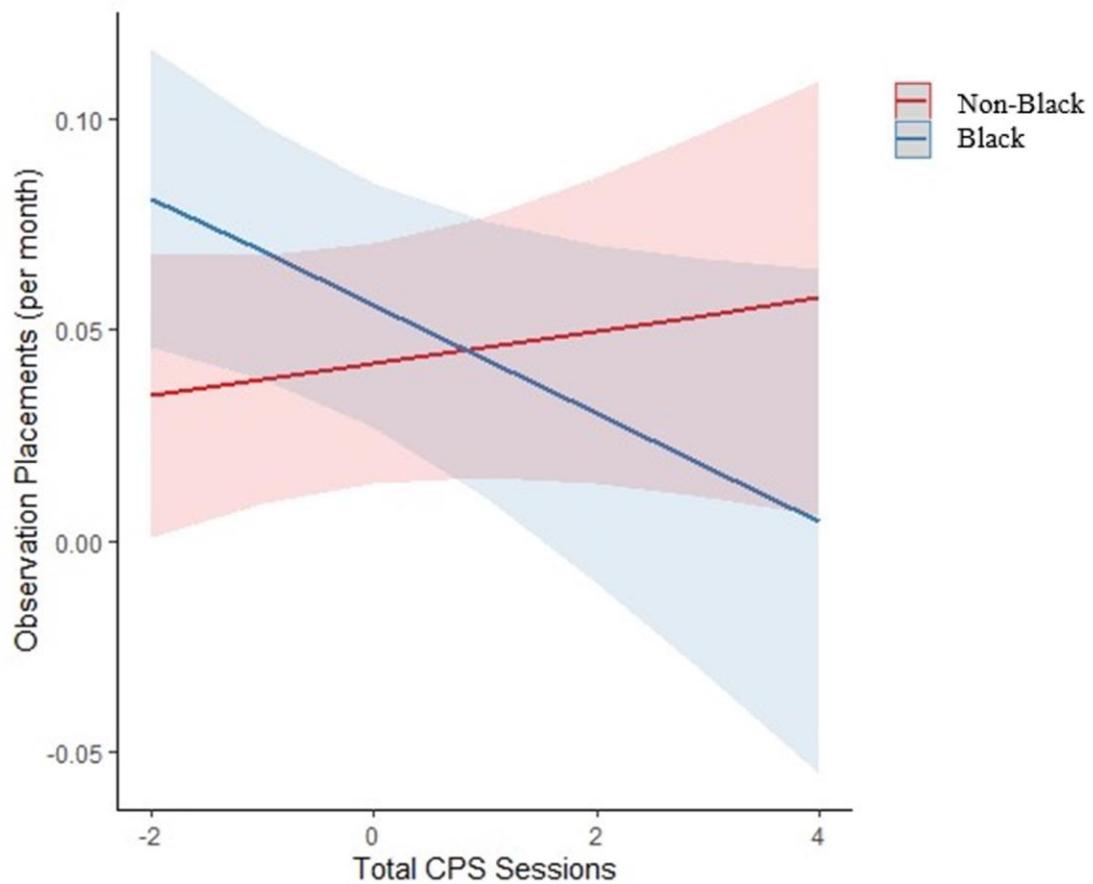
Figure 25

Impact of Race on the relationship between total number of sessions with a CPS Provider (mean-centered on graph) and total monthly days in Clinical Observation
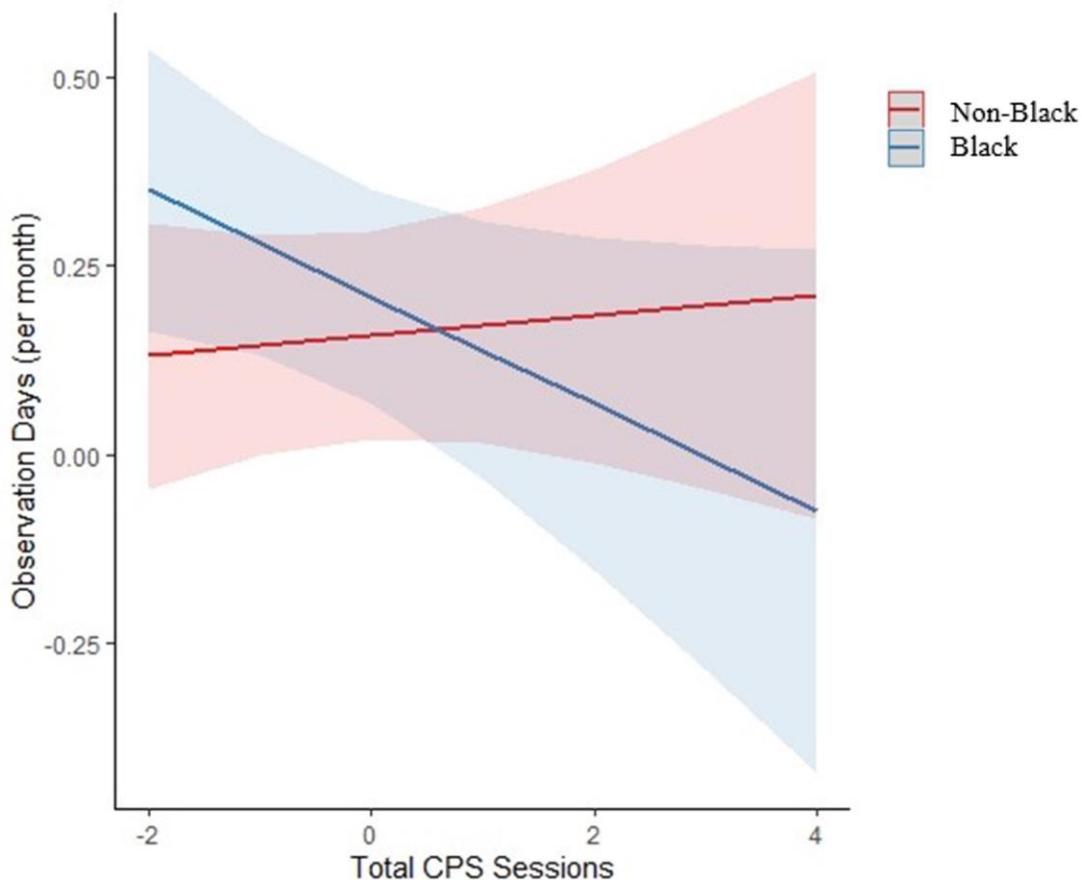
Recidivism

Tables 29, 30, and 31 show results of Cox Proportional Hazard Regression models examining the impact of group assignment (CPS Clients vs non-CPS individuals), the total number of sessions with a CPS Provider, and the interaction between Race and group assignment on rates of recidivism, respectively. Group assignment (CPS Clients vs non-CPS individuals) was significantly associated with the rate of recidivism, such that individuals who were enrolled in the CPS program prior to their release recidivated at a significantly slower rate than individuals who were not (HR = .71, $p < .001$; Figure 26). In other words, being a CPS Client prior to release reduced the probability of recidivism by 29%. Among only CPS Clients, the total

number of sessions with a CPS Provider was not significantly associated with the rate of

recidivism (HR = 1.0, *p* = .76; Figure 27). Additionally, there was an interaction effect for Black

participants, such that Black CPS Clients showed the slowest rate of recidivism compared to

non-Black CPS Clients, Black non-CPS individuals and non-Black, non-CPS individuals (HR =

.71, *p* = .05; Figure 28).

Table 29

Results from Cox Proportional Hazard Regression model examining group assignment and rate of recidivism

	β	*HR*	*95% CI*	*p*
CPS Participation	-0.34	0.71	[0.60– 0.83]	**< .001**
Age	-0.044	0.96	[0.95– 0.97]	**< .001**
Total Past Charges	0.071	1.07	[1.07– 1.08]	**< .001**
Length of Incarceration	-0.001	1.00	[0.999– 1.00]	**< .001**

Note: $R^2 = .12$

Table 30

Results from Cox Proportional Hazard Regression model examining the impact of the total number of sessions with a CPS Provider and rate of recidivism among CPS Peers

	β	*HR*	*95% CI*	*p*
Total CPS Sessions	0.002	1.00	[0.99– 1.02]	.76
Age	-0.056	0.95	[0.93– 0.96]	**< .001**
Total Past Charges	0.09	1.10	[1.08– 1.11]	**< .001**
Length of Incarceration	-0.001	0.99	[0.99– 0.99]	**< .001**

Note: $R^2 = 0.12$

Table 31

Results from Cox Proportional Hazard Regression model examining the impact of Race on the relationship between group assignment and rate of recidivism

	β	*HR*	*95% CI*	*p*
CPS Participation	-0.213	0.81	[0.66– 0.99]	**.04**
Race (Black)	-0.109	0.90	[0.74– 1.09]	.28
Age	-0.046	0.96	[0.95– 0.97]	**< .001**
Total Past Charges	0.07	1.07	[1.07– 1.08]	**< .001**
Length of Incarceration	-0.001	0.99	[0.99– 1.00]	**< .001**
CPS Participation*Race (Black)	-0.338	0.71	[0.51– 1.00]	**.05**

Note: $R^2 = 0.13$

Figure 26

Survival plot showing rates of recidivism among CPS Clients (black) and non-CPS individuals (blue).
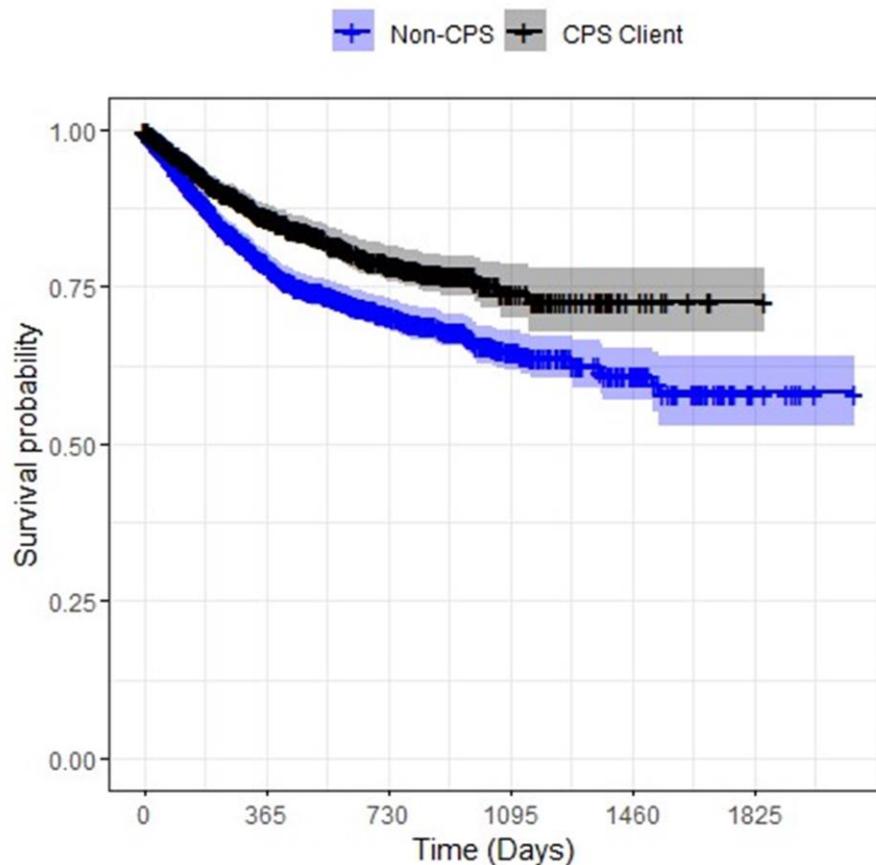
Figure 27

*Survival plot showing the relationship between total number of sessions with a CPS Provider and rate of recidivism among CPS Peers*
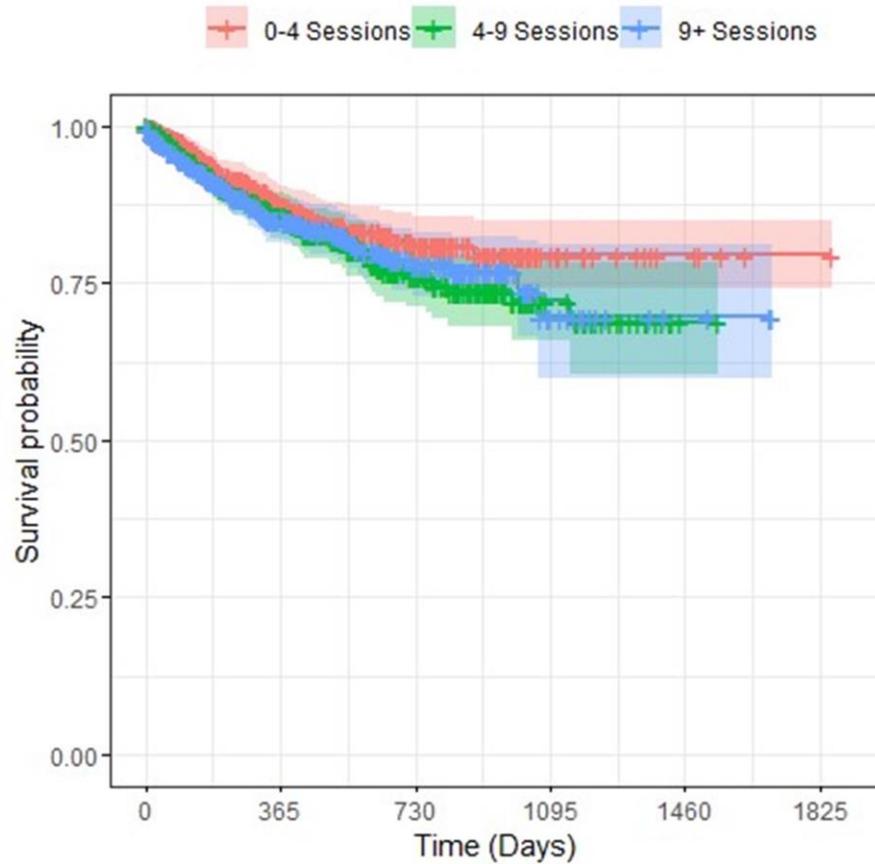
Note: Analyses were conducted analyzing the continuous relationship between the total number of sessions with a CPS Provider and rate of recidivism. Participants were divided into three roughly equal quantiles based on total number of sessions with a CPS Provider for plotting purposes.

Figure 28

Survival plot showing rates of recidivism among Black and non-Black CPS Clients and non-CPS individuals
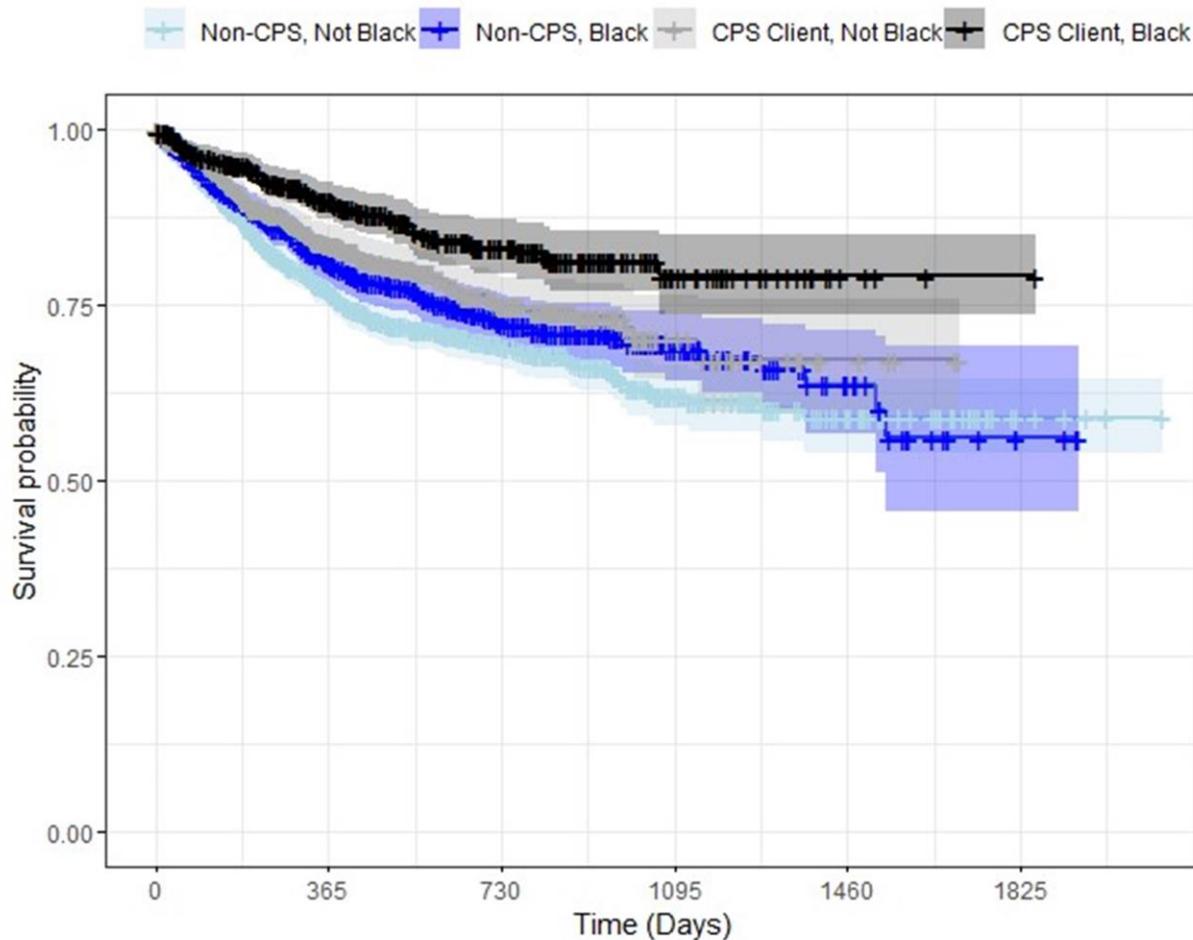
Discussion

This project is the first to evaluate the effectiveness of a peer support program operating in state prisons for reducing institutional misconduct, clinical observation placements, and recidivism after release. The CPS Program is in operation across more than 20 Wisconsin prisons, with 16 facilities providing full data on their CPS Clients. One hundred and seventeen Certified Peer Specialists have provided peer support services to over 5,000 individuals since April of 2017. The CPS Program varied widely across institutions, with smaller facilities having

only four CPS Providers (RGCI), while some larger institutions (especially intake facilities) report having more than 20 CPS Providers. The average number of sessions a CPS Client has with a CPS Provider also varied widely across institutions, ranging from under four sessions (KMCI) to more than twenty (CCI and WSPF).

