

ENHANCING THE EVIDENCE FOR SPECIALTY MENTAL HEALTH PROBATION: A
HYBRID EFFICACY-IMPLEMENTATION CONTROLLED TRIAL

Tonya B. VanDeinse

A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in
partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of
Social Work

Chapel Hill
2016

Approved by:

Gary S. Cuddeback

Alicia Bunger

Nicole Lawrence

Kimberly Strom-Gottfried

Amy Blank Wilson

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ABSTRACT

TONYA B. VANDEINSE: Enhancing the Evidence for Specialty Mental Health Probation:
A Hybrid Efficacy-Implementation Controlled Trial
(Under the direction of Dr. Gary S. Cuddeback, Chair)

Probationers with mental illness are disproportionately represented in the criminal justice system compared to probationers without mental illness. There is evidence indicating that risk factors associated with criminal justice involvement are the same for offenders with and without mental illnesses. However, it is not clear whether these criminogenic risks predict different types of probation violations. State and local agencies have implemented specialty mental health probation (SMHP) to address violations and rearrests among this population. Although evidence for SMHP is building, there are two main limitations: lack of knowledge about the implementation challenges and facilitators of SMHP and lack of rigorous evidence of the efficacy of SMHP.

Paper one examines statewide administrative data to compare criminogenic risk factors among probationers without mental illness, probationers with mental illness and probationers with severe mental illness. Results suggest that mental illness impacts the number and type of probation violations; however, additional variables such as those related to officer-, organizational-, and system-level factors should be examined to understand the role of mental illness in probation violations.

Papers two and three describe the methods and results for a hybrid implementation-efficacy controlled trial of SMHP. Paper two reports on the implementation arm of the study and analyzes semi-structured interviews from 26 stakeholders, including mental health,

criminal justice, and research team stakeholders, to examine the challenges and facilitators of implementing SMHP. Challenges and facilitators to implementing SMHP were associated with the inner setting, outer setting, and implementation process.

Paper three reports results from a randomized control trial of SMHP in which 106 probationers with mental illness were randomly assigned to standard probation or specialty mental health probation. Results indicate core differences between SMHP officers and standard probation officers in terms of their focus on probationers' mental health service connection. In addition, results suggests that SMHP officer efforts may also result in higher rates of accessing mental health services.

This research makes a significant contribution to the literature by addressing risk factors for probation violations among probationers with mental illness, the rigor of evidence supporting SMHP, and the real world challenges probation and mental health agencies experience when implementing SMHP.

To Nana (Jean Lee Huber)

ACKNOWLEDGMENTS

I would like to acknowledge the work and support of many who made the completion of this dissertation possible. This research was conducted in conjunction with a larger study initiated by the Department of Public Safety (DPS) and funded by the North Carolina Governor's Crime Commission. Although the research and intervention were initiated by DPS, the design and implementation was a result of cross-agency collaboration between DPS, the North Carolina Department of Health and Human Services, Treatment Accountability for Safer Communities, and the UNC School of Social Work. In addition, local representatives from these agencies, along with representatives from two managed care organizations for mental health and substance abuse services – Alliance Behavioral Healthcare and Eastpointe – were instrumental in the implementation of SMHP.

My deepest gratitude goes to my chair and academic advisor, Dr. Gary Cuddeback, who has dedicated countless hours to helping me frame my research questions, specify the data analysis procedures, and edit multiple drafts of each of the three papers in this dissertation. I feel incredibly fortunate to have had the chance to work with him and I sincerely value his mentorship and humor. The members of my dissertation committee – Drs. Alicia Bunger, Nicole Lawrence, Kim Strom-Gottfried, and Amy Blank Wilson – provided essential conceptual, theoretical, and methodological expertise and made time to provide much needed guidance. I would also like to thank the Social Work with Adults with Mental Illness research group at UNC Chapel Hill School of Social Work. Many individuals serving on this team – particularly Stacey Burgin and Marilyn Ghezzi – contributed to this research

through data collection, data analysis, and intervention implementation. I have also received many words of encouragement and inquiries about my progress from my friends, extended family, and fellow faculty members and doctoral students. Your words have always been encouraging and suspiciously well-timed.