Data provided by the Wisconsin Department of Corrections shows that individuals receiving peer support services are a particularly high-risk group of individuals. CPS Clients show higher rates of mental health and serious mental health conditions, are more likely to be classified as high risk for recidivism, and a higher number are incarcerated in maximum security prisons compared to the non-CPS individuals. CPS Clients also show greater average numbers of Conduct Reports and placements in Clinical Observation per month compared to the non-CPS individuals.

Overall, despite CPS Clients showing overall higher numbers of Conduct Reports, enrollment in the CPS Program was associated with a significant reduction in Major Conduct Reports compared to non-CPS individuals. Additionally, meeting with a CPS Provider for a greater number of sessions was associated with fewer Total and Major Conduct Reports, even after controlling for the length of time an individual had been incarcerated. For Black CPS Peers, there was an even stronger negative relationship between meeting with a CPS Provider and having fewer Major Conduct Reports, which is notable considering Black individuals showed greater numbers of Conduct Reports overall. Being a CPS Client before release from prison was associated with significantly lower rate of recidivism compared to individuals who were not enrolled in the CPS Program (29% reduction), and Black CPS Clients showed the lowest rates of recidivism compared to non-Black CPS Peers and all non-CPS individuals. Results showed no relationship between enrollment in the CPS Program and reductions in Clinical Observation

outcomes, however, Black CPS Peers showed a strong negative relationship between meeting with a CPS Provider for a greater number of sessions and having fewer Clinical Observation placements.

Individuals enrolled in the CPS Program showed higher overall monthly Total, Major and Minor Conduct Reports compared to individuals not enrolled in the program, however, CPS Program enrollment shows promising results at reducing Conduct Reports. This supports prior research reporting higher rates of institutional misconduct among those with mental health conditions in prison (Houser et al., 2012; Houser & Belenko, 2015). However, for those enrolled in the CPS Program, a greater number of sessions with a CPS Provider was associated with significantly fewer Total and Major Conduct Reports per month. These results suggest that although CPS Clients show generally higher rates of institutional misconduct, meeting with a CPS may help with an individuals' adjustment and provide individuals with tools to cope with their environment. Prior research has shown that social support was associated with less aggression and violence in a prison setting (Gonçalves et al., 2014; Jordaan & Hesselink, 2022; Rocheleau, 2014, 2015) lending support for the current evaluation's results. Moreover, although no changes were seen for Minor Conduct Reports, behavioral change may be better captured by Major Conduct Reports, which largely consist of infractions involving another individual (e.g., threats, assault), whereas Minor Conduct Reports are more institutional rule-based and may not be impacted as greatly by mental health services (e.g., loitering, inadequate work or school performance).

CPS Program enrollment not only impacted outcomes while individuals were incarcerated, but showed lasting effects after release from prison. Enrollment in the CPS Program prior to release from incarceration was associated with a 29% reduction in the rate of

recidivism. This is especially impactful, considering prior research has consistently shown that individuals with serious mental health conditions are at greater risk for substance use relapse and recidivism after release from prison and return to prison faster than those without mental illness (Baillargeon et al., 2009; Cloyes et al., 2010; Kubiak, 2004; Wallace & Wang, 2020). It is particularly promising that the CPS Program shows such a reduction in recidivism risk when considering prior research finds traditional mental health services (such as Dialectical Behavior Therapy) are also associated with reductions in the risk for recidivism among incarcerated individuals with mental health conditions (Nyamathi et al., 2018). While traditional mental health services are critically important for individuals in prison, results from this evaluation suggest the CPS Program could be just as useful in impacting outcomes.

Prior research suggests that peer support services may be especially beneficial for individuals from different racial or ethnic groups, especially individuals who report high rates of stigma and marginalization and have historical experiences with abuse in traditional healthcare settings. To investigate this, analyses explored whether outcomes were different for Black CPS Clients compared to non-Black individuals. Overall, Black individuals were found guilty of a greater number of Total, Major, and Minor Conduct Reports per month compared to non-Black individuals. However, the negative relationship between attending a greater number of sessions with a CPS Provider and having fewer Major Conduct Reports and Clinical Observation placements was stronger for Black CPS Clients than non-Black CPS Clients. This may be because, for Black individuals, utilization of traditional mental health symptoms is met with greater stigma than for non-Black individuals (Alang, 2019; Fripp & Carlson, 2017; Ojelade et al., 2011), especially with so few Black DOC staff in Wisconsin institutions (Wisconsin Department of Corrections: Bureau of Human Resources, 2020). Prior research has shown that a

strong therapeutic alliance is critical for the success of mental health care, but this alliance may be extremely difficult to form for Black individuals in prison (Bright et al., 2022; Canada et al., 2022; Tschuschke et al., 2020). Meeting with a peer, someone who both understands their background and has dealt with similar stigma, may be more acceptable and beneficial for these individuals, and may therefore lead to greater behavioral changes than for non-Black individuals who may access traditional mental health services more readily. Additionally, Black CPS Clients showed the lowest risk for recidivism compared to non-Black CPS Clients and all non-CPS individuals, which suggests the positive effects of the CPS Program while incarcerated may have lasting effects once an individual is released into the community.

While results show promising impacts of the CPS Program on institutional outcomes, this evaluation is not without limitations. First, a number of individuals who were enrolled in the CPS Program reported having 0 sessions with a CPS Provider, and an even greater number of individuals attended only a few sessions (i.e., less than three). These individuals were retained in analyses in order to model the impact of CPS Program enrollment, but may have significant influence on models examining group differences as they may show similar outcomes to individuals who have never enrolled in the CPS Program. This may mask the effect of the CPS Program for individuals who attend a greater number of sessions with a CPS Provider or remain in the CPS Program for a longer duration of time. Unfortunately, data was not available from all prisons to evaluate the frequency of sessions attended for those in the program, therefore this influence could not be fully quantified.

Additionally, individuals transfer institutions frequently during their incarceration. Because of this, an individual who was previously incarcerated at a facility where Conduct Reports are more rare could be moved to a facility where infractions are more common, so may

be influenced to engage in more rule infractions at the new facility. Prior research has shown that juveniles in detention facilities are influenced differently depending on the frequency with which delinquency occurs near them, which may account for unobserved and unexplained changes in the frequency of Conduct Reports over time (Huefner et al., 2018; Lee & Thompson, 2009). Future evaluations of the effectiveness of this program should detail the institutions in which Conduct Reports occur in order to account for this possible bias.

Very few significant changes were detected when examining Clinical Observation outcomes. This could be for a variety of reasons. First, it is possible that because Observation Placements are generally uncommon across this sample, it is difficult to identify significant changes in these outcomes across time. Even for Black CPS Clients, who showed the greatest number of Clinical Observation days per month compared to non-Black CPS Clients and non-CPS individuals, the mean number of placements in Clinical Observation changed from approximately 0.035 days per month to approximately 0.05 per month after enrollment. While this change is statistically significant, it may not represent a meaningful difference in a practical sense. It is also possible that for some individuals, talking about mental health concerns is more emotionally challenging than expected, which could lead to a greater need for Clinical Observation after enrolling in the CPS Program. After enrolling, these individuals may discontinue services once they've had a negative experience, so only attend a few sessions with a CPS, similar to prior literature finding increased treatment drop-out when therapies are trauma-focused (Lewis et al., 2020). For Black individuals, CPS Program participation was associated with an increase in Clinical Observation placements after CPS Program enrollment. Research shows that individuals in minority racial groups are less likely to utilize mental health services than White individuals due to increased stigma and other concerns (Primm et al., 2005;

Steadman et al., 1991). However, it is possible that after meeting with a CPS, this stigma may be reduced and mental health services may be sought out more regularly, leading to greater placements in Clinical Observation.

Results from these analyses should be interpreted with caution. All institutional outcomes (i.e., Conduct Reports and Clinical Observation outcomes) were rare in the current sample, limiting the sensitivity of these statistical tests. Because of this, effect sizes reflecting the impact of the CPS Program were incredibly small. Furthermore, model R^2 values indicate that the fixed effects included in all models estimating the CPS Program's impact accounted for a very small percentage of the variability in the data, however, adding random intercepts in these models did increase the amount of the variation accounted for by the models. Future studies should consider how to model these rare outcomes in order to fully understand the ability of CPS Program to influence behavioral change.

In all, enrollment in the CPS Program was associated with reductions in Major Conduct Reports and rate of recidivism, both critical outcomes for the Wisconsin DOC. Additionally, attending a greater number of sessions with a CPS provider was associated with reductions in Total Conduct Reports and Major Conduct Reports. These results highlight the crucial role of this program in assisting incarcerated individuals with mental health conditions, providing them with social support, and giving them opportunities to take control of their mental health treatment. While this program cannot, and should not, fully replace traditional mental health services, its effectiveness at reducing negative institutional outcomes supports its use in the prison setting.

CHAPTER 4. AIM 2: CHARACTERIZING THE FACILITY-WIDE IMPACT OF THE CPS PROGRAM

Introduction

Aim 1 showed positive impacts of the CPS Program at reducing Major Conduct Reports as well as reducing the rate of recidivism among CPS Clients. However, there may not only be positive effects for the individuals directly participating in the CPS Program. Anecdotal evidence from prisons implemented peer support programs suggest there may be global positive effects of the CPS Program for the institutions as CPS Providers and Clients influence other residents around them. In this way, it could be that the positive effects seen in Aim 1 may "spread" to others in the prisons, especially on housing units where both CPS Providers and Clients reside. One report from Pennsylvania stated that "while no research studies have been completed yet, anecdotal evidence suggests that having peer specialists in a correctional setting reduces the number of misconducts, limits the use of administrative segregation, and improves staff/peer relationships" (Patrone, 2020) and staff have reported that after the start of a peer support program, correctional officers were "running a lot less 'interference' and it provides them more time to focus on security" (Pennsylvania DOC Staff, 2013).

One reason to believe the CPS program may influence the institution as a whole is based on research by Huefner et al. (2018) showing that juveniles are primarily negatively influenced by their peers *only* when the majority of their peers are displaying delinquent behavior. In other words, if the CPS Program promoted a subset of individuals to desist from misconduct in prison, that could reduce the overall levels of misconduct to a level that would make it less likely for other individuals (who are not in the CPS Program) to be negatively influenced. The same study also found that during months when the majority of peers were not engaging in misconduct,

individuals were more likely to be positively influenced by their behavior (Huefner et al., 2018). Additionally, the presence of peers available to help other people in the prisons may create a safer environment, allowing staff to focus more on safety and less on crisis management or connecting people with services.

Another factor that may lead to widespread positive effects of the CPS Program is attitudes of institutional staff. Incarcerated individuals may not trust institution staff or may be intimidated or afraid to ask them for help/services (Bright et al., 2022; Canada et al., 2022). With the adoption of the CPS Program, various institutions have reported improving relationships between CPS Providers, CPS Clients, and institution staff. One institution in Pennsylvania reported "institutions began to recognize the benefits to prison staff as evidenced in the respect and support for the program shown by administration and front-line staff alike" (Patrone, 2020). A staff member of a Pennsylvania prison wrote in a 2013 testimonial that "staff 'buy-in' is complete and this is especially apparent in our SNU [Special Needs Units] where the officers request assistance from the CPS inmates [*sic*] on a consistent basis." Importantly, they mentioned "having peers assist others makes our jobs easier and ultimately a safer environment for all" (Pennsylvania DOC Staff, 2013).

While these testimonials and literature from juvenile facilities are helpful in understanding the role of Providers and their influence on institutions as a whole, there has been no quantitative evaluation as to whether a one-on-one peer support program offered in a correctional institution has widespread effects on behavior within the institution. As such, this study investigated the influence of the CPS Program on the monthly aggregated number of conduct reports, restrictive housing placements, and placements in clinical observation in Wisconsin prisons running the CPS Program.

Methods

<u>Institution Data</u>

All data for Aim 2 was provided by the Wisconsin Department of Corrections. For Aim 2, the total number of Conduct Reports, Restrictive Housing Placements, and Clinical Observation Placements that occurred during each calendar month were provided for the following institutions: Columbia Correctional Institution (CCI), Dodge Correctional Institution (DCI), Fox Lake Correctional Institution (FLCI), Green Bay Correctional Institution (GBCI), Jackson Correctional Institution (JCI), Kettle Moraine Correctional Institution (KMCI), Milwaukee Women's Correctional Center (MWCC), New Lisbon Correctional Institution (NLCI), Oshkosh Correctional Facility (OSCI), Redgranite Correctional Institution (RGCI), Robert E. Ellsworth Correctional Center (REECC), Stanley Correctional Institution (SCI), Taycheedah Correctional Institution (TCI), Waupun Correctional Institution (WCI), Wisconsin Resource Center (WRC), Wisconsin Secure Program Facility (WSPF). Only RH placements from disciplinary action were included for these analyses, therefore placements in RH for other reasons (e.g., administrative reasons, COVID-19 quarantine) were not included. WRC is a treatment facility that houses both male and female residents, however outcomes were not separated between male and females. Therefore, because the CPS Program started at different times for male and female residents at WRC, data from this institution was not analyzed for this project.

Restrictive Housing and Clinical Observation data were provided from January 2010 to December 2022. Full aggregates of Conduct Report data were available starting in February 2019. Additionally, only institutions with 12 months of outcome data before and after the start of the CSP Program were included in analyses. For this reason, SCI (CPS Start: 3/19/2022),

MWCC (CPS Start: 4/4/2022), and KMCI (CPS Start: 5/31/2022) were not included in all analyses. Furthermore, only institutions with at least 12 months of outcome data before the start of the COVID-19 pandemic were included in primary data analyses, due to the significant impact of the COVID-19 pandemic on facility operations, resident mental health, and staff vacancies (Bureau of Budget & Facilities Management, n.d.; McDermott et al., 2022; Wisconsin Department of Corrections, 2021). Therefore, primary analyses examined Restrictive Housing and Clinical Observation data for WSPF, OSCI, DCI and WCI. The remaining institutions (CCI, FLCI, GBCI, JCI, NLCI, REECC, RGCI, TCI) were included in supplemental analyses for Restrictive Housing and Clinical Observation outcomes. FLCI, JCI, NLCI, RGCI and REECC were included in supplemental analyses evaluating Conduct Reports, as all other facilities did not have at least 12 months of Conduct Report data available before the start of their CPS Program. REECC reported 0 Clinical Observation placements across nearly all months included in the data file, so was not included in Clinical Observation analyses. All results from supplemental analyses are included in **Appendix A**.

To account for changes in these outcomes related to changes in the total prison population, month-end populations for each facility were also provided. Month-end population data were only available starting in 2014, therefore Restrictive Housing and Clinical Observation data were only utilized from January 2014 to December 2022. Then, all monthly totals for each outcome were divided by the total number of individuals incarcerated at that facility during the same month. All outcomes were analyzed using these divided totals, reflecting the number of instances of each outcome as a percentage of the total population.

Interrupted Time Series analysis

Interrupted Time Series (ITS) analysis is a statistical method in which an outcome is measured continuously across a period of time and is "interrupted" by the introduction of an intervention or event (Bernal et al., 2017; Schaffer et al., 2021; Wagner et al., 2002). ITS is especially useful in investigating population-based trends when randomization into an intervention is not possible. This analysis allows the researcher to investigate whether there is a difference in the outcome after the introduction of the intervention compared to a hypothetical scenario in which the intervention had not occurred. For example, one recent study investigated whether a justice reinvestment initiative reduced the use of incarceration in the state of Oregon (Dollar et al., 2022).

<u>Autocorrelation</u>

Autocorrelation is the degree to which the observed variable at a given time point is correlated with that same variable at a previous time point. The auto-regressive integrated moving average (ARIMA) model can be used to remove autocorrelation from a data series to prevent autocorrelation from influencing the analyses. Conceptually, using the ARIMA model is similar to filtering the data in order to remove autocorrelation before regression modeling is used to determine the effects of an intervention (Campbell & Stanley, 1963). For example, Conduct Reports may always increase during summer months, which would mean June of one year is autocorrelated with June of the previous year. Additional lags are defined for seasonally correlated time series using the same methods described below.

<u>Autoregressive lags</u>

The ARIMA model consists of three components: p, d, and q. In addition, time series can contain seasonal components *(P, D, Q)* with separate autocorrelation patterns. The first component, p, indicates the number of autoregressive (AR) lags that should be included in the

ARIMA model. The partial autocorrelation function (PACF) is used to determine the number of

AR lags. The PACF is a measure of the direct correlation between a variable at the current time

and that same variable at a previous time point. Essentially, the PACF function will show which

previous time points have a significant direct correlation on the current time point. If only the

immediately preceding time point is significantly correlated with the current time point, that

would indicate an AR of 1.

Moving average lags

The third component, q, indicates the number of moving average (MA) lags to be

included in the model. An MA model accounts for the error of the estimated values from

previous time points. It is called a moving average model because the model estimates will

always move around some constant mean (or average). The autocorrelation function (ACF)

measures the correlation between an observation and all previous observations in that time series

and can be used to determine how many MA lags are necessary.

The second component, d, is the number of differences applied to a variable. Differencing

is often used to "normalize" a time series, removing any trend (e.g., upward slope). However, in

evaluating the impact of a program on an outcome, de-trending the data would obscure any

changes that could be detected by linear regression. Therefore, for the purposes of this project all

data were allowed to remain non-normal, and no trends were removed using differencing.

Regression

Segmented regression is a method of ITS analysis using least squares regression in which

a time series is split into two or more "segments." Each segment is divided by an interruption

point, which defines the beginning or end of the segment. Then, a regression model is fit to each

segment to estimate its level (raw change) and trend (slope). Unlike other methods of ITS

analysis, segmented regression includes an explicit term in the regression model for time and assumes a linear relationship between time and the outcome variable. One benefit of segmented regression is that the researcher can evaluate the impact of multiple events across one time series, also called Multiple Event Time Series Regression. In this case, multiple variables reflecting the "level" and "trend" of each variable can be included. However, one principal assumption of regression is that all observations of the outcome variable are independent from each other. In longitudinal data, this assumption is often violated because observed outcomes are related to their previous values (i.e., autocorrelated). The *gls*() function in R attempts to address this autocorrelation by allowing the researcher to include parameters for autocorrelated data (Pinheiro et al., 2023). However, this function cannot account for seasonal autocorrelation, potentially leaving critical noise in the time series.

Data Analysis

In order to address concerns over autoregression in time series data, while retaining the ability to evaluate a change in the trend of each outcome after the implementation of the CPS Program, a novel statistical approach (Dollar, 2023; Dollar et al., 2022) was utilized whereby data were first "filtered" using the ARMA approach, then passed into a regression model to evaluate CPS Program impact.

This analysis was conducted in three steps, each conducted separately for each prison and each relevant outcome (Restrictive Housing, Clinical Observation, Conduct Reports). First, using the *ARIMA* function in the *fable* package in R (O'Hara-Wild et al., 2023), multiple ARIMA models were evaluated and compared using various (*p, d, q)(P,D,Q)* combinations to determine the most appropriate function. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were used to indicate the goodness of fit of the ARIMA models,

with lower values indicating better fitting models. Additionally, autocorrelation and partial autocorrelation plots were used to visually inspect all models and confirm model selection using the *acf*() and *pacf*() functions in R (R Core Team, 2022). As an example, when evaluating Restrictive Housing for one facility, the ARIMA function may find that an ARIMA model with specifications of (0,1,1)(0,0,1)[12] and (0,1,1)(0,0,2)[12] could fit the data (in this example, [12] indicates seasonality of 12 months). If the ARIMA (0,1,1)(0,0,1)[12] had a lower AIC/BIC, this model would be chosen. Once the most appropriate model was chosen, it was evaluated using the *Box.test*() function in the *stats* package in R to determine if the model successfully filtered the data (R Core Team, 2022). This test evaluates whether residuals from the model are different from white noise; a significant Q-value indicates that the residuals are not white noise, meaning the data has not been adequately filtered.

Once the ARIMA model was chosen and confirmed that the model resulted in residuals reflecting white noise, the model was rerun excluding only the seasonal parameters. In the above example, the second ARIMA model would be run using (0,1,1)(0,0,0). This way, the resulting ARIMA model removes only noise from the AR and MA components but leaves any noise from the seasonal autocorrelation in the residuals from the model. Essentially, this step results in a set of residual values that contain only the seasonal autocorrelation. Then, the residuals were extracted from this model and subtracted from the raw data, leaving a "filtered" set of outcome data, with no seasonal autocorrelation, to be moved onto the regression step (see Dollar, 2023 for a detailed explanation).

Once the correct ARIMA model was chosen and residuals containing seasonal components were removed from the raw data, the filtered data was passed into the *gls*() function to evaluate the impact of the CPS Program on each outcome. AR and MA parameters identified

in the original ARIMA model were included in the gls() function to remove any additional autocorrelation. Additionally, dummy variables indicating *Time* (1 - # of observations), *Level* (Pre-CPS = 0; Post-CPS Start = 1), and *Trend* (Pre-CPS = 0; Post-CPS Start = 1 - # observations after CPS Start) were included in the model. Additionally, the COVID-19 pandemic began in Wisconsin in March 2020, and prisons were forced to lockdown and establish strict guidelines for residents, which led to serious negative impacts on mental health for both prison residents and staff (Kim et al., 2022; Kothari et al., 2022). Because data were collected during the COVID-19 pandemic, it was necessary to add additional *Level* (Pre-COVID = 0; Post-COVID Start = 1) and *Trend* (Pre-COVID = 0; Post-COVID Start = 1 - # observations after COVID Start) to assess the impact of COVID-19 on institutional outcomes.

Results

Table 32 shows all ARIMA models chosen for each facility and outcome, as well as the corresponding Q and *p*-values. All *p*-values for ARIMA models were non-significant, indicating the chosen ARIMA models successfully filtered autocorrelation from the data. Four of the eight models contained seasonal components. In each case, the raw data were filtered using the technique described above, and filtered outcomes were utilized for analyses. For models with no seasonal components, raw outcomes were utilized for analyses. No differences were included in *gls*() models, even in cases where a significant trend was detected by the ARIMA model.

Table 32

ARIMA Model specification for facilities and outcomes included in primary analyses

	Restrictive Housing			Clinical Observation		
	ARIMA	*Q*	*p*	**ARIMA**	*Q*	*p*
DCI	(0,1,1)(0,0,1)[12]	17.08	.85	(1,1,1)(1,0,0)[12]	23.01	.52
OSCI	(0,1,4)(0,0,2)[12]	20.16	.69	(0,1,1)	29.06	.22
WCI	(3,1,1)	21.02	.64	(3,1,0)		
WSPF	(2,1,1)	19.33	.73	(1,0,1)(0,0,2)[12]	16.88	.85

The mean number of RH placements across all facilities was 53.7 per month (mean as a percentage of the population = .04). The mean number of Clinical Observation placements across all facilities was 22.1 per month (mean as a percentage of the population = .02).

DCI

Tables 35 and 36 show results from the *gls*() models predicting RH placements and Clinical Observation placements (as a percentage of the total population) for DCI, respectively. The CPS Program was associated with a significant decrease in both the level (β = -0.005, $p <$ .01) and trend (β = -0.0008, $p < .001$) of RH placements (Figure 29). The CPS Program was not associated with a significant change in the level or trend of Clinical Observation placements (p's $> .08$).

Table 35

Model output from model predicting RH placements at DCI

	β	SE	CI	t	p
(Intercept)	0.0192	0.0011	0.0169 – 0.0214	16.6730	**<.001**
Time	0.0007	0.0000	0.0006 – 0.0007	16.5518	**<.001**
CPS level	-0.0051	0.0018	-0.0086 – -0.0016	-2.9183	**< .01**
CPS trend	-0.0008	0.0001	-0.0010 – -0.0005	-7.0747	**<.001**
COVID level	0.0044	0.0018	0.0008 – 0.0080	2.3962	**.02**
COVID trend	-0.0004	0.0001	-0.0007 – -0.0002	-3.7167	**<.001**

Table 36

Model output from model predicting Clinical Observation placements at DCI

	β	SE	CI	t	p
(Intercept)	0.0080	0.0007	0.0066 – 0.0093	11.7896	**<.001**
Time	-0.0000	0.0000	-0.0000 – 0.0000	-0.0909	.93
CPS level	0.0008	0.0010	-0.0012 – 0.0028	0.8061	.42
CPS trend	0.0001	0.0001	-0.0000 – 0.0002	1.7277	.09
COVID level	0.0004	0.0010	-0.0017 – 0.0024	0.3504	.73
COVID trend	-0.0001	0.0001	-0.0003 – 0.0000	-1.5961	.11

Figure 29

Time Series analysis of RH placements at DCI
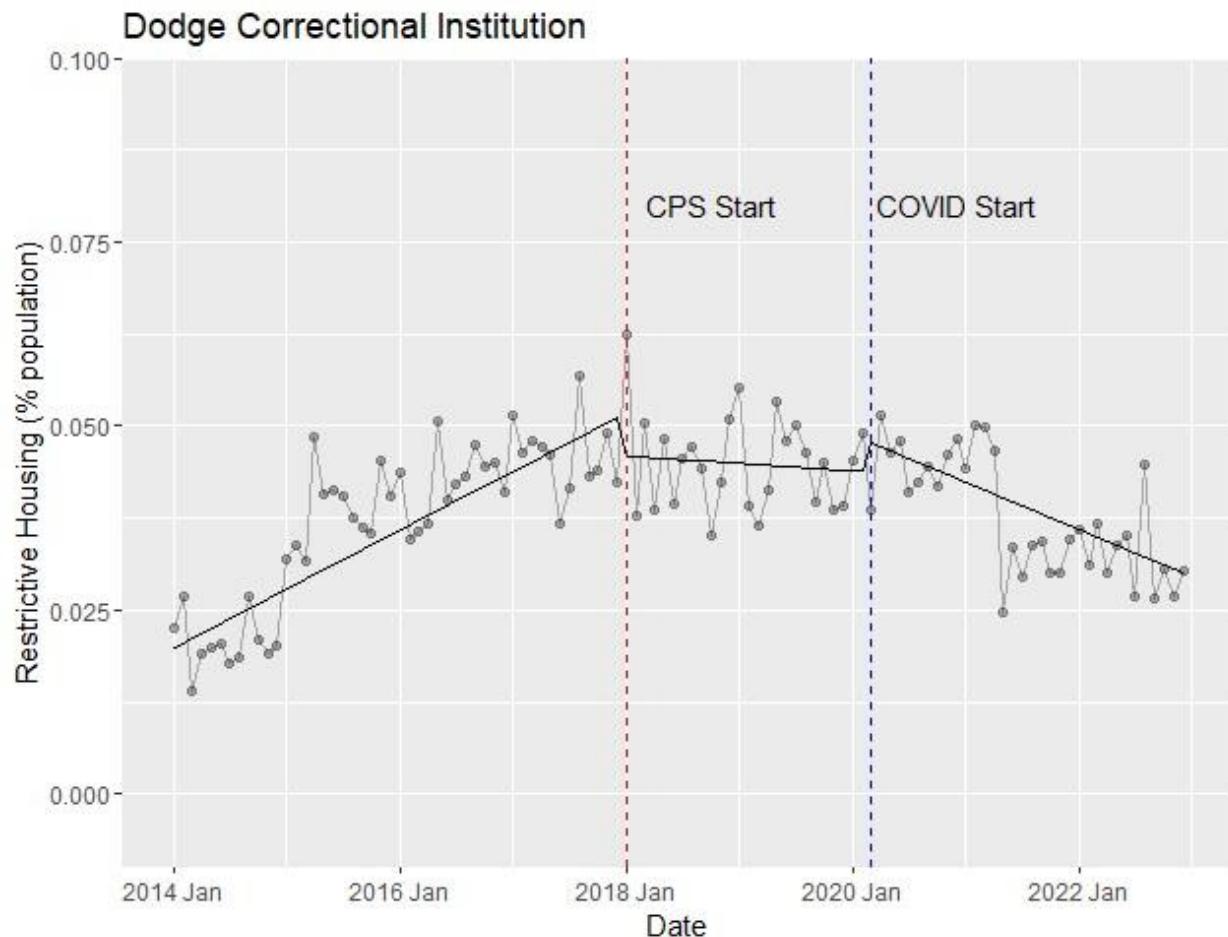
OSCI

Tables 37 and 38 show results from the *gls*() models predicting RH placements and

Clinical Observation placements, respectively. The CPS Program was associated with a decrease

in the trend of both RH placements (β = -0.0003, p < .001; Figure 33) and Clinical Observation

placements (β = -0.0001, p = .02; Figure 34), but was not associated with a significant change in

the level of either outcome (p's > .56).

Table 37

Model output from model predicting RH placements at OSCI

	β	SE	CI	t	p
(Intercept)	0.0183	0.0013	0.0157 – 0.0210	13.6602	**<.001**
Time	0.0003	0.0001	0.0002 – 0.0004	5.5272	**<.001**
CPS level	0.0007	0.0012	-0.0017 – 0.0031	0.5908	.56
CPS trend	-0.0003	0.0001	-0.0005 – -0.0001	-3.6263	**<.001**
COVID level	-0.0019	0.0012	-0.0043 – 0.0006	-1.5265	.13
COVID trend	0.0002	0.0001	-0.00002 – 0.0004	1.7196	.09

Table 38

Model output from model predicting Clinical Observation placements at OSCI

	β	SE	CI	t	p
(Intercept)	0.0009	0.0004	0.0001 – 0.0016	2.2704	**.03**
Time	0.0001	0.00002	0.0001 – 0.0001	6.8596	**<.001**
CPS level	-0.0002	0.0006	-0.0013 – 0.0009	-0.4073	.69
CPS trend	-0.0001	0.00003	-0.0001 – -0.0000	-2.4445	**.02**
COVID level	-0.0018	0.0006	-0.0030 – -0.0007	-3.1689	**<.01**
COVID trend	-0.0001	0.00003	-0.0001 – -0.00003	-3.0656	**< .01**

Figure 33

Time Series analysis of RH placements at OSCI
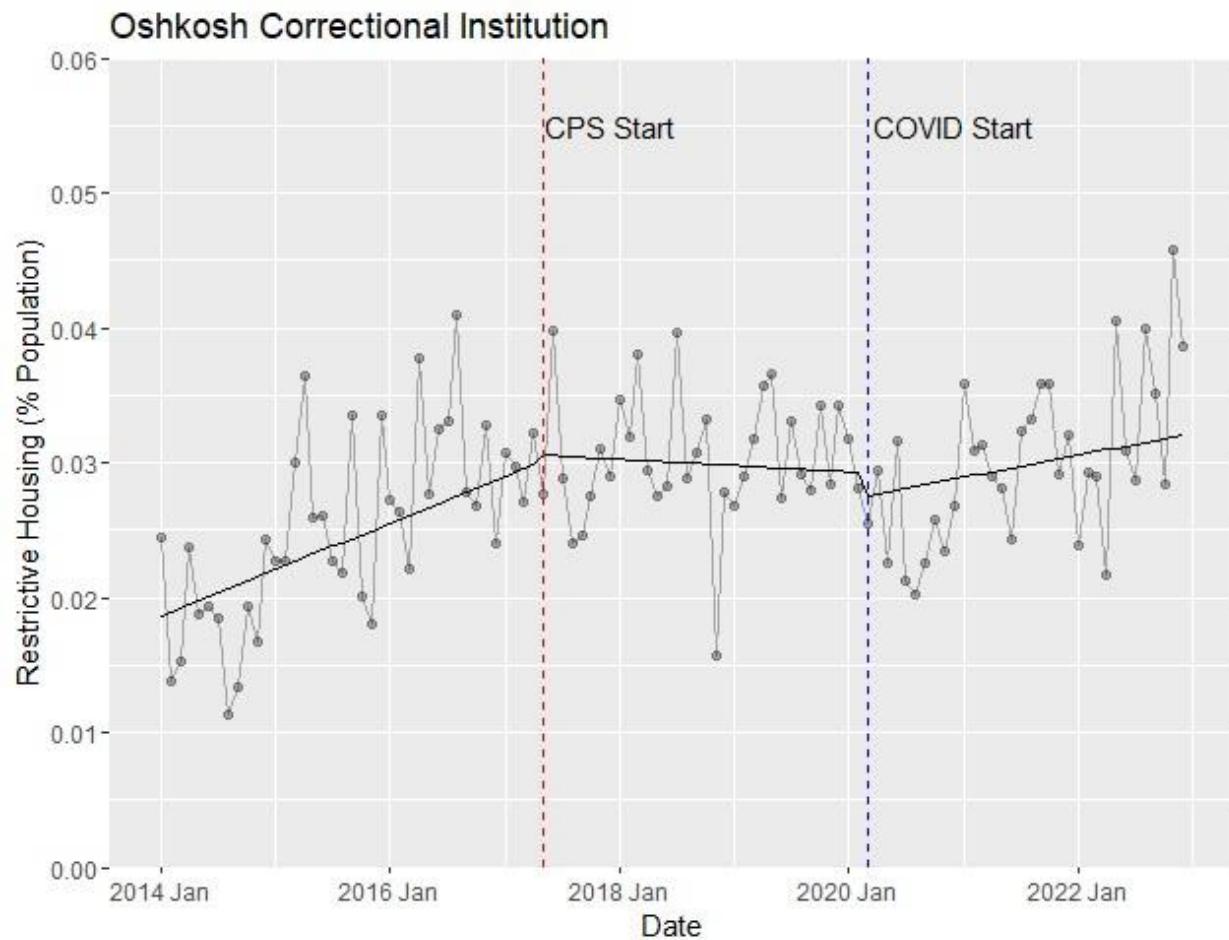
Figure 34

Time Series analysis of Clinical Observation placements at OSCI
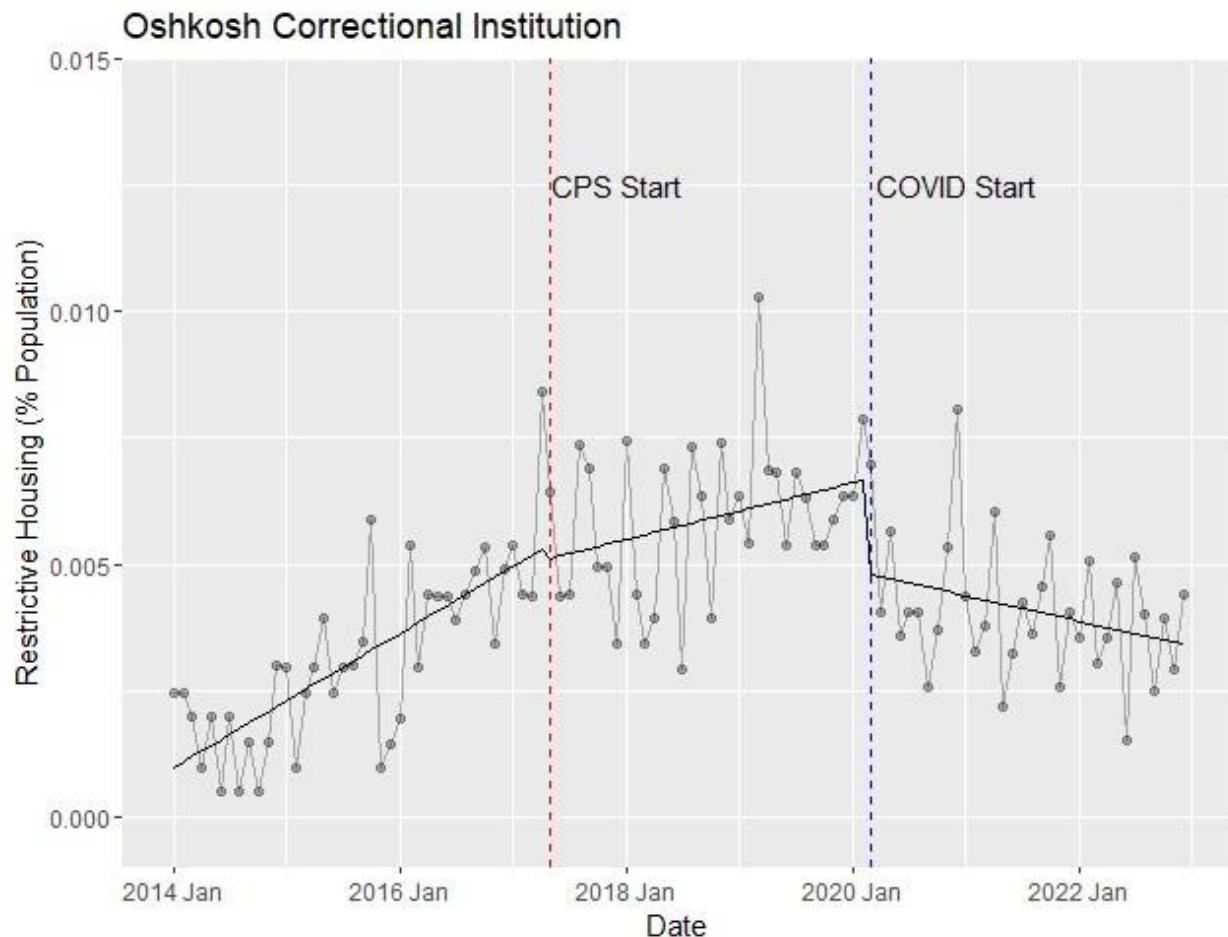
WCI

Tables 39 and 40 show results from the *gls*() models predicting RH placements and Clinical Observation placements, respectively. The CPS Program was not associated with a significant change in the level or trend of RH placements (*p*'s > .42) or Clinical Observation placements (*p*'s > .29).