Lastly, my family has provided me with the life lessons, values, love, and support I needed to make it to this point. My Dad, Charles Bloomer, has been an example of what it means to step up to the plate. My siblings, Christian VanDeinse and Naomi VanDeinse, and my mom, Denise Bloomer, have served as an inspiration that has guided me to the field of social work and have been endless sources of support. My mom, and her coat of many colors, has also been my role model for hard work, dedication, and for taking satisfaction in a job well done. I am infinitely grateful to my wife, Dr. Ashley Trama, who has been a steady source of support, patience, love, wisdom, and presence of mind over the last five years. I have leaned heavily on her throughout my doctoral education and I do not have the words to adequately express my gratitude. Finally, I want to thank my grandmother, Jean Lee Huber, to whom this dissertation is dedicated, who has shown great generosity and love and who never ceases to surprise us.

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LIST OF ABBREVIATIONS AND SYMBOLS

ACT	Assertive Community Treatment
β	Beta regression coefficient
CFIR	Consolidated Framework for Implementation Research
CSS-M	Criminal Sentiment Scale-Modified
D	Cohen's D
df	Degrees of Freedom
DHHS	Department of Health and Human Services
DPS	Department of Public Safety
F	F ratio
GCC	Governor's Crime Commission
IVC	Involuntary Commitment
M	Mean
MCO	Managed Care Organization
MINI	Mini International Neuropsychiatric Interview
NIC	National Institute of Corrections
OII	Officer Impression Inventory
OSR	Offender Self-Report
p	Probability
PICTS	Psychological Inventory of Criminal Thinking Styles
PTSD	Post-traumatic Stress Disorder
r	Pearson's correlation coefficient
RCT	Randomized Control Trial

RNA	Risk Needs Assessment
R&R	Reasoning and Rehabilitation
R^2	R-squared value
SCL-10R	Symptom Checklist 10 Revised
SD	Standard Deviation
SE	Standard Error
SMHP	Specialty Mental Health Probation
t	t-value
TASC	Treatment Accountability for Safer Communities
T4C	Thinking for a Change
UNC-CH	University of North Carolina at Chapel Hill
V	Cramer's V
X^2	Pearson's chi-square test
α	Cronbach's alpha
ΔF	Change in the value of the F statistic
ΔR^2	Change in the value of R^2
η^2	Eta-squared effect size

INTRODUCTION

ENHANCING THE EVIDENCE FOR SPECIALTY MENTAL HEALTH PROBATION: A HYBRID EFFICACY-IMPLEMENTATION CONTROLLED TRIAL

Persons with mental illness make up a substantial portion of the population of adults in the criminal justice system and have a higher risk of re-incarceration (Crilly, Caine, Lamberti, Brown & Friedman, 2009; Ditton, 1999; James & Glaze, 2006; Kaeble, Glaze, Tsoutis & Minton, 2015; Steadman, Osher, Robbins, Case & Samuels, 2009; Teplin, 1994). The proportion of incarcerated individuals with mental illness is approximately five times higher than those in the general population, and psychotic disorders are nearly ten times more prevalent among offenders (Lamberti, 2007; Teplin, 1990). Although overrepresentation of offenders with mental illness remains an issue throughout the criminal justice system, it is most pressing for community corrections officers who supervise 70% of the 6.85 million adults under correctional supervision, 27% (1.8 million) of whom have a mental illness (Crilly et al., 2009; Kaeble, Glaze, Tsoutis & Minton, 2015). These high rates of mental illness among probationers, coupled with an increased risk for probation violations, revocations and rearrests, compared to the general population of probationers, pose a significant challenge for state correction agencies tasked with making policy and programmatic decisions that meet the needs of probationers with mental illness while also addressing public safety concerns.

One intervention that has emerged to address high rates of probation violations and recidivism among people with mental illness is specialty mental health probation. The

Council of State Governments identified specialty mental health probation (SMHP) as a promising practice for supervising probationers with mental illness (Council of State Governments, 2002; Skeem & Enno Louden, 2006). Although the structure and implementation of SMHP varies by agency, five key elements are consistent: (a) caseloads consisting exclusively of probationers with mental illness; (b) reduced caseload size; (c) ongoing mental health training for officers; (d) a problem-solving supervision orientation; and (e) collaboration with internal and external resources to link probationers with supports (Skeem, Emke-Francis & Enno Louden, 2006; Skeem & Enno Louden, 2006). At the last count (Skeem, Emke-Francis & Enno Louden, 2006), across the 50 states, there were approximately 140 specialty agencies (Skeem, Emke-Francis & Enno Louden, 2006). Today, it is reasonable to expect that this number has increased.

Despite ongoing implementation of SMHP, there are significant limitations and gaps in the literature that need to be considered in order to effectively address probation violations among persons with mental illness and severe mental illness. First, there is a lack of reliable methods to identify persons with mental illness and severe mental illness in the criminal justice system. Prevalence estimates vary widely based on criminal justice settings and how mental illness is defined and measured. Variation in methods and screening tools – and thus estimates of prevalence – make it difficult for state agencies to accurately estimate the nature and scope of mental illness among the population and the level of resources needed to adequately address it.