Table 39

Model output from model predicting RH placements at WCI

	β	SE	CI	t	p
(Intercept)	0.0422	0.0054	0.0314 – 0.0529	7.7775	**<.001**
Time	0.0007	0.0002	0.0004 – 0.0010	4.1857	**<.001**
CPS level	-0.0077	0.0096	-0.0268 – 0.0113	-0.8049	.42
CPS trend	-0.0005	0.0009	-0.0022 – 0.0013	-0.5374	.59
COVID level	-0.0069	0.0097	-0.0260 – 0.0123	-0.7136	.48
COVID trend	0.0001	0.0009	-0.0018 – 0.0020	0.1099	.91

Table 40

Model output from model predicting Clinical Observation placements at WCI

	β	SE	CI	t	p
(Intercept)	0.0315	0.0054	0.0208 – 0.0422	5.8317	**<.001**
Time	0.0002	0.0002	-0.0001 – 0.0005	1.1148	.27
CPS level	-0.0093	0.0089	-0.0269 – 0.0083	-1.0520	.30
CPS trend	0.0001	0.0008	-0.0015 – 0.0017	0.1219	.90
COVID level	0.0048	0.0088	-0.0127 – 0.0224	0.5481	.59
COVID trend	0.0001	0.0009	-0.0017 – 0.0019	0.1428	.89

WSPF

Tables 41 and 42 show results from the *gls*() models predicting RH placements and Clinical Observation placements, respectively. The CPS Program was associated with a significant decrease in the level of RH placements ($\beta = $ -0.016, $p < .01$; Figure 38), but was not

associated with a change in the trend of RH placements ($p = .21$). The CPS Program was not

associated with a change in the level or trend of Clinical Observation placements (p's > .11).

Table 41

Model output from model predicting RH placements at WSPF

	β	SE	CI	t	p
(Intercept)	0.0175	0.0035	0.0106 – 0.0243	5.0545	**<.001**
Time	0.0007	0.0002	0.0004 – 0.0010	4.5634	**<.001**
CPS level	-0.0158	0.0050	-0.0256 – -0.0059	-3.1717	**< .01**
CPS trend	-0.0003	0.0002	-0.0007 – 0.0002	-1.2514	.21
COVID level	-0.0033	0.0051	-0.0135 – 0.0069	-0.6438	.52
COVID trend	-0.0003	0.0003	-0.0009 – 0.0002	-1.3599	.18

Table 42

Model output from model predicting Clinical Observation placements at WSPF

	β	SE	CI	t	p
(Intercept)	0.0336	0.0043	0.0250 – 0.0421	7.8089	**<.001**
Time	0.0001	0.0002	-0.0002 – 0.0005	0.8437	.40
CPS level	0.0074	0.0045	-0.0016 – 0.0164	1.6258	.11
CPS trend	-0.0004	0.0003	-0.0010 – 0.0002	-1.2980	.20
COVID level	0.0016	0.0046	-0.0075 – 0.0107	0.3461	.73
COVID trend	-0.0001	0.0003	-0.0007 – 0.0006	-0.2630	.79

Figure 38

Time Series analysis of RH placements at WSPF
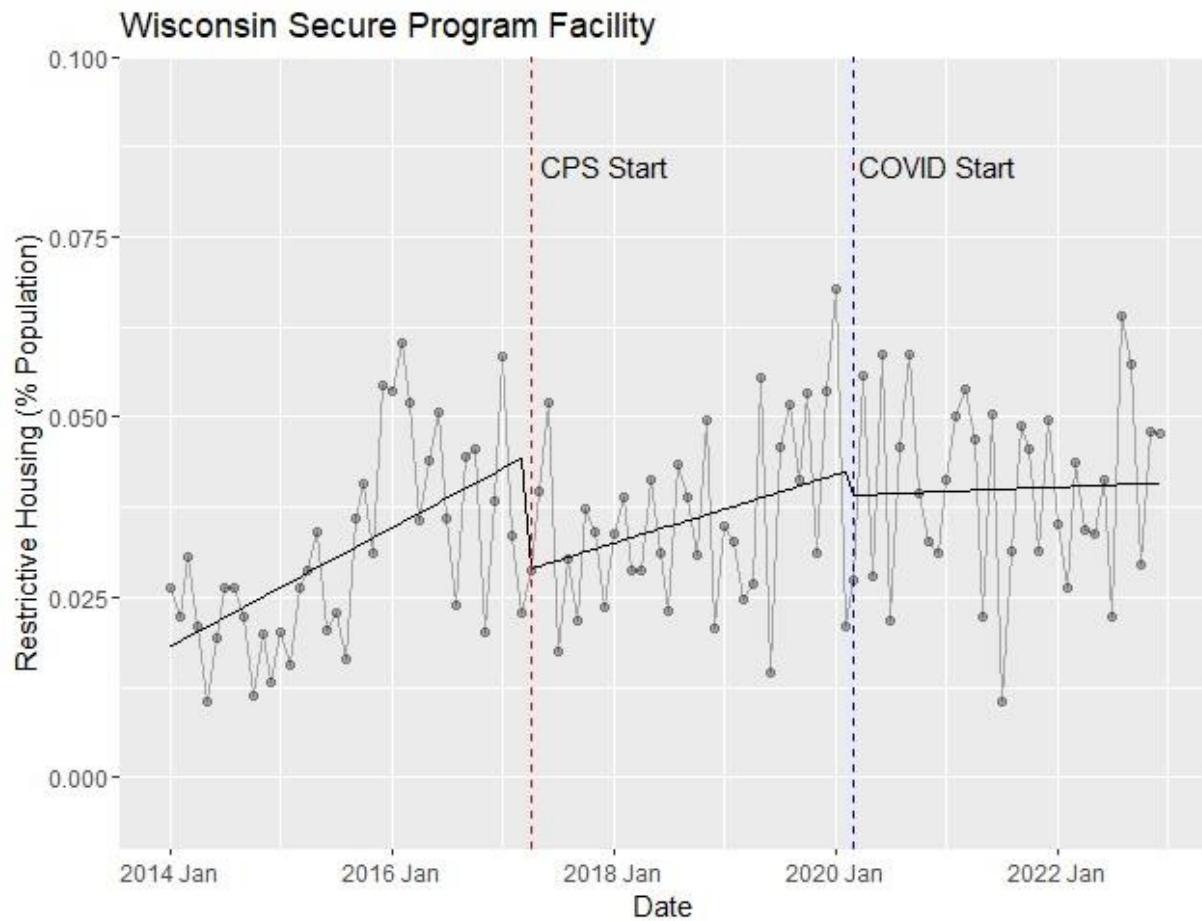
Discussion

Based on anecdotal reports citing widespread positive influences of peer support specialists on behavior while incarcerated, this Aim evaluated the impact of the CPS Program on aggregated monthly totals of RH placements and Clinical Observation placements. Using both ARIMA methods and linear regression to account for autoregression, models evaluated whether there were changes in the overall level (i.e., number of) and trend (change over time) of each outcome after the CPS Program began in each facility. Models were run separately for each facility and institutional outcome.

This analysis was significantly impacted by the temporal relationship of the CPS program initiations with the onset COVID-19 pandemic, which had widespread impacts across the correctional system in Wisconsin and the United States. Staff vacancy rates increased (Bureau of Budget & Facilities Management, n.d.), mental health declined (Kim et al., 2022; Kothari et al., 2022), and security concerns were heightened across facilities. During this time, Restrictive Housing cells were used for quarantining residents who showed symptoms of COVID-19, which may have impacted the availability of these cells for disciplinary RH placements and may have resulted in a reduction in the overall number of residents in the general population of the prison that could engage in delinquent conduct. Only four facilities (WSPF, OSCI, DCI, and WCI) started the CPS Program at least 12 months before the beginning of the COVID-19 pandemic, therefore impacts of the CPS Program were easier to discern for these four facilities, relative to other facilities. Interestingly, for three of these four facilities, analyses demonstrated significant decreases in RH placements, and for one (OSCI) a decrease in Clinical Observation placements was also seen. Conduct Report data was only available starting in 2019, therefore the specific impact of the CPS Program, separate from the impact of COVID, was especially difficult to discern from these data.

Although the impact of the COVID-19 pandemic cannot be overstated, results showing decreases in RH placements for facilities with an established CPS Program before the COVID-19 pandemic (i.e., running for at least one year) are especially promising. At both DCI at OSCI, RH placements showed an increase over time before the CPS Program. However, at both facilities the start of the CPS Program appeared to flatten this increase and was associated with a significant change in the trend of RH placements at these facilities. At DCI specifically, the start of the CPS Program was associated with an immediate decrease in the number of RH placements

as well. Although the effect of other policy changes cannot be ruled out, there was clearly a significant change in RH placements at both facilities immediately after the CPS Program began. Although RH placements still appeared to be increasing after the start of the CPS Program at WSPF, the implementation of the program was associated with a significant decrease in the slope of this line, meaning RH placements were increasing at a reduced rate compared to before.

Clinical Observation placements, as in Aim 1, were relatively rare (mean as a percentage of the population = 0.02) and therefore made it difficult to determine statistically significant changes in the outcome over time. However, although Clinical Observation placements still appeared to increase over time, OSCI did show a less steep increase in Clinical Observation placements after the start of the CPS Program compared to before its implementation. No other facilities showed significant changes in Clinical Observation placements in relation to the CPS Program.

This Aim is not without limitations. While the impact of the COVID-19 pandemic and the total number of individuals incarcerated in each facility was accounted for in analyses, there may have been other policy changes or facility-wide changes that may have impacted the number of RH placements or Clinical Observation placements over time. Staff vacancy rates are known to change the operation of a facility, with fewer staff leading to security concerns and often restrictive movement of residents outside of their housing units. Additionally, the number of CPS Providers working at each facility during a given month was unknown, therefore the number of Providers and the number of Clients meeting with a CPS Provider could not be accounted for. Furthermore, some facilities may require that CPS Providers only meet with Clients on the same housing unit. This may limit the widespread effect of the CPS Program but might also lead to more focused impacts of the program on the housing units where CPS Providers are operating.

Future research should consider specific housing units as units of analysis to evaluate these potential localized effects.

Results from this Aim are an important step in understanding the facility-wide impacts of the CPS Program, and suggest that especially in facilities where the program is well established, there appear to be facility-wide reductions in select negative institutional outcomes. While this is the first project to analyze time series data to evaluate changes in facility-wide outcomes, more research is necessary to fully understand the impact of the CPS Program on facilities as a whole. Importantly, qualitative research should involve CPS Providers, CPS Clients, and prison staff in order to understand exactly what factors of the CPS Program are most beneficial to each group and how those factors can be expanded upon. These individuals may also share insight into other outcomes that may have been overlooked for the purposes of these analyses. Anecdotal reports suggest that the attitudes of prison staff towards residents improved after the CPS Program began, which may be a critical factor in not only the program's success, but also the facility-wide impacts it may have. Facilities where staff are completely supportive of the program may see even more positive results, whereas facilities that show more reservations may see minimal impacts. These factors will be critical to understand moving forward as the CPS Program expands to additional facilities with unique residents and staff.

CHAPTER 5. GENERAL DISCUSSION

Summary

This project is the first to evaluate the effectiveness of a prison peer specialist program to reduce institutional outcomes and rates of recidivism after release. Aim 1 used Propensity Score Matching to estimate a group of matched controls, then used linear mixed effects models to evaluate the effect of the CPS Program on monthly instances of each outcome. Results showed that the CPS Program was associated with reduced Major Conduct Reports and lower rates of Recidivism among CPS Clients compared to individuals not involved in the CPS Program. Among CPS Clients, a greater number of sessions with a CPS Provider was associated with fewer monthly Conduct Reports and Major Conduct Reports. Additionally, results showed unique effects for Black CPS Clients, such that there was a stronger relationship between the number of sessions with a CPS Provider and having fewer instances of Major Conduct Reports and Black CPS Clients showed the lowest rates of Recidivism compared to other groups.

Aim 2 evaluated whether there were facility-wide impacts of the CPS Program on Restrictive Housing Placements and Clinical Observation placements for facilities with an established CPS Program before the start of the COVID-19 pandemic. Results showed reductions in Restrictive Housing placements at three of four facilities that implemented the CPS Program at least one year before the start of the pandemic. Aim 2 analyses revealed no changes in Clinical Observation placements at the majority of facilities examined but noted reductions in this outcome at OSCI.

Collectively, these results suggest the CPS Program can positively impact the lives of the individuals who receive peer services. Conduct Reports, especially Major Conduct Reports, can lead to disciplinary actions including loss of visitation days, loss of other privileges, or even

placements in Restrictive Housing. For the institution, Conduct Reports and Restrictive Housing are costly. One report estimated that each Conduct Report that resulted in a guilty verdict cost the institution over $1000, so even minimal reductions in these outcomes could be crucial (Lovell & Jemelka, 1996). Additionally, housing an individual in Restrictive Housing instead of the general population is not only extremely financially costly (James & Vanko, 2021), but also has major implications for mental health, readiness for release, and can exacerbate feelings of stress and hopelessness in an already stressful environment (James & Vanko, 2021). Furthermore, Restrictive Housing units are significantly more physically and emotionally demanding for prison staff, something the DOC cannot afford at a time when staff vacancies are so high (James & Vanko, 2021). Reductions in Conduct Reports reduce the likelihood of these negative consequences for not only the individuals involved, but those around them. Prior research shows how critical support from family and friends is for incarcerated individuals, so allowing them to continue receiving this support, not only from CPS Providers but from their family and friends, is crucial to promoting their success after release. Reductions in overall placements in Restrictive Housing at facilities running the CPS Program before the COVID-19 pandemic support this idea. Building on research showing that juveniles only engaged in delinquent behavior when the majority of their peers were doing the same (Huefner et al., 2018), when Clients have support from their Providers, they may be less likely to engage in disruptive behavior, which influences others around them to desist from disruptive behavior as well. Having a CPS Provider on a housing unit can also help in de-escalating situations that might have otherwise ended in being charged with a Conduct Report or being sent to Restrictive Housing.

Limitations

This study is not without limitations and should be interpreted with caution. As previously mentioned, institutional outcomes included in Aim 1 were rare, meaning model estimates may be imprecise. Effect sizes of the CPS Program impact on institutional outcomes were also very small, meaning the CPS Program may only have a weak effect on these outcomes or changes could be due to other influences. Importantly, individuals were not randomized to enroll in the CPS Program. Although this is an issue inherent to quasi-experimental study design and measures were taken to reduce its impact, causality cannot be determined. CPS enrollment was available to any resident of a facility running the CPS Program with no exclusion criteria. This might mean that individuals who choose to enroll in the CPS Program display different qualities that could not be controlled for in these analyses. CPS Clients may have an intrinsic motivation to improve their conduct, more knowledge of mental health and opportunities for mental healthcare, or may be engaging in additional programming (e.g., mental health groups, educational programming) outside of the CPS Program. Data on these factors were not available at the time of this project but should be considered when interpreting its results and when expanding analyses to future populations.

An additional limitation was in accessing data collected by various institutions across the Wisconsin DOC. Data privacy is critical to retain the confidentiality of individuals incarcerated in prisons, so many steps were necessary before gaining access to the data necessary to complete this project. Furthermore, data quality and collection measures were inconsistent across facilities included in the final analyses, requiring many hours of data cleaning and consolidation to ensure duplicate data was removed and data that was retained was as accurate as possible. Data collection in a research setting is difficult, but retrieving data from facilities untrained in data

collection techniques entails additional challenges. Hopefully, the completion of this project and the initial steps taken to create a system in which data can be collected uniformly across sites will aid in future evaluations of the CPS Program. Moreover, partnerships between state Departments of Corrections and academic universities can alleviate the burden of performing these program evaluation projects and provide valuable opportunities for student researchers to work with institutional data and utilize statistical techniques that are not commonly taught in graduate coursework.

Another limitation to this project was the inclusion of a limited set of outcomes to determine CPS Program success. Restrictive housing placements, clinical observation placements, conduct reports, and recidivism are critical outcomes for prisons across the country. However, these are not the only outcomes that can be used to measure program success. Prior research has shown that peer support is especially effective an improving self-esteem, general well-being, and has positive impacts on empowerment and recovery (Davidson et al., 2004; Lloyd-Evans et al., 2014; White et al., 2020). These outcomes are not fully captured in evaluating institutional outcomes on their own. Additionally, evaluating recidivism as a measure of success in the community is inadequate (Goldstein, 2014; Klingele, 2019; Rosenfeld & Grigg, 2022). Recidivism, which is a dichotomous measure of whether an individual is convicted for a new period of incarceration after their release, is too narrow of a focus to consider a person's success after prison. In other words, recidivism is a dichotomous measure of an individual's "failure" without considering periods of success. Individuals entering the community must find employment and housing, find access to mental and physical healthcare services, and reintegrate with their families and communities, all while coping with the stigma of serving a prison sentence. Instead, research should evaluate desistance, or what "success" looks like for

individuals, including factors promoting employment, housing, treatment adherence, or reintegration into families and communities (Rosenfeld & Grigg, 2022).

Furthermore, this study did not evaluate the impact of the CPS Program for the individuals who provide peer support services. Eligibility for CPS Providers requires that these individuals are relatively well-adjusted to the prison environment and requires no guilty verdicts for a major conduct report for at least one year before applying to be a CPS. For this reason, the outcomes included in this study were not as relevant to CPS Providers. However, other benefits may come from working as a CPS while incarcerated (e.g., employment as a community CPS following release) and these benefits should be explored.

Future Directions

While results from the current study are promising, additional research should consider expansions and future directions based on these analyses. First, future research should analyze the impact of the CPS Program on restrictive housing placements as was done in Aim 1 for conduct reports and placements in clinical observation. Due to time constraints, this was not completed for the current study, but may provide interesting insights into the range of the impact of the CPS Program. Results from Aim 2 suggest the CPS Program may influence reductions in this outcome, but research is necessary to evaluate what groups show these reductions.

Building off Aim 1, future research should evaluate the impact of the COVID-19 pandemic on group differences in clinical observation placements, restrictive housing placements and conduct reports. This project was conducted as facilities started to return to "normal" after the COVID-19 pandemic changed so many operations. In March 2022, in-person visitation was resumed across all facilities, signaling an end to many of the restrictions in place during the heigh of the pandemic (Wisconsin DOC Media, 2022). Data collected for this project ended in

December 2022, meaning only 9 months of data was collected after the COVID-19 pandemic

visitor restrictions ended across DOC facilities. Nonetheless, a severe staffing shortage that

began during the pandemic has persisted through the present time. Future research should

consider the impact of the pandemic on CPS Clients compared to individuals not involved in the

CPS Program, and should compare outcomes to individuals incarcerated before the start of the

COVID-19 pandemic. These analyses will illustrate whether the CPS Program may have

alleviated some of the stress associated with being incarcerated during a global pandemic, or

whether COVID-related restrictions negatively impacted individuals regardless of any additional

programming.