Second, there is a lack of consensus about the risk factors that lead to violations among probationers with mental illness. There is a wealth of evidence to suggest that the risk factors associated with criminal justice involvement (called criminogenic risk factors;

Andrews, Bonta & Wormith, 2006) are the same for offenders with and without mental illnesses (Bonta, Law & Hanson, 1998; Bonta, Blais & Wilson, 2014) – in other words, mental illness itself is not a risk factor for criminal involvement. However, it is not clear whether these criminogenic risks can also predict different types of probation violations (e.g., technical violations and violations due to new crimes).

A third limitation concerns the implementation of SMHP and the variability in the model of SMHP across agencies (Manchak, Skeem, Kennealy & Eno Loudon, 2014; Skeem, Emke-Francis & Eno Loudon, 2006; Skeem & Eno Loudon, 2006). There is a clear lack of focus on implementation within the corrections literature in general (Alexander, 2011; Gendreau, Goggin & Smith, 1999) and within studies of SMHP in particular (Manchak et al., 2014). A lack of focus on implementation – particularly the challenges and barriers that may impede implementation with fidelity (Manchak et al., 2014) – impedes the effectiveness of interventions (Gendreau, Goggin & Smith, 1999) and the efforts to build the evidence base, particularly around understanding what elements of an intervention are vital and account for the improvements in targeted outcomes (Manchak et al., 2014). The field needs implementation-focused studies examining factors that facilitate and impede the implementation of prototypical SMHP models that incorporate the five elements mentioned above (Skeem, Emke-Francis & Eno Loudon, 2006).

A final and significant gap in the literature is the lack of rigorous research demonstrating the efficacy of SMHP. Although evaluations of SMHP show promising results for both criminal justice and mental health outcomes, these results are not consistent across studies. Variability in study findings can be due to, for example, heterogeneity in the implementation of specialty mental health caseloads, differences in study design and

differences in measurements used (Manchak et al., 2014; Skeem & Eno Loudon, 2006; Wolff, Epperson, Shi, Huening, Shumann, & Sullivan, 2014). Although some of these studies employed rigorous statistical analyses (Manchak et al., 2014; Wolff et al., 2014) to account for potential group differences in treatment and comparison groups, a true experimental design is needed in order to sufficiently control for threats to internal validity.

The following three papers begins to address these limitations in the research. First, paper one examines the scope of mental illness and severe mental illness among probationers within one southeastern state and the risk factors for probation violations. Second, paper two examines the facilitators and challenges of implementing a prototypical SMHP model (as defined by Skeem, Emke-Francis & Eno Loudon, 2006). Third, paper three uses a randomized control trial (RCT) to examine the efficacy of SMHP on officer-initiated mental health actions steps and offender mental health engagement.

Organization of the Dissertation

This introduction has provided a brief justification for the research studies that follow. Each of the following sections was written as a separate manuscript and consequently has overlapping content; however, the methods and samples for each section are distinct. Further, this paper concludes with a combined discussion section that incorporates the findings from each of the three papers that examine the overarching aims for this dissertation.

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PAPER I

JUSTICE-INVOLVED PERSONS WITH SEVERE MENTAL ILLNESS: CRIMINOGENIC RISKS AND PROBATION VIOLATIONS.

Offenders with mental illness make up a substantial portion of the population of adults in the criminal justice system and have a higher risk of re-incarceration (Crilly et al., 2009; Ditton, 1999; James & Glaze, 2006; Steadman et al., 2009; Teplin, 1994). Indeed, the proportion of incarcerated individuals with mental illness is approximately five times higher than persons in the general population, and individuals with psychotic disorders are nearly ten times more prevalent among offenders than the general population (Lamberti, 2007; Teplin, 1990).

Although the overrepresentation of offenders with mental illness remains an issue throughout the criminal justice system, it is most pressing for community corrections officers who supervise 70% of the 6.9 million adults under correctional supervision (i.e., jails, prisons, probation and parole arrangements; Kaeble, Glaze, Tsoutis & Minton, 2015). Although the prevalence of mental illness among probationers varies, best estimates suggest that between 16% and 27% of individuals on community supervision arrangements (i.e., probation and parole) have a mental illness (Crilly et al., 2009; Ditton, 1999). These high rates of mental illness among probationers, coupled with an increased risk for probation violations, revocations and rearrests, compared to the general population of probationers, pose a significant challenge for state correction agencies tasked with making policy and programmatic decisions that meet the needs of probationers with mental illness while also addressing public safety concerns.