Future studies should also involve the individuals who have the most direct knowledge of

how and why the CPS Program works – CPS Providers, Clients, and prison staff. Qualitative

studies should involve these groups and gain insight into their experiences with the program.

Importantly, research should investigate what outcomes they see as the most relevant for

program effectiveness. As noted above, institutional outcomes such as restrictive housing

placements may not capture the full impact the CPS Program has on the individuals involved.

Measures of well-being, success of interpersonal interactions, or feelings of hopelessness while

incarcerated may be more relevant. CPS Providers likely have valuable insight into what aspects

of peer support work, and could provide valuable information pertaining to the mechanisms of

the program's success.

Additionally, the impact of working as a CPS Provider could not be evaluated in the

scope of the current project. However, previous research has shown that providing peer support

has positive impacts on the providers themselves (Fortuna et al., 2022). Future research,

informed by CPS Providers and prison staff, should evaluate whether there are positive effects

for CPS Providers not only while they are incarcerated, but also after their release. Because CPS Providers are licensed by the State of Wisconsin as part of their training, it is logical to assume these individuals may be set up for greater success in securing meaningful employment upon their release into the community.

A randomized-controlled trial (RCT) would provide more definitive evidence on the effectiveness of the CPS program, and may also provide valuable insight into the mechanisms for success of the CPS Program. While limiting enrollment into the CPS Program presents ethical concerns, especially considering how many individuals sought out services on their own, a trial comparing individuals randomized to the waitlist for the CPS Program compared to those receiving services would remove the confounding influence of self-selection in the program on critical outcomes. Additionally, an RCT would allow researchers to more easily evaluate important outcomes (e.g., well-being, hopelessness) determined by qualitative reports, as well as the impact of working as a CPS Provider over time.

Conclusion

All in all, this project represents an important partnership between academic researchers and the Wisconsin DOC, and a critical first step in evaluating the effectiveness of the Certified Peer Specialist Program in Wisconsin prisons. There is an urgent need for mental healthcare among incarcerated individuals, who show increased rates of nearly all mental health disorders compared to the community, but traditional mental healthcare may not be the only avenue for providing these services. Peer support provides a critical opportunity to expand mental health services to individuals who may not trust healthcare providers without lived experience, and provides especially crucial support to a population suffering from pronounced stigma. Results

show promising reductions in negative outcomes for individuals receiving peer services and lend

support for its expansion across additional facilities in Wisconsin and beyond.

REFERENCES

Alang, S. M. (2019). Mental health care among blacks in America: Confronting racism and constructing solutions. *Health Services Research*, *54*(2), 346–355. https://doi.org/10.1111/1475-6773.13115

Alegría, M., Chatterji, P., Wells, K., Cao, Z., Chen, C., Takeuchi, D., Jackson, J., & Meng, X.-L. (2008). Disparity in depression treatment among racial and ethnic minority populations in the United States. *Psychiatric Services (Washington, D.C.)*, *59*(11), 1264–1272. https://doi.org/10.1176/ps.2008.59.11.1264

Asberg, K., & Renk, K. (2014). Perceived stress, external locus of control, and social support as predictors of psychological adjustment among female inmates with or without a history of sexual abuse. *International Journal of Offender Therapy and Comparative Criminology*, *58*(1), 59–84. https://doi.org/10.1177/0306624X12461477

Austin, P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate Behavioral Research*, *46*(3), 399–424. https://doi.org/10.1080/00273171.2011.568786

Bagnall, A.-M., South, J., Hulme, C., Woodall, J., Vinall-Collier, K., Raine, G., Kinsella, K., Dixey, R., Harris, L., & Wright, N. M. (2015). A systematic review of the effectiveness and cost-effectiveness of peer education and peer support in prisons. *BMC Public Health*, *15*(1), 290. https://doi.org/10.1186/s12889-015-1584-x

Baillargeon, J., Binswanger, I. A., Penn, J. V., Williams, B. A., & Murray, O. J. (2009). Psychiatric Disorders and Repeat Incarcerations: The Revolving Prison Door. *American Journal of Psychiatry*, *166*(1), 103–109. https://doi.org/10.1176/appi.ajp.2008.08030416

Baillargeon, J., Hoge, S. K., & Penn, J. V. (2010). Addressing the Challenge of Community Reentry Among Released Inmates with Serious Mental Illness. *American Journal of Community Psychology*, *46*(3), 361–375. https://doi.org/10.1007/s10464-010-9345-6

Barrenger, S., Hamovitch, E., & Rothman, M. (2018). Enacting Lived Experiences: Peer Specialists With Criminal Justice Histories. *Psychiatric Rehabilitation Journal*, *42*. https://doi.org/10.1037/prj0000327

Bellamy, C., Kimmel, J., Costa, M., Tsai, J., Nulton, L., Nulton, E., Kimmel, A., Aguilar, N., Clayton, A., & O'Connell, M. (2019). Peer support on the "inside and outside": Building lives and reducing recidivism for people with mental illness returning from jail. *Journal of Public Mental Health*, *ahead-of-print*. https://doi.org/10.1108/JPMH-02-2019-0028

Benedetto, U., Head, S. J., Angelini, G. D., & Blackstone, E. H. (2018). Statistical primer: Propensity score matching and its alternatives†. *European Journal of Cardio-Thoracic Surgery*, *53*(6), 1112–1117. https://doi.org/10.1093/ejcts/ezy167

Bernal, J. L., Cummins, S., & Gasparrini, A. (2017). Interrupted time series regression for the evaluation of public health interventions: A tutorial. *International Journal of Epidemiology*, *46*(1), 348–355. https://doi.org/10.1093/ije/dyw098

Blitz, C. L., Wolff, N., & Shi, J. (2008). Physical victimization in prison: The role of mental illness. *International Journal of Law and Psychiatry*, *31*(5), 385–393. https://doi.org/10.1016/j.ijlp.2008.08.005

Boisvert, R. A., Martin, L. M., Grosek, M., & Clarie, A. J. (2008). Effectiveness of a peer-support community in addiction recovery: Participation as intervention. *Occupational Therapy International*, *15*(4), 205–220. https://doi.org/10.1002/oti.257

Bonta, J., Law, M., & Hanson, K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders: A meta-analysis. *Psychological Bulletin*, *123*(2), 123–142.

Bowen, R. A., Rogers, A., & Shaw, J. (2009). Medication management and practices in prison for people with mental health problems: A qualitative study. *International Journal of Mental Health Systems*, *3*(1), 24. https://doi.org/10.1186/1752-4458-3-24

Brechwald, W. A., & Prinstein, M. J. (2011). Beyond Homophily: A Decade of Advances in Understanding Peer Influence Processes. *Journal of Research on Adolescence*, *21*(1), 166–179. https://doi.org/10.1111/j.1532-7795.2010.00721.x

Brennan, T., & Dieterich, W. (2017). Correctional Offender Management Profiles for Alternative Sanctions (COMPAS). In *Handbook of Recidivism Risk/Needs Assessment Tools* (pp. 49–75). https://doi.org/10.1002/9781119184256.ch3

Brier, N. (1995). Predicting antisocial behavior in youngsters displaying poor academic achievement: A review of risk factors. *Journal of Developmental and Behavioral Pediatrics: JDBP*, *16*(4), 271–276.

Bright, A.-M., Higgins, A., & Grealish, A. (2022). Women's experiences of prison-based mental healthcare: A systematic review of qualitative literature. *International Journal of Prisoner Health*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/IJPH-09-2021-0091

Brincks, A. M., Enders, C. K., Llabre, M. M., Bulotsky-Shearer, R. J., Prado, G., & Feaster, D. J. (2017). Centering Predictor Variables in Three-Level Contextual Models. *Multivariate Behavioral Research*, *52*(2), 149–163. https://doi.org/10.1080/00273171.2016.1256753

Brinker, J., & Cheruvu, V. K. (2016). Social and emotional support as a protective factor against current depression among individuals with adverse childhood experiences. *Preventive Medicine Reports*, *5*, 127–133. https://doi.org/10.1016/j.pmedr.2016.11.018

Bronson, J., Stroop, J., Zimmer, S., & Berzofsky, M. (2017). *Drug Use, Dependence, and Abuse among State Prisoners and Jail Inmates, 2007-2009* (p. 27). United States Department of Justice, Office of Juvenile Justice and Delinquency Prevention. https://bjs.ojp.gov/content/pub/pdf/dudaspji0709.pdf

Bucklen, K. B., Sheets, M., Bohm, C., Bell, N., Campbell, J., Flaherty, R., & Vander Wiede, K. (2022). *Recidivism Report 2022* (p. 58). Pennsylvania Department of Corrections.

Bureau of Budget & Facilities Management. (n.d.). *Wisconsin DOC Staffing and Vacancy Dashboards*. Retrieved January 6, 2022, from https://doc.wi.gov/Pages/DataResearch/StaffingandVacancyDashboards.aspx

Butman, M. (2009). *Peer mentoring: Real recovery for young adults*. *23*(2), 28–31.

Campbell, D., & Stanley, J. (1963). *Experimental and quasi-experimental designs for research*. Houghton Mifflin Company.

Canada, K., Barrenger, S., Bohrman, C., Banks, A., & Peketi, P. (2022). Multi-Level Barriers to Prison Mental Health and Physical Health Care for Individuals With Mental Illnesses. *Frontiers in Psychiatry*, *13*, 777124. https://doi.org/10.3389/fpsyt.2022.777124

Castillo, E. D., & Fiftal Alarid, L. (2011). Factors Associated With Recidivism Among Offenders With Mental Illness. *International Journal of Offender Therapy and Comparative Criminology*, *55*(1), 98–117. https://doi.org/10.1177/0306624X09359502

Cenzer, I., Boscardin, W. J., & Berger, K. (2020). Performance of matching methods in studies of rare diseases: A simulation study. *Intractable & Rare Diseases Research*, *9*(2), 79–88. https://doi.org/10.5582/irdr.2020.01016

Certified Peer Specialist. (n.d.). Wisconsin Peer Specialists. Retrieved September 9, 2022, from https://www.wicps.org/certified-peer-specialist/

Chinman, M., George, P., Dougherty, R. H., Daniels, A. S., Ghose, S. S., Swift, A., & Delphin-Rittmon, M. E. (2014). Peer support services for individuals with serious mental illnesses: Assessing the evidence. *Psychiatric Services (Washington, D.C.)*, *65*(4), 429–441. https://doi.org/10.1176/appi.ps.201300244

Chinman, M. J., Rosenheck, R., Lam, J. A., & Davidson, L. (2000). Comparing Consumer and Nonconsumer Provided Case Management Services for Homeless Persons with Serious Mental Illness. *The Journal of Nervous and Mental Disease*, *188*(7), 446–453.

Clark, K. (2018). The Effect of Mental Illness on Segregation Following Institutional Misconduct. *Criminal Justice and Behavior*, *45*(9), 1363–1382. https://doi.org/10.1177/0093854818766974

Cloyes, K. G., Wong, B., Latimer, S., & Abarca, J. (2010). Time to Prison Return for Offenders With Serious Mental Illness Released From Prison: A Survival Analysis. *Criminal Justice and Behavior*, *37*(2), 175–187. https://doi.org/10.1177/0093854809354370

Cochran, J. C., & Mears, D. P. (2013). Social isolation and inmate behavior: A conceptual framework for theorizing prison visitation and guiding and assessing research. *Journal of Criminal Justice*, *41*(4), 252–261. https://doi.org/10.1016/j.jcrimjus.2013.05.001

Davidson, L., Bellamy, C., Guy, K., & Miller, R. (2012). Peer support among persons with severe mental illnesses: A review of evidence and experience. *World Psychiatry*, *11*(2), 123–128.

Davidson, L., Shahar, G., Stayner, D. A., Chinman, M. J., Rakfeldt, J., & Tebes, J. K. (2004). Supported socialization for people with psychiatric disabilities: Lessons from a randomized controlled trial. *Journal of Community Psychology*, *32*(4), 453–477. https://doi.org/10.1002/jcop.20013

De Viggiani, N. (2007). Unhealthy prisons: Exploring structural determinants of prison health. *Sociology of Health & Illness*, *29*(1), 115–135. https://doi.org/10.1111/j.1467-9566.2007.00474.x

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm. Peer groups and problem behavior. *The American Psychologist*, *54*(9), 755–764. https://doi.org/10.1037//0003-066x.54.9.755

Ditton, P. M. (1999). *Mental Health and Treatment of Inmates and Probationers*. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. https://books.google.com/books?id=PXvaAAAAMAAJ

DAI Policy #309.70.01. Certified Peer Specialists, 309.70.01 § 309 (2020).

DAI Policy #500.70.20: Organization and Priorities of Psychological Services, Pub. L. No. 500.70.20, 8 (2021). https://doc.wi.gov/DepartmentPoliciesDAI/5007020.pdf

Dollar, C. W. (2023). *Justice Reinvestment and Mass Incarceration: A Multi-State Evaluation of Policy Reform on Prison Populations* [Ph.D.]. Washington State University.

Dollar, C. W., Campbell, C. M., & Labrecque, R. M. (2022). Evaluating Oregon's Justice Reinvestment Act: An Interrupted Time-Series Regression of State-Level Outcomes.

Crime & Delinquency, 00111287221096343.

https://doi.org/10.1177/00111287221096343

Dubow, E. F., Arnett, M., Smith, K., & Ippolito, M. F. (2001). Predictors of Future Expectations

of Inner-City Children: A 9-Month Prospective Study. *The Journal of Early Adolescence*,

21(1), 5–28. https://doi.org/10.1177/0272431601021001001

Duwe, G., & McNeeley, S. (2020). The Effects of Prison Labor on Institutional Misconduct,

Postprison Employment, and Recidivism. *Corrections*, *5*(2), 89–108.

https://doi.org/10.1080/23774657.2017.1416317

Evershed, S., Tennant, A., Boomer, D., Rees, A., Barkham, M., & Watsons, A. (2003). Practice-

based outcomes of dialectical behaviour therapy (DBT) targeting anger and violence,

with male forensic patients: A pragmatic and non-contemporaneous comparison.

Criminal Behaviour and Mental Health: CBMH, *13*(3), 198–213.

https://doi.org/10.1002/cbm.542

Faulkner, A., & Basset, T. (2012). A helping hand: Taking peer support into the 21st century.

Mental Health and Social Inclusion, *16*, 41–47.

https://doi.org/10.1108/20428301211205892

Felson, R. B., Silver, E., & Remster, B. (2012). Mental Disorder and Offending in Prison.

Criminal Justice and Behavior, *39*(2), 125–143.

https://doi.org/10.1177/0093854811428565

Fortuna, K. L., Solomon, P., & Rivera, J. (2022). An Update of Peer Support/Peer Provided

Services Underlying Processes, Benefits, and Critical Ingredients. *Psychiatric Quarterly*,

93(2), 571–586. https://doi.org/10.1007/s11126-022-09971-w

Fox, J., & Weisberg, S. (2002). *Cox proportional-hazards regression for survival data*. Sage.

French, S. A., & Gendreau, P. (2006). Reducing Prison Misconducts: What Works! *Criminal Justice and Behavior*, *33*(2), 185–218. https://doi.org/10.1177/0093854805284406

Fripp, J. A., & Carlson, R. G. (2017). Exploring the Influence of Attitude and Stigma on Participation of African American and Latino Populations in Mental Health Services. *Journal of Multicultural Counseling and Development*, *45*(2), 80–94. https://doi.org/10.1002/jmcd.12066

Gillard, S., Gibson, S. L., Holley, J., & Lucock, M. (2015). Developing a change model for peer worker interventions in mental health services: A qualitative research study. *Epidemiology and Psychiatric Sciences*, *24*(5), 435–445. https://doi.org/10.1017/S2045796014000407

Goldstein, D. (2014). *The Misleading Math of 'Recidivism'* (Justice Lab). https://www.themarshallproject.org/2014/12/04/the-misleading-math-of-recidivism

Goldstein, E. H., Warner-Robbins, C., McClean, C., Macatula, L., & Conklin, R. (2009). A Peer-Driven Mentoring Case Management Community Reentry Model: An Application for Jails and Prisons. *Family & Community Health*, *32*(4), 309–313. https://doi.org/10.1097/FCH.0b013e3181b91f0d

Gonçalves, L. C., Gonçalves, R. A., Martins, C., & Dirkzwager, A. J. E. (2014). Predicting Infractions and Health Care Utilization in Prison: A Meta-Analysis. *Criminal Justice and Behavior*, *41*(8), 921–942. https://doi.org/10.1177/0093854814524402

Goomany, A., & Dickinson, T. (2015). The influence of prison climate on the mental health of adult prisoners: A literature review. *Journal of Psychiatric and Mental Health Nursing*, *22*(6), 413–422. https://doi.org/10.1111/jpm.12231

Greden, J. F., Valenstein, M., Spinner, J., Blow, A., Gorman, L. A., Dalack, G. W., Marcus, S., & Kees, M. (2010). Buddy-to-Buddy, a citizen soldier peer support program to counteract stigma, PTSD, depression, and suicide. *Annals of the New York Academy of Sciences*, *1208*, 90–97. https://doi.org/10.1111/j.1749-6632.2010.05719.x

Green, B. L., Miranda, J., Daroowalla, A., & Siddique, J. (2005). Trauma Exposure, Mental Health Functioning, and Program Needs of Women in Jail. *Crime & Delinquency*, *51*(1), 133–151. https://doi.org/10.1177/0011128704267477

Grier-Reed, T. (2013). The African American Student Network: An Informal Networking Group as a Therapeutic Intervention for Black College Students on a Predominantly White Campus. *Journal of Black Psychology*, *39*(2), 169–184. https://doi.org/10.1177/0095798413478696

Gunter, T. D., Chibnall, J. T., Antoniak, S. K., McCormick, B., & Black, D. W. (2012). Relative contributions of gender and traumatic life experience to the prediction of mental disorders in a sample of incarcerated offenders. *Behavioral Sciences & the Law*, *30*(5), 615–630. https://doi.org/10.1002/bsl.2037

Hoffman, P. B., & Beck, J. L. (1984). Burnout—Age at release from prison and recidivism. *Journal of Criminal Justice*, *12*(6), 617–623. https://doi.org/10.1016/0047-2352(84)90118-1

Houser, K. A., Belenko, S., & Brennan, P. K. (2012). The Effects of Mental Health and Substance Abuse Disorders on Institutional Misconduct Among Female Inmates. *Justice Quarterly*, *29*(6), 799–828. https://doi.org/10.1080/07418825.2011.641026

Houser, K., & Belenko, S. (2015). Disciplinary responses to misconduct among female prison

    inmates with mental illness, substance use disorders, and co-occurring disorders.

    Psychiatric Rehabilitation Journal, *38*(1), 24–34. https://doi.org/10.1037/prj0000110

Huefner, J. C., Smith, G. L., & Stevens, A. L. (2018). Positive and Negative Peer Influence in

    Residential Care. *Journal of Abnormal Child Psychology*, *46*(6), 1161–1169.

    https://doi.org/10.1007/s10802-017-0353-y

James, K., & Vanko, E. (2021). *The Impacts of Solitary Confinement* (p. 19). Vera Institute of

    Justice.

Jordaan, J., & Hesselink, A. (2022). Predictors of Aggression Among Sample-Specific Young

    Adult Offenders: Continuation of Violent Behavior Within South African Correctional

    Centers. *International Criminal Justice Review*, *32*(1), 68–87.

    https://doi.org/10.1177/1057567721998431

Juang, L., Ittel, A., Hoferichter, F., & Miriam Gallarin, M. (2016). Perceived Racial/Ethnic

    Discrimination and Adjustment Among Ethnically Diverse College Students: Family and

    Peer Support as Protective Factors. *Journal of College Student Development*, *57*(4), 380–

    394. https://doi.org/10.1353/csd.2016.0048

Junker, G., Beeler, A., & Bates, J. (2005). Using Trained Inmate Observers for Suicide Watch in

    a Federal Correctional Setting: A Win-Win Solution. *Psychological Services*, *2*.

    https://doi.org/10.1037/1541-1559.2.1.20

Kaba, F., Lewis, A., Glowa-Kollisch, S., Hadler, J., Lee, D., Alper, H., Selling, D., MacDonald,

    R., Solimo, A., Parsons, A., & Venters, H. (2014). Solitary Confinement and Risk of

    Self-Harm Among Jail Inmates. *American Journal of Public Health*, *104*(3), 442–447.

    https://doi.org/10.2105/AJPH.2013.301742

Kim, H., Hughes, E., Cavanagh, A., Norris, E., Gao, A., Bondy, S. J., McLeod, K. E.,

    Kanagalingam, T., & Kouyoumdjian, F. G. (2022). The health impacts of the COVID-19

    pandemic on adults who experience imprisonment globally: A mixed methods systematic

    review. *PLOS ONE*, *17*(5), e0268866. https://doi.org/10.1371/journal.pone.0268866

Klingele, C. M. (2019). Measuring Change: From Rates of Recidivism to Markers of Desistance.

    Journal of Criminal Law and Criminology, *109*(4). https://doi.org/0091-4169/19/10904-

    0769

Kothari, R., Sparrow, J., Henshall, J., Buchan, D., Kemp, J., Owen, A., Blakeman, I., &

    Sarkissian, N. (2022). Locked Up and Locked Down: How the Covid-19 Pandemic has

    Impacted the Mental Health of Male Prisoners and Support Staff. *Journal of Men's

    Health*, *18*(6), Article 6. https://doi.org/10.31083/j.jomh1806141

Kubiak, S. P. (2004). The Effects of PTSD on Treatment Adherence, Drug Relapse, and

    Criminal Recidivism in a Sample of Incarcerated Men and Women. *Research on Social

    Work Practice*, *14*(6), 424–433. https://doi.org/10.1177/1049731504265837

Lê Cook, B., McGuire, T. G., Lock, K., & Zaslavsky, A. M. (2010). Comparing Methods of

    Racial and Ethnic Disparities Measurement across Different Settings of Mental Health

    Care. *Health Services Research*, *45*(3), 825–847. https://doi.org/10.1111/j.1475-

    6773.2010.01100.x

Lê Cook, B., Trinh, N.-H., Li, Z., Hou, S. S.-Y., & Progovac, A. M. (2017). Trends in Racial-

    Ethnic Disparities in Access to Mental Health Care, 2004-2012. *Psychiatric Services

    (Washington, D.C.)*, *68*(1), 9–16. https://doi.org/10.1176/appi.ps.201500453

Lê Cook, B., Zuvekas, S. H., Carson, N., Wayne, G. F., Vesper, A., & McGuire, T. G. (2014).

Assessing racial/ethnic disparities in treatment across episodes of mental health care.

Health Services Research, *49*(1), 206–229. https://doi.org/10.1111/1475-6773.12095

Lee, B. R., & Thompson, R. (2009). Examining Externalizing Behavior Trajectories of Youth in

Group Homes: Is there Evidence for Peer Contagion? *Journal of Abnormal Child*

Psychology, *37*(1), 31–44. https://doi.org/10.1007/s10802-008-9254-4

Legere, L., & Davidow, S. (n.d.). *The Provider's Handbook on Developing & Implementing*

Peer Roles. Retrieved August 28, 2022, from https://www.psresources.info/peer-roles-

handbook

Lenkens, M., Nagelhout, G. E., Schenk, L., Sentse, M., Severiens, S., Engbersen, G., Dijkhoff,

L., & van Lenthe, F. J. (2021). 'I (really) know what you mean'. Mechanisms of

experiential peer support for young people with criminal behavior: A qualitative study.

Journal of Crime and Justice, *44*(5), 535–552.

https://doi.org/10.1080/0735648X.2020.1848608

Lewis, C., Roberts, N. P., Gibson, S., & Bisson, J. I. (2020). Dropout from psychological

therapies for post-traumatic stress disorder (PTSD) in adults: Systematic review and

meta-analysis. *European Journal of Psychotraumatology*, *11*(1), 1709709.

https://doi.org/10.1080/20008198.2019.1709709

Lindquist, C. H., & Lindquist, C. A. (1997). Gender differences in distress: Mental health

consequences of environmental stress among jail inmates. *Behavioral Sciences & the*

Law, *15*(4), 503–523. https://doi.org/10.1002/(SICI)1099-

0798(199723/09)15:4<503::AID-BSL281>3.0.CO;2-H

Lloyd-Evans, B., Mayo-Wilson, E., Harrison, B., Istead, H., Brown, E., Pilling, S., Johnson, S.,
    & Kendall, T. (2014). A systematic review and meta-analysis of randomised controlled
    trials of peer support for people with severe mental illness. *BMC Psychiatry*, *14*(1), 39.
    https://doi.org/10.1186/1471-244X-14-39

Lovell, D., & Jemelka, R. (1996). When Inmates Misbehave: The Costs of Discipline. *The*
    Prison Journal, *76*(2), 165–179. https://doi.org/10.1177/0032855596076002004

Marino, C. K., Child, B., & Campbell Krasinski, V. (2016). Sharing Experience Learned
    Firsthand (SELF): Self-disclosure of lived experience in mental health services and
    supports. *Psychiatric Rehabilitation Journal*, *39*(2), 154–160.
    https://doi.org/10.1037/prj0000171

Marlow, E., Grajeda, W., Lee, Y., Young, E., Williams, M., & Hill, K. (2015). Peer mentoring
    for male parolees: A CBPR pilot study. *Progress in Community Health Partnerships:*
    Research, Education, and Action, *9*, 91–100. https://doi.org/10.1353/cpr.2015.0013

McCrary, H., Etwaroo, E., Marshall, L., Burden, E., St. Pierre, M., Berkebile, B., & Miller, L.
    (2022). *Peer Recovery Support Services in Correctional Settings* (p. 85). U.S.
    Department of Justice, Bureau of Justice Assistance.
    https://www.cossapresources.org/Content/Documents/Publications/Altarum_PRSS_in_C
    orrectional_Settings.pdf

McDermott, J., & Cooper, S. (2021). *Wisconsin Women's Correctional System Annual Report*
    2021. State of Wisconsin Department of Corrections. chrome-
    extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fd
    oc.wi.gov%2FDocuments%2FOffenderInformation%2FAdultInstitutions%2FWWCSAn
    nualReport.pdf&clen=886806&chunk=true

McDermott, J., Reible, L., Ustruck-Wetzel, J., & Staehler, T. (2022). *Wisconsin Women's Correctional System Annual Report 2022* (p. 41). Wisconsin Department of Corrections.

Medicaid and CHIP Payment and Access Commission (MACPAC). (2022). *Medicaid Coverage of Community Health Worker Services*. MACPAC. https://www.macpac.gov/publication/medicaid-coverage-of-community-health-worker-services/

Min, S.-Y., Whitecraft, J., Rothbard, A. B., & Salzer, M. S. (2007). Peer support for persons with co-occurring disorders and community tenure: A survival analysis. *Psychiatric Rehabilitation Journal*, *30*(3), 207–213. https://doi.org/10.2975/30.3.2007.207.213

Neller, D. J., Denney, R. L., Pietz, C. A., & Thomlinson, R. P. (2006). The relationship between trauma and violence in a jail inmate sample. *Journal of Interpersonal Violence*, *21*(9), 1234–1241. https://doi.org/10.1177/0886260506290663

Nurse, J., Woodcock, P., & Ormsby, J. (2003). Influence of environmental factors on mental health within prisons: Focus group study. *BMJ : British Medical Journal*, *327*(7413), 480.

Nyamathi, A., Shin, S. S., Smeltzer, J., Salem, B., Yadav, K., Krogh, D., & Ekstrand, M. (2018). Effectiveness of Dialectical Behavioral Therapy on Reduction of Recidivism Among Recently Incarcerated Homeless Women: A Pilot Study. *International Journal of Offender Therapy and Comparative Criminology*, *62*(15), 4796–4813. https://doi.org/10.1177/0306624X18785516

Office of Program Services Research and Policy Unit. (2022). *Primary Programs Report* (p. 41). Wisconsin Department of Corrections. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fd

oc.wi.gov%2FDataResearch%2FRecidivismReincarceration%2FPrimary%2520Program %2520Report_2022_FINAL.pdf&clen=1471557&chunk=true

O'Hara-Wild, M., Hyndman, R., Wang, E., implementation), G. C. (NNETAR, Bergmeir, C., Hensel, T.-G., & Hyndman, T. (2023). *fable: Forecasting Models for Tidy Time Series* (0.3.3). https://cran.r-project.org/web/packages/fable/index.html

Ojeda, V. D., Jones, N., Munson, M. R., Berliant, E., & Gilmer, T. P. (2021). Roles of peer specialists and use of mental health services among youth with serious mental illness. *Early Intervention in Psychiatry*, *15*(4), 914–921. https://doi.org/10.1111/eip.13036

Ojelade, I. I., McCray, K., Ashby, J. S., & Meyers, J. (2011). Use of Ifá as a Means of Addressing Mental Health Concerns Among African American Clients. *Journal of Counseling & Development*, *89*(4), 406–412. https://doi.org/10.1002/j.1556-6676.2011.tb02837.x

Owen, J., Tao, K. W., Imel, Z. E., Wampold, B. E., & Rodolfa, E. (2014). Addressing racial and ethnic microaggressions in therapy. *Professional Psychology: Research and Practice*, *45*, 283–290. https://doi.org/10.1037/a0037420

Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, *135*(4), 531–554. https://doi.org/10.1037/a0016059

Patrone, L. A. (2020, September 15). Certified Peer Specialists in the Pennsylvania Department of Corrections. *Policy Research Associates*. https://www.prainc.com/gains-certified-peer-specialists-pennsylvania/

Pennsylvania DOC Staff. (2013). *CPS Testimonials from Pennsylvania prisons*.

Pinheiro, J., Bates, D., DebRoy, S., Sarkar, D., Heisterkamp, S., Van Willigen, B., & Ranke, J. (2023). *nlme: Linear and Nonlinear Mixed Effects Models* (3.1-162). https://cran.r-project.org/web/packages/nlme/index.html

Pitt, V., Lowe, D., Hill, S., Prictor, M., Hetrick, S. E., Ryan, R., & Berends, L. (2013). Consumer-providers of care for adult clients of statutory mental health services. *The Cochrane Database of Systematic Reviews*, *3*, CD004807. https://doi.org/10.1002/14651858.CD004807.pub2

Plugge, E., Douglas, N., & Fitzpatrick, R. (2008). Patients, prisoners, or people? Women prisoners' experiences of primary care in prison: a qualitative study. *The British Journal of General Practice*, *58*(554), e1–e8. https://doi.org/10.3399/bjgp08X330771

Poehlmann, J. (2005). Incarcerated Mothers' Contact With Children, Perceived Family Relationships, and Depressive Symptoms. *Journal of Family Psychology : JFP : Journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, *19*, 350–357. https://doi.org/10.1037/0893-3200.19.3.350

Primm, A. B., Osher, F. C., & Gomez, M. B. (2005). Race and Ethnicity, Mental Health Services and Cultural Competence in the Criminal Justice System: Are we Ready to Change? *Community Mental Health Journal*, *41*(5), 557–569. https://doi.org/10.1007/s10597-005-6361-3

Quandt, K. R., & Jones, A. (2021). *Research Roundup: Incarceration can cause lasting damage to mental health*. Prison Policy Initiative. https://www.prisonpolicy.org/blog/2021/05/13/mentalhealthimpacts/

R Core Team. (2022). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Ray, B., Watson, D. P., Xu, H., Salyers, M. P., Victor, G., Sightes, E., Bailey, K., Taylor, L. R., & Bo, N. (2021). Peer recovery services for persons returning from prison: Pilot randomized clinical trial investigation of SUPPORT. *Journal of Substance Abuse Treatment*, *126*, 108339. https://doi.org/10.1016/j.jsat.2021.108339

Reif, S., Braude, L., Lyman, D. R., Dougherty, R. H., Daniels, A. S., Ghose, S. S., Salim, O., & Delphin-Rittmon, M. E. (2014). Peer Recovery Support for Individuals With Substance Use Disorders: Assessing the Evidence. *Psychiatric Services*, *65*(7), 853–861. https://doi.org/10.1176/appi.ps.201400047

Repper, J., Aldridge, B., Gilfoyle, S., Gillard, S., Perkins, R., & Rennison, J. (2013). *Peer support workers: Theory and practice*. Centre for Mental Health London. https://www.centreformentalhealth.org.uk/publications/peer-support-workers-theory-and-practice

Ring, K., & Gill, M. (2017). Using time to reduce crime: Federal prisoner survey results show ways to reduce recidivism. *Prisonpolicy.Org*, *Families Against Mandatory Minimums*, 32.

Rivera, J. J., Sullivan, A. M., & Valenti, S. S. (2007). Adding Consumer-Providers to Intensive Case Management: Does It Improve Outcome? *Psychiatric Services*, *58*(6), 802–809. https://doi.org/10.1176/ps.2007.58.6.802

Rocheleau, A. M. (2014). Prisoners' Coping Skills and Involvement in Serious Prison Misconduct. *Victims & Offenders*, *9*(2), 149–177. https://doi.org/10.1080/15564886.2013.866916

Rocheleau, A. M. (2015). Ways of Coping and Involvement in Prison Violence. *International Journal of Offender Therapy and Comparative Criminology*, *59*(4), 359–383. https://doi.org/10.1177/0306624X13510275

Rogers, C., Jordaan, J., & Esterhuyse, K. (2022). Coping, aggression, perceived social support and demographic variables as predictors of prison adjustment among male incarcerated offenders. *Criminology & Criminal Justice*, 17488958221106610. https://doi.org/10.1177/17488958221106610

Rosenbaum, P. R., & Rubin, D. B. (1983). The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika*, *70*(1), 41–55. https://doi.org/10.2307/2335942

Rosenbaum, P. R., & Rubin, D. B. (1985). Constructing a Control Group Using Multivariate Matched Sampling Methods That Incorporate the Propensity Score. *The American Statistician*, *39*(1), 33–38. https://doi.org/10.2307/2683903

Rosenfeld, R., & Grigg, A. (Eds.). (2022). *The Limits of Recidivism: Measuring Success After Prison*. National Academies Press. https://doi.org/10.17226/26459

Rowe, M., Bellamy, C., Baranoski, M., Wieland, M., O'Connell, M. J., Benedict, P., Davidson, L., Buchanan, J., & Sells, D. (2007). A peer-support, group intervention to reduce substance use and criminality among persons with severe mental illness. *Psychiatric Services (Washington, D.C.)*, *58*(7), 955–961. https://doi.org/10.1176/ps.2007.58.7.955

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Sabol, W., & Johnson, T. (2022). *Justice System Disparities: Black-White National Imprisonment Trends, 2000-2020* (p. 36). Council on Criminal Justice. https://counciloncj.foleon.com/reports/racial-disparities/national-trends

Schaffer, A. L., Dobbins, T. A., & Pearson, S.-A. (2021). Interrupted time series analysis using autoregressive integrated moving average (ARIMA) models: A guide for evaluating large-scale health interventions. *BMC Medical Research Methodology*, *21*(1), 58. https://doi.org/10.1186/s12874-021-01235-8

Scher, C. D., Forde, D. R., McQuaid, J. R., & Stein, M. B. (2004). Prevalence and demographic correlates of childhood maltreatment in an adult community sample. *Child Abuse & Neglect*, *28*(2), 167–180. https://doi.org/10.1016/j.chiabu.2003.09.012

Sells, D., Davidson, L., Jewell, C., Falzer, P., & Rowe, M. (2006). The Treatment Relationship in Peer-Based and Regular Case Management for Clients With Severe Mental Illness. *Psychiatric Services*, *57*(8), 1179–1184. https://doi.org/10.1176/ps.2006.57.8.1179

Shelton, D., Sampl, S., Kesten, K. L., Zhang, W., & Trestman, R. L. (2009). Treatment of impulsive aggression in correctional settings. *Behavioral Sciences & the Law*, *27*(5), 787–800. https://doi.org/10.1002/bsl.889

Solomon, P. (2004). Peer support/peer provided services underlying processes, benefits, and critical ingredients. *Psychiatric Rehabilitation Journal*, *27*(4), 392–401. https://doi.org/10.2975/27.2004.392.401

Solomon, P., & Draine, J. (1995). The efficacy of a consumer case management team: 2-year outcomes of a randomized trial. *Journal of Mental Health Administration*, *22*(2), 135–146. https://doi.org/10.1007/BF02518754

Steadman, H. J., Holohean, E. J., & Dvoskin, J. (1991). Estimating Mental Health Needs and

    Service Utilization Among Prison Inmates. *Journal of the American Academy of*

    Psychiatry and the Law Online, *19*(3), 297–306.