To develop appropriate policy and programmatic responses that improve criminal justice and mental health outcomes for probationers with mental illness, criminal justice authorities need to be able to: (1) accurately estimate the prevalence of probationers with severe mental illness; (2) understand the risk factors associated with probation violations, revocation and recidivism among offenders with mental illness; and (3) use this information to tailor officer approaches to match probationers with the appropriate type and intensity level of supervision.

Here, to begin to address these issues, administrative data from one southeastern state are used to address the following study aims: (1) to estimate the prevalence of mental illness among probationers across the state; (2) to compare criminogenic risk factors for probationers without mental illness, probationers with mental illness, and probationers with severe mental illness; and (3) to examine the predictors of probation violations.

Literature Review

Prevalence of Persons with Mental Illness in the Justice System

The high prevalence and disproportionate representation of adults with mental illness in the criminal justice system is well-documented (Crilly et al., 2009; Ditton, 1999; James & Glaze, 2006; Lamberti, 2007; Steadman et al., 2009; Teplin, 1990; Teplin, 1994). Of the 6.9 million adults in the corrections system nationwide, 70% are on community supervision (Kaeble et al., 2015) and between 16% and 27% of those have a mental illness (Crilly et al., 2009; Ditton, 1999), amounting to approximately 753,296 to nearly 1.3 million probationers. Variation in these prevalence estimates can be attributed to a number of methodological differences in sampling, measurement, and definitions of mental illness across a number of studies. For example, a study (Lurigio, Cho, Swartz, Johnson, Graf & Pickup, 2003)

estimating prevalence of diagnoses based on standardized measurements had substantially lower estimates compared to a study (Crilly et al., 2009) using self-report of symptoms and functional impairment as an indicator of mental illness. Table A1 summarizes three studies examining rates in mental illness within general probation populations. Other studies not included here examine rates of mental illness among probationers referred for specialized probation approaches or interventions for those with mental illness (Draine & Solomon, 2000; Roskes & Feldman, 1999).

Being able to reliably identify mental illness among the criminal justice population is a first and particularly important step in developing policy and programmatic responses to supervising and managing offenders with mental illness; however, variation in estimates of the number of persons with severe mental illness in criminal justice settings poses a challenge for criminal justice authorities, especially when allocating scarce resources such as specialty mental health probation programs or special programming for offenders in jail and prison settings. Variation in methods and screening tools – and thus estimates of prevalence – make it difficult for state agencies to accurately estimate the nature and scope of mental illness among the population and the level of resources needed to adequately address it.

In the absence of statewide epidemiological surveys and comprehensive diagnostic clinical assessments for offenders, criminal justice authorities are often left with relying on the self-report of their offenders or the impressions of their officers to identify offenders with mental illness. However, little is known about the accuracy of these methods and the extent to which these measurements agree and can be used as a reliable means for referring a probationer to services.

Explanations of criminal behavior among people with mental illness

To select or develop appropriate interventions for probationers with mental illness, existing empirical and theoretical explanations of the interface between mental illness and justice-involvement must be considered. Despite extensive research and debate to explain why individuals with mental illness are overrepresented in the justice system, no single explanation has emerged. Understanding the etiology of criminal behavior among people with mental illness (i.e., why people with mental illness commit crimes in the first place) and why they remain involved with the criminal justice system is complex and most likely can be explained by a variety of factors. When considering all of the factors it is unreasonable to expect that any one theory can adequately explain the complexity of criminal involvement among people with mental illness. Rather, combining multiple theoretical, empirical, and historical explanations can identify the risk factors that predict involvement in the criminal justice system among people with mental illness and the mechanisms that keep them there. In particular, explanations of criminal behavior among people with mental illness have focused on the impact of individuals' mental disorders (psychopathology), changes in mental health and drug policies, and greater prevalence of risk factors associated with criminal behavior (Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Draine et al., 2002; Fisher, Silver & Wolff, 2006; Hiday, 1998; Lurigio & Harris, 2007; Skeem, Manchak & Peterson, 2011).