Trupin, E. W., Stewart, D. G., Beach, B., & Boesky, L. (2002). Effectiveness of a Dialectical

    Behaviour Therapy Program for Incarcerated Female Juvenile Offenders. *Child and*

    Adolescent Mental Health, *7*(3), 121–127. https://doi.org/10.1111/1475-3588.00022

Tschuschke, V., Koemeda-Lutz, M., von Wyl, A., Crameri, A., & Schulthess, P. (2020). The

    Impact of Patients' and Therapists' Views of the Therapeutic Alliance on Treatment

    Outcome in Psychotherapy. *The Journal of Nervous and Mental Disease*, *208*(1), 56.

    https://doi.org/10.1097/NMD.0000000000001111

U.S. Census Bureau. (2021, July 1). *U.S. Census Bureau QuickFacts: Wisconsin*.

    https://www.census.gov/quickfacts/WI

van Vugt, M. D., Kroon, H., Delespaul, P. A. E. G., & Mulder, C. L. (2012). Consumer-

    Providers in Assertive Community Treatment Programs: Associations With Client

    Outcomes. *Psychiatric Services*, *63*(5), 477–481.

    https://doi.org/10.1176/appi.ps.201000549

Vigna, A., & Connor, T. (2020). *2019 Wisconsin Behavioral Health System Gaps Report:*

    Results of Key Informant Interviews, Surveys, and Consumer Focus Groups. University

    of Wisconsin Population Health Institute. https://uwphi.pophealth.wisc.edu/publications-

    2/evaluation-reports-2/

Wagner, A. K., Soumerai, S. B., Zhang, F., & Ross-Degnan, D. (2002). Segmented regression

    analysis of interrupted time series studies in medication use research. *Journal of Clinical*

Pharmacy and Therapeutics, *27*(4), 299–309. https://doi.org/10.1046/j.1365-2710.2002.00430.x

Wallace, D., & Wang, X. (2020). Does in-prison physical and mental health impact recidivism? *SSM - Population Health*, *11*, 100569. https://doi.org/10.1016/j.ssmph.2020.100569

Walrath, C. (2001). Evaluation of an Inmate-Run Alternatives to Violence Project: The Impact of Inmate-to-Inmate Intervention. *Journal of Interpersonal Violence*, *16*(7), 697–711. https://doi.org/10.1177/088626001016007005

White, S., Foster, R., Marks, J., Morshead, R., Goldsmith, L., Barlow, S., Sin, J., & Gillard, S. (2020). The effectiveness of one-to-one peer support in mental health services: A systematic review and meta-analysis. *BMC Psychiatry*, *20*(1), 534. https://doi.org/10.1186/s12888-020-02923-3

Wisconsin Department of Corrections. (2022). *Division of Adult Institutions: Corrections at a Glance* (p. 2). https://doc.wi.gov/DataResearch/DataAndReports/DAIAtAGlance.pdf

Wisconsin Department of Corrections. (2021, August). *DOC Response Efforts*. Wisconsin Department of Corrections. https://doc.wi.gov/Pages/COVID19(Coronavirus)/ResponseEfforts.aspx

Wisconsin Department of Corrections: Bureau of Human Resources. (2020). *DOC Climate and Engagement Survey—2020* (p. 19). Wisconsin Department of Corrections. https://doc.wi.gov/DataResearch/InteractiveDashboards/2020ClimateandEngagementSurveyResults.pdf

Wisconsin DOC Media. (2022). *DOC - DOC Lifting Suspension on In-Person Visits* [Press Release]. Wisconsin Department of Corrections.

https://doc.wi.gov/Pages/News/https%3A%2F%2Fdoc.wi.gov%2FPages%2FNews%2FA rticle.aspx%3FitemID%3D59

Wisconsin Peer Specialists: About Us. (n.d.). Wisconsin Peer Specialists. Retrieved September 12, 2022, from https://www.wicps.org/about-us/

Wolff, N., Shi, J., & Siegel, J. A. (2009). Patterns of Victimization Among Male and Female Inmates: Evidence of an Enduring Legacy. *Violence and Victims*, *24*(4), 469–484.

APPENDIX A

Results from Aim 2 Supplemental Analyses

Eight of the 22 models contained seasonal components. In each case, the raw data were filtered using the technique described above, and filtered outcomes were utilized for analyses. For models with no seasonal components, raw outcomes were utilized for analyses. No differences were included in *gls*() models, even in cases where a significant trend was detected by the ARIMA model.

Supplemental Table 1.

ARIMA Model specification for all facilities and outcomes included in supplemental analyses

	Restrictive Housing			Clinical Observation			Conduct Reports		
	ARIMA	**Q**	**p**	**ARIMA**	**Q**	**p**	**ARIMA**	**Q**	**p**
CCI	(0,1,1)(0,0,2)[12]	17.84	.81	(2,1,0)(1,0,0)[12]	16.19	.88	*NA*		
FLCI	(0,0,1)(0,0,1)[12]	22.29	.56	(0,0,1)	19.37	.73	(0,1,2)	11.24	.99
GBCI	(0,1,1)(0,0,2)[12]	16.06	.89	(2,0,0)	13.65	.95	*NA*		
JCI	(0,1,1)	22.75	.54	(0,1,1)	21.53	.61	(0,1,1)	16.42	.87
NLCI	(0,1,1)(1,0,0)[12]	20.69	.66	(0,0,1)	22.03	.58	(0,1,1)(1,0,0)[12]	28.57	.24
RGCI	(0,0,1)	20.30	.68	(1,0,0)	25.06	.40	(3,0,0)	27.12	.30
REECC	(2,0,1)	19.29	.74	*NA*			(0,1,1)(1,0,0)[12]	17.80	.81
TCI	(2,0,1)(2,0,1)[6]	30.44	.17	(1,0,0)	14.26	.94	*NA*		

The mean number of RH placements across all facilities was 41.5 per month (mean as a percentage of the population = .04). The mean number of Clinical Observation placements across all facilities was 13.8 per month (mean as a percentage of the population = .02). The mean number of Conduct Reports across the five facilities included in analyses was 129 per month (mean as a percentage of the population = .14).

CCI

Supplemental Tables 2 and 3 show results from the *gls*() models predicting RH placements and Clinical Observation placements (as a percentage of the total population) for

CCI, respectively. The CPS Program was not associated with a significant change in the level or trend of RH placements over time (p's > .85). Similarly, the CPS Program was not associated with a significant change in the level or trend of Clinical Observation placements over time (p's > .35).

Supplemental Table 2

Model output from model predicting RH placements at CCI

	β	SE	CI	t	p
(Intercept)	0.0439	0.0026	0.0388 – 0.0490	17.1881	**<.001**
Time	0.0004	0.0001	0.0002 – 0.0005	5.5151	**<.001**
CPS level	-0.0012	0.0070	-0.0150 – 0.0126	-0.1784	.86
CPS trend	-0.0001	0.0017	-0.0035 – 0.0032	-0.0641	.95
COVID level	-0.0075	0.0060	-0.0193 – 0.0043	-1.2625	.21
COVID trend	0.0013	0.0017	-0.0021 – 0.0048	0.7842	.44

Supplemental Table 3

Model output from model predicting Clinical Observation placements at CCI

	β	SE	CI	t	p
(Intercept)	0.0168	0.0133	-0.0095 – 0.0431	1.2661	.21
Time	0.0002	0.0003	-0.0005 – 0.0009	0.5873	.56
CPS level	0.0306	0.0330	-0.0349 – 0.0960	0.9269	.36
CPS trend	-0.0038	0.0081	-0.0198 – 0.0122	-0.4728	.64
COVID level	0.0114	0.0283	-0.0447 – 0.0674	0.4024	.69
COVID trend	0.0076	0.0082	-0.0087 – 0.0239	0.9245	.36

FLCI

Supplemental Tables 4, 5, and 6 show results from the *gls*() models predicting RH

placements, Clinical Observation placements, and Conduct Reports, respectively. The CPS

Program was associated with a significant decrease in the trend (β = -0.0003, p = .02), but not

level (p = .48), of RH placements (Figure 30). The CPS Program was not associated with any

changes in the level or trend of Clinical Observation placements (*p*'s > .13). The CPS Program

was associated with a significant increase in the level (β = 0.032, p < .001), but was not

associated with a change in the trend in Conduct Reports (p = .10; Figure 31).

Supplemental Table 4

Model output from model predicting RH placements at FLCI

	β	SE	CI	t	p
(Intercept)	0.0332	0.0005	0.0323 – 0.0341	71.1913	**<.001**
Time	0.0000	0.0000	0.0000 – 0.0000	2.4843	**.02**
CPS level	-0.0010	0.0014	-0.0038 – 0.0018	-0.7083	.48
CPS trend	-0.0003	0.0001	-0.0006 – -0.0000	-2.2972	**.02**
COVID level	-0.0040	0.0012	-0.0064 – -0.0016	-3.3364	**<.01**
COVID trend	0.0003	0.0001	0.0001 – 0.0005	2.4473	**.02**

Supplemental Figure 1

Time Series analysis of RH placements at FLCI

Fox Lake Correctional Institution
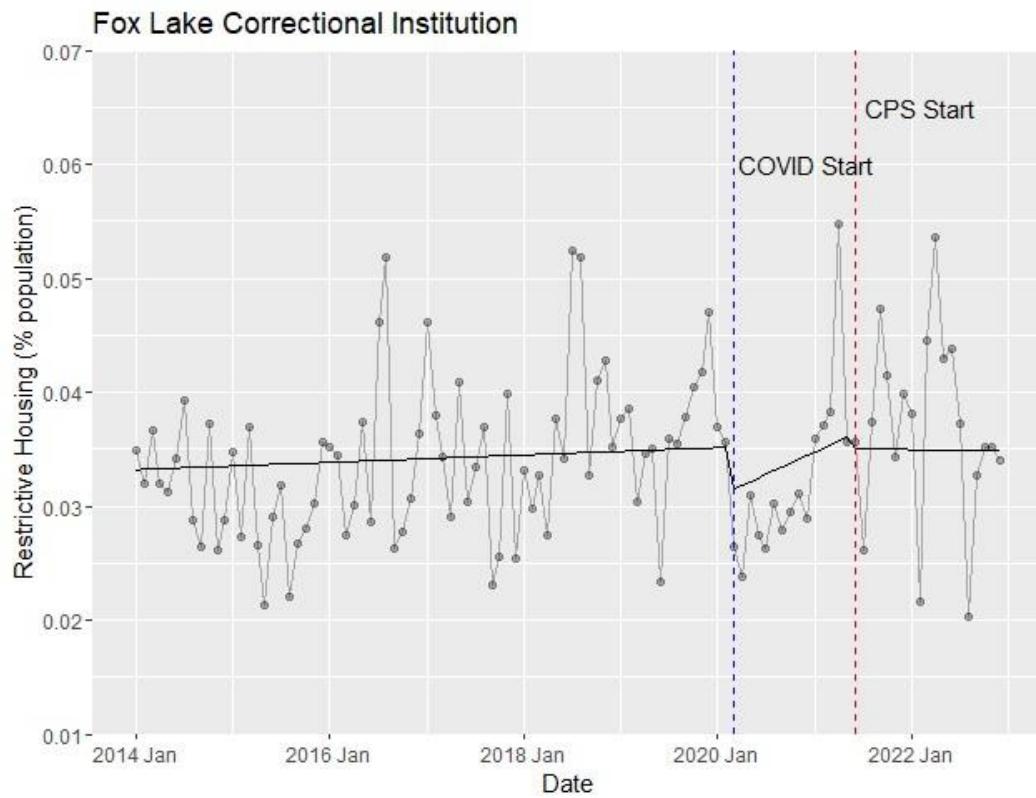
Supplemental Table 5

Model output from model predicting Clinical Observation placements at FLCI

	β	SE	CI	t	p
(Intercept)	0.0023	0.0000	0.0023 – 0.0024	90.4029	**<.001**
Time	0.0000	0.0000	-0.0000 – 0.0000	0.5902	.56
CPS level	0.0001	0.0001	-0.0001 – 0.0002	1.0596	.29
CPS trend	0.0000	0.0000	-0.0000 – 0.00003	1.5128	.13
COVID level	0.0001	0.0001	-0.00005 – 0.0002	1.2375	.22
COVID trend	-0.00001	0.00007	-0.00003 – 0.0000	-1.9386	.06

Supplemental Table 6

Model output from model predicting Conduct Reports at FLCI

	β	SE	CI	t	p
(Intercept)	0.1074	0.0072	0.0927 – 0.1220	14.8145	**<.001**
Time	0.0010	0.0010	-0.0010 – 0.0030	1.0278	.31
CPS level	0.0315	0.0080	0.0154 – 0.0476	3.9532	**<.001**
CPS trend	-0.0011	0.0006	-0.0024 – 0.0002	-1.7001	.10
COVID level	0.0158	0.0102	-0.0047 – 0.0363	1.5540	.13
COVID trend	-0.0012	0.0010	-0.0032 – 0.0007	-1.2856	.21

Supplemental Figure 2

Time Series analysis of Conduct Reports at FLCI
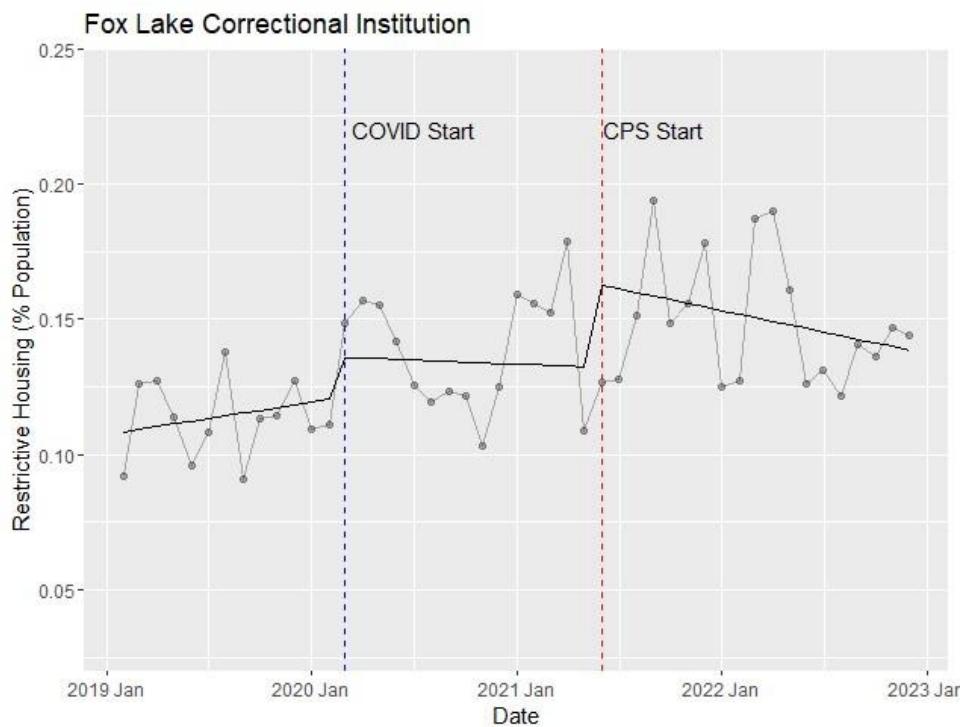
GBCI

Supplemental Tables 7 and 8 show results from the *gls*() models predicting RH

placements and Clinical Observation placements, respectively. The CPS Program at GBCI was

not associated with a change in the level or trend of RH placements (p's > .20) or Clinical

Observation placements (p's > .12).

Supplemental Table 7

Model output from model predicting RH placements at GBCI

	β	SE	CI	t	p
(Intercept)	0.0449	0.0029	0.0393 – 0.0506	15.7021	**<.001**
Time	0.0005	0.0001	0.0004 – 0.0006	7.2486	**<.001**
CPS level	-0.0102	0.0079	-0.0258 – 0.0053	-1.3045	.20
CPS trend	-0.0022	0.0024	-0.0069 – 0.0025	-0.9114	.36
COVID level	0.0039	0.0062	-0.0084 – 0.0162	0.6269	.53
COVID trend	0.0019	0.0024	-0.0029 – 0.0066	0.7821	.44

Supplemental Table 8

Model output from model predicting Clinical Observation placements at GBCI

	β	SE	CI	t	p
(Intercept)	0.0417	0.0040	0.0337 – 0.0497	10.3535	**<0.001**
Time	-0.0002	0.0001	-0.0004 – -0.0000	-2.3859	**.02**
CPS level	-0.0052	0.0057	-0.0165 – 0.0061	-0.9186	.36
CPS trend	0.0030	0.0019	-0.0008 – 0.0067	1.5594	.12
COVID level	0.0027	0.0048	-0.0068 – 0.0123	0.5696	.57
COVID trend	-0.0025	0.0020	-0.0065 – 0.0014	-1.2610	.21

JCI

Supplemental Tables 9, 10, and 11 show results from the *gls*() models predicting RH

placements, Clinical Observation placements, and Conduct Reports, respectively. The CPS

Program was not associated with a change in the level or trend of RH placements (p's > .11) or

Clinical Observation placements (p's > .07). However, the CPS Program was associated with a significant decrease in the level of Conduct Reports (β = -0.03, p < .001; Figure 32), followed by a significant increase in the trend of Conduct Reports (β = 0.03, p < .001; Figure 32).

Supplemental Table 9

Model output from model predicting RH placements at JCI

	β	SE	CI	t	p
(Intercept)	0.0228	0.0015	0.0199 – 0.0257	15.5294	**<.001**
Time	0.0002	0.0000	0.0001 – 0.0002	4.6974	**<.001**
CPS level	-0.0010	0.0044	-0.0096 – 0.0077	-0.2256	.82
CPS trend	0.0007	0.0004	-0.0002 – 0.0016	1.6060	.11
COVID level	0.0031	0.0036	-0.0041 – 0.0103	0.8529	.40
COVID trend	-0.0004	0.0003	-0.0011 – 0.0003	-1.0670	.29

Supplemental Table 10

Model output from model predicting Clinical Observation placements at JCI

	β	SE	CI	t	p
(Intercept)	0.0006	0.0005	-0.0004 – 0.0015	1.1953	.235
Time	0.0001	0.0000	0.0000 – 0.0001	5.1785	**<.001**
CPS level	-0.0025	0.0014	-0.0052 – 0.0002	-1.8365	.07
CPS trend	0.0001	0.0001	-0.0002 – 0.0004	0.6343	.53
COVID level	-0.0006	0.0011	-0.0029 – 0.0017	-0.5049	.62
COVID trend	-0.0000	0.0001	-0.0003 – 0.0002	-0.3753	.71

Supplemental Table 11

Model output from model predicting Conduct Reports at JCI

	β	SE	CI	t	p
(Intercept)	0.1173	0.0044	0.1085 – 0.1262	26.7089	**<.001**
Time	0.0012	0.0006	0.0001 – 0.0024	2.1603	**.04**
CPS level	-0.0275	0.0045	-0.0366 – -0.0184	-6.0895	**<.001**
CPS trend	0.0026	0.0003	0.0019 – 0.0033	7.7308	**<.001**
COVID level	0.0048	0.0056	-0.0066 – 0.0161	0.8435	.40
COVID trend	-0.0010	0.0005	-0.0021 – 0.0001	-1.7466	.09

Supplemental Figure 3

Time Series analysis of Conduct Reports at JCI
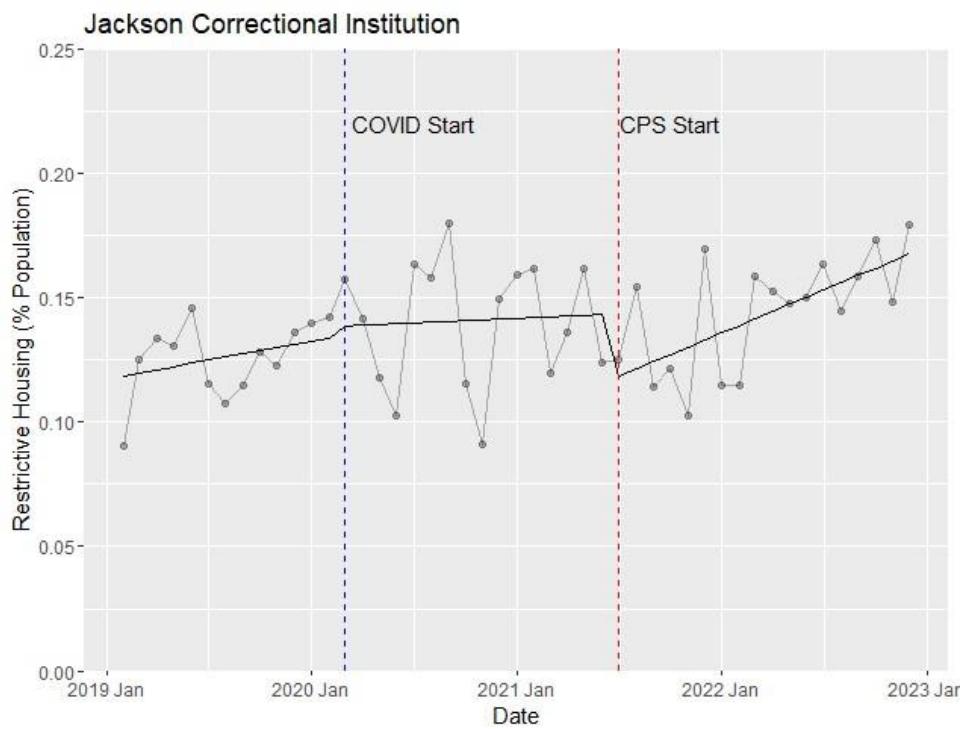
NLCI

Supplemental Tables 12, 13, and 14 show results from the *gls*() models predicting RH

placements, Clinical Observation placements, and Conduct Reports, respectively. The CPS

Program at NLCI was not associated with a significant change in the level or trend of RH

placements (*p*'s > .18), Clinical Observation placements (*p*'s > .21), or Conduct Reports (*p*'s >

.41).

Supplemental Table 12

Model output from model predicting RH placements at NLCI

	β	SE	CI	t	p
(Intercept)	0.0163	0.0009	0.0145 – 0.0181	17.9267	**<.001**
Time	0.0002	0.0000	0.0002 – 0.0003	10.2552	**<.001**
CPS level	0.0010	0.0021	-0.0032 – 0.0051	0.4525	.65
CPS trend	0.0004	0.0003	-0.0002 – 0.0009	1.3500	.18
COVID level	-0.0064	0.0017	-0.0098 – -0.0030	-3.7294	**<.001**
COVID trend	-0.0004	0.0001	-0.0006 – -0.0001	-2.7743	**<.01**

Supplemental Table 13

Model output from model predicting Clinical Observation placements at NCLI

	β	SE	CI	t	p
(Intercept)	0.0027	0.0006	0.0015 – 0.0039	4.5122	**<.001**
Time	-0.00001	0.00001	-0.00003 – 0.00002	-0.4006	.69
CPS level	-0.0013	0.0018	-0.0048 – 0.0022	-0.7380	.46
CPS trend	-0.0002	0.0002	-0.0006 – 0.0001	-1.2517	.21
COVID level	-0.0016	0.0013	-0.0042 – 0.0010	-1.1936	.24
COVID trend	0.0002	0.0001	-0.00003 – 0.0004	1.6484	.10

Supplemental Table 14

Model output from model predicting Conduct Reports at NLCI

	β	SE	CI	t	p
(Intercept)	0.1002	0.0108	0.0784 – 0.1221	9.2599	**<.001**
Time	0.0025	0.0013	-0.0002 – 0.0052	1.8694	.07
CPS level	0.0032	0.0124	-0.0218 – 0.0283	0.2621	.80
CPS trend	0.0012	0.0014	-0.0017 – 0.0041	0.8297	.41
COVID level	0.0118	0.0122	-0.0128 – 0.0364	0.9666	.34
COVID trend	-0.0026	0.0016	-0.0057 – 0.0006	-1.6461	.11

REECC

Supplemental Tables 15 and 16 show results from the *gls*() models predicting RH placements and Conduct Reports placements, respectively. The CPS Program was not associated with a change in the level or trend of RH placements (p's > .34). The CPS Program was not associated with a change in the level of Conduct Reports, but was associated with a significant decrease in the trend of Conduct Reports (β = -0.004, p = .04; Figure 35).

Supplemental Table 15

Model output from model predicting RH placements at REECC

	β	SE	CI	t	p
(Intercept)	0.0199	0.0041	0.0119 – 0.0280	4.9098	**<.001**
Time	0.0000	0.0001	-0.0001 – 0.0002	0.5279	.60
CPS level	-0.0072	0.0076	-0.0223 – 0.0079	-0.9429	.35
CPS trend	0.0004	0.0013	-0.0022 – 0.0030	0.3129	.76
COVID level	0.0006	0.0078	-0.0149 – 0.0160	0.0732	.94
COVID trend	-0.0003	0.0012	-0.0027 – 0.0020	-0.2667	.79

Supplemental Table 16

Model output from model predicting Conduct Reports at REECC

	β	SE	CI	t	p
(Intercept)	0.1949	0.0100	0.1747 – 0.2151	19.4528	**<.001**
Time	-0.0011	0.0012	-0.0036 – 0.0014	-0.8952	.38
CPS level	0.0013	0.0107	-0.0202 – 0.0228	0.1206	.91
CPS trend	-0.0038	0.0018	-0.0075 – -0.0002	-2.1233	**.04**
COVID level	0.0005	0.0121	-0.0239 – 0.0250	0.0439	.97
COVID trend	0.0020	0.0022	-0.0025 – 0.0065	0.9011	.37

Supplemental Figure 4

Time Series analysis of Conduct Reports at REECC
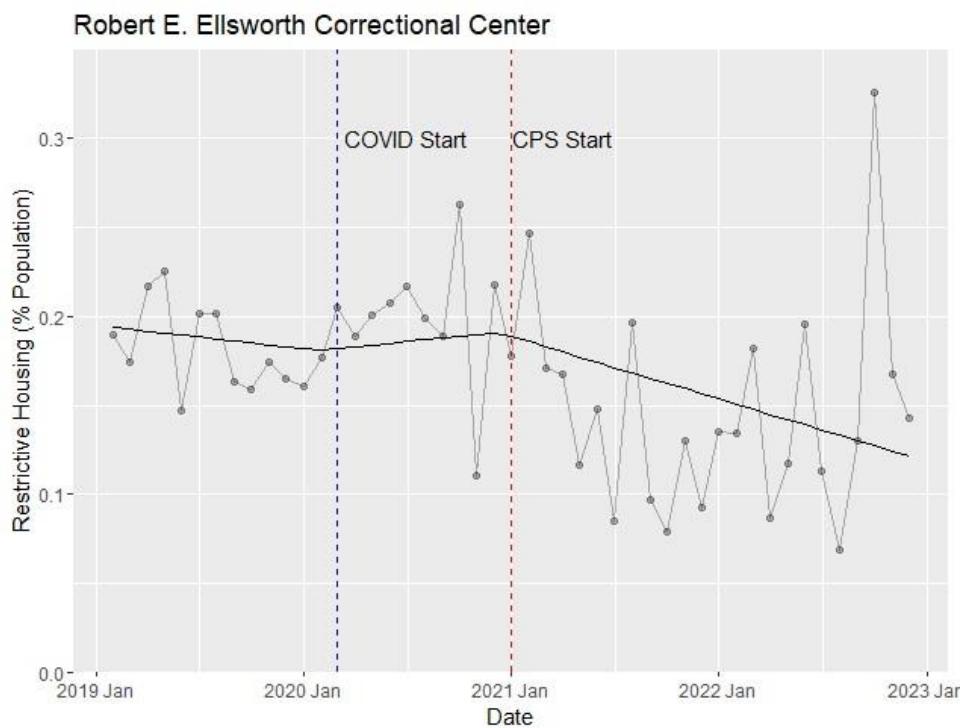
RGCI

Supplemental Tables 17, 18, and 19 show results from the *gls*() models predicting RH

placements, Clinical Observation placements, and Conduct Reports, respectively. The CPS

Program was not associated with a change in the level of RH placements (p = .15) but was

associated with a significant increase in the trend of RH placements ($\beta = 0.001$, $p < .01$; Figure

36). The CPS program was not associated with a change in the level or trend of Clinical

Observation placements (*p*'s > .64). However, the CPS Program was associated with a

significant decrease in the level of Conduct Reports ($\beta = -0.082$, $p < .001$; Figure 37).

Supplemental Table 17

Model output from model predicting RH placements at RGCI

	β	SE	CI	t	p
(Intercept)	0.0222	0.0016	0.0191 – 0.0253	14.0665	**<.001**
Time	0.0001	0.00004	0.00002 – 0.0002	2.4184	**.02**
CPS level	-0.0069	0.0047	-0.0163 – 0.0025	-1.4495	.15
CPS trend	0.0014	0.0005	0.0005 – 0.0024	2.9963	**<.01**
COVID level	0.0034	0.0039	-0.0043 – 0.0112	0.8760	.38
COVID trend	-0.0008	0.0004	-0.0015 – -0.0001	-2.1616	**.03**

Supplemental Figure 5

Time Series analysis of RH placements at RGCI
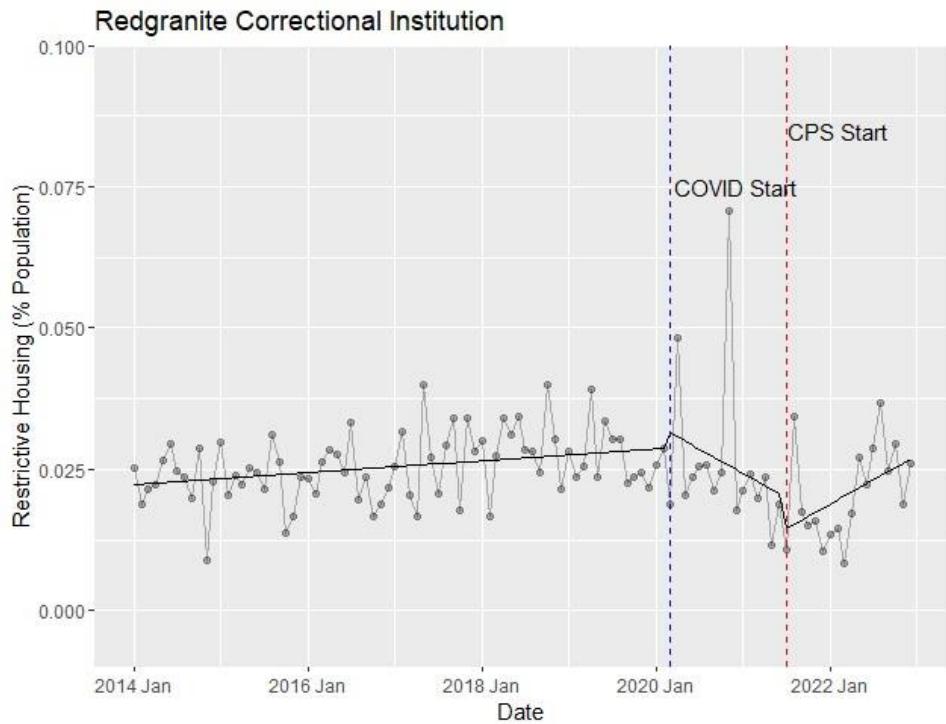
Supplemental Table 18

Model output from model predicting Clinical Observation placements at RGCI

	β	SE	CI	t	p
(Intercept)	0.0023	0.0007	0.0010 – 0.0037	3.3477	**.001**
Time	0.00005	0.00002	0.00002 – 0.0001	2.9160	**<.01**
CPS level	-0.0006	0.0019	-0.0044 – 0.0031	-0.3356	.74
CPS trend	0.0001	0.0002	-0.0003 – 0.0005	0.4595	.65
COVID level	-0.0013	0.0016	-0.0045 – 0.0019	-0.8097	.42
COVID trend	-0.0001	0.0002	-0.0005 – 0.0002	-0.9326	.35

Supplemental Table 19

Model output from model predicting Conduct Reports at RGCI

	β	SE	CI	t	p
(Intercept)	0.1260	0.0154	0.0949 – 0.1571	8.1833	**<.001**
Time	0.0007	0.0020	-0.0033 – 0.0046	0.3443	.73
CPS level	-0.0823	0.0180	-0.1188 – -0.0459	-4.5639	**<.001**
CPS trend	0.0002	0.0018	-0.0035 – 0.0038	0.0887	.93
COVID level	0.0380	0.0197	-0.0019 – 0.0778	1.9253	.06
COVID trend	0.0005	0.0024	-0.0043 – 0.0052	0.1995	.84

Supplemental Figure 6

Time Series analysis of Conduct Reports at RGCI

TCI
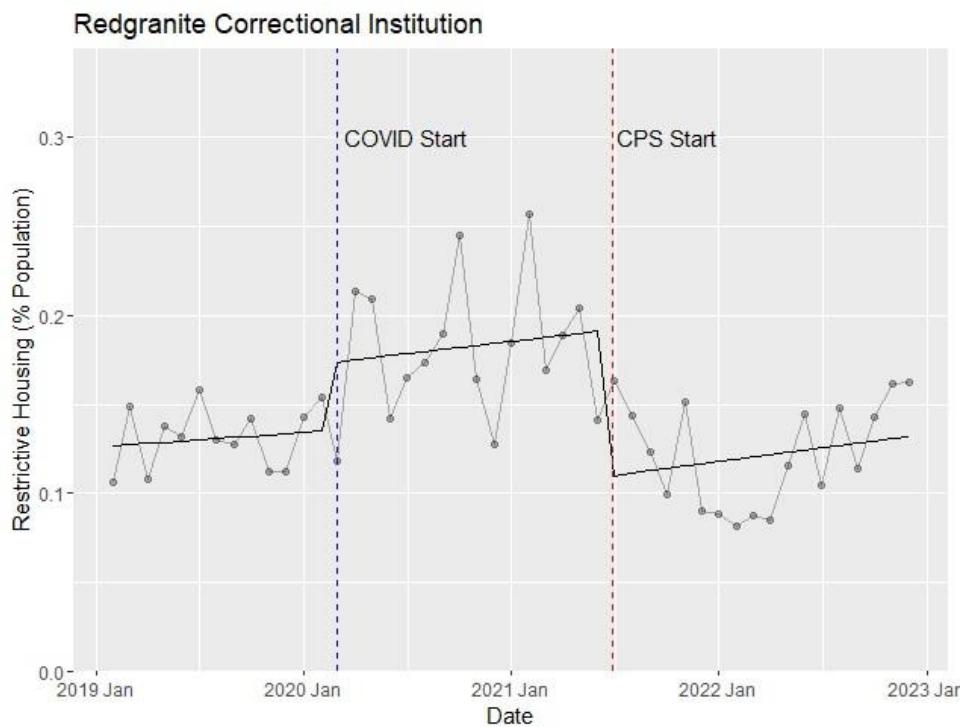
Supplemental Tables 20 and 21 show results from the *gls*() models predicting RH

placements and Clinical Observation placements, respectively. The CPS Program was not

associated with a significant change in the level or trend of RH placements (*p*'s > .28) or Clinical

Observation placements (*p*'s > .56).

Supplemental Table 20

Model output from model predicting RH placements at TCI

	β	SE	CI	t	p
(Intercept)	0.0423	0.0010	0.0403 – 0.0443	41.8982	**<.001**
Time	0.0000	0.0000	-0.0000 – 0.0001	0.5151	.61
CPS level	0.0008	0.0028	-0.0048 – 0.0064	0.2749	.78
CPS trend	0.0018	0.0017	-0.0016 – 0.0052	1.0666	.29
COVID level	-0.0033	0.0018	-0.0070 – 0.0003	-1.8015	.08
COVID trend	-0.0019	0.0017	-0.0053 – 0.0015	-1.0918	.28

Supplemental Table 21

Model output from model predicting Clinical Observation placements at TCI

	β	SE	CI	t	p
(Intercept)	0.0177	0.0019	0.0138 – 0.0215	9.0865	**<.001**
Time	0.0001	0.0000	0.0000 – 0.0002	2.4928	**.01**
CPS level	-0.0011	0.0128	-0.0264 – 0.0242	-0.0840	.93
CPS trend	0.0045	0.0078	-0.0111 – 0.0200	0.5713	.57
COVID level	-0.0073	0.0066	-0.0205 – 0.0058	-1.1053	.27
COVID trend	-0.0049	0.0078	-0.0204 – 0.0107	-0.6228	.54

Discussion of Aim 2 Supplemental Analyses

Overall, four of the eight facilities showed a significant change in the number of RH

placements, Clinical Observation placements, or Conduct Reports after the start of the CPS

Program. FLCI showed a significant decrease in the trend of RH placements after the start of the

CPS Program. Interestingly, RGCI showed a significant increase in the trend of RH placements after the start of the CPS Program. Results concerning Conduct Reports were more mixed, with FLCI showing a significant increase in the mean number of Conduct Reports, JCI showing an immediate decrease in the number of, but then an increase in the trend of Conduct Reports, RGCI showing only an immediate decrease in the number of Conduct Reports but no change in the trend over time, and REECC showing a significant decrease in the trend of Conduct Reports.

At FLCI, the start of the COVID-19 pandemic was associated with a sharp increase in RH placements, even after pre-COVID levels were relatively flat. However, the start of the CPS Program, in the middle of the COVID-19 pandemic, was associated with a significant decrease in the trend of RH placements. At RGCI, RH placements appeared to increase in their trend after the start of the CPS Program. However, this may reflect a "return to the mean," as the start of the COVID-19 pandemic was associated with a sharp decrease in RH placements and the CPS Program did not begin until midway through the pandemic.

As noted above, results concerning Conduct Reports were somewhat mixed. This may be due in part to the limited number of observations included in Conduct Report analyses (47 time points compared to 108 in the RH and Clinical Observation analyses). Additionally, all facilities that were included in Conduct Report analyses started their CPS Programs during the COVID-19 pandemic, which likely influenced its implementation and the ability for CPS Clients to access CPS Providers during that time. Units were often locked down or movement was restricted between units to prevent the spread of infection, meaning CPS Providers may not have been able to reach as many individuals as would have been possible under normal circumstances. Anecdotal evidence suggests the main mechanism for the CPS Program reducing institution-wide numbers of Conduct Reports is due to their ability to de-escalate situations with both their

assigned Peers and other residents they encounter (Pennsylvania DOC Staff, 2013). Limited

contact outside of scheduled 1-on-1 meetings likely dampened this effect.