Psychopathological frameworks. Perhaps the most commonly used framework that informs both interventions and public opinion regarding criminal behavior among people with mental illness is psychopathology. A psychopathological framework posits that symptoms and attributes related to a person's mental illness, such as psychosis and acute

distress, lead to criminal thinking and criminal behavior (Bonta, Law & Hanson, 1998; Draine et al., 2002; Skeem, Manchak & Peterson., 2011). The implication resulting from this perspective is that targeting mental health symptoms will reduce criminal behavior. Consequently, interventions informed by the psychopathological perspective focus on symptoms of mental illness, such as depression and psychosis, with the expectation that a decrease in these symptoms will correspond to a decrease in criminal behavior and arrests (Bonta, Law & Hanson, 1998).

Despite the inherent logic of a relationship between psychopathology and criminal behavior, research has not supported the assertion that mental illness is the primary predictor of criminality (Bonta, et al., 1998; Draine et al., 2002; Hiday, 1998; Skeem, Manchak & Peterson, 2011). Although results from studies implementing evidence-based mental health interventions, such as assertive community treatment (ACT), which is a community-based, multi-disciplinary mental health intervention for people with serious and persistent mental illness, showed improvements in mental health outcomes, there was no reduction in law enforcement contacts and arrests among justice-involved individuals with mental illness (Clark, Ricketts & McHugo, 1999; Skeem, Manchak & Peterson, 2011). In addition, a meta-analysis of studies regarding the predictors of criminal recidivism showed that mental illness had either no effect or a negative effect on recidivism (Bonta, Law & Hanson, 1998).

Therefore, the association between mental illness and criminal behavior is not predictive. Rather, other individual-level risk factors must be considered. For instance, substance abuse partially mediates the relationship between mental illness and violent crime (i.e., most of the violent crimes committed by people with mental illness were due to their substance abuse as opposed to mental health symptoms) and fully mediates the relationship

between mental illness and non-violent crime (i.e., when substance abuse is controlled for the relationship between mental illness and non-violent crimes disappears; Swartz & Lurigio, 2007).

Other studies indicate that criminal behaviors among individuals with mental illness are due to antisocial traits as opposed to mental illness alone and that these traits are more prevalent among those with mental illness, and account for higher levels of criminal activity (Gross & Morgan, 2012; Lamberti, 2007). Therefore, psychopathological frameworks for understanding the problem, and hence developing solutions, do not account for other explanatory and empirically supported risk factors for criminal behavior.

Criminalization hypothesis: The impact of policy. The criminalization framework is a second explanation for the overrepresentation of individuals with mental illness in the criminal justice system. This framework claims that policy-level factors – namely deinstitutionalization of people with mental illness, stringent laws governing involuntary hospitalization, the war on drugs, and the fragmented service delivery system – created a cycle of recidivism among individuals with mental illness (Fisher et al., 2006; Lamb & Weinberger, 2013; Lurigio & Swartz, 2000; Peterson, Skeem, Hart, Vidal & Keith., 2010; Skeem, Manchak & Peterson, 2011).

In the 1960's, with the support of President Kennedy, the Joint Commission on Mental Illness called for the development of community-based mental health treatment centers to meet the mental health needs of those who had been discharged from state psychiatric hospitals (Lurigio & Harris, 2007). This initiative was later codified as the Community Mental Health Centers Act of 1964 and provided state incentives to implement community-based mental health programs. As a result, hospitals discharged patients in

droves, overwhelming the local systems. Although the intent of deinstitutionalization was to integrate people with mental illness into the community instead of being locked in institutions, the policies resulted in increased numbers of untreated people with mental illness seeking services from an ill-equipped, fragmented community mental health system (Fisher, Silver & Wolff, 2006; Lamb & Weinberger, 2013; Lurigio & Harris, 2007; Peterson et al., 2010; Skeem, Manchak & Peterson, 2011). Symptoms and behaviors that were previously managed in psychiatric settings (e.g., delusions, hallucinations, rapid changes in mood) were now occurring in the community. Instead of mental health professionals and state hospitals addressing such behaviors, law enforcement officers became the first responders and ultimately the agents of social control (Fisher, Silver & Wolff, 2006; Lamb & Weinberger, 2013; Peterson et al., 2010; Skeem, Manchak & Peterson, 2011).

Responding to behaviors and symptoms associated with mental illness became increasingly difficult. In the interest of protecting the rights of people with mental illness, mental health laws governing involuntary commitment became more stringent (Lurigio & Swartz, 2000; Lurigio & Harris, 2007). Involuntary commitment (IVC) once seen as a way to access treatment for individuals became a response of last resort. IVC was reserved for individuals who were an imminent danger to themselves or others, or who were incapable of caring for themselves (Lurigio & Swartz, 2000). Given that individuals had a right to refuse hospitalization and other mental health treatment, stringent requirements governing IVCs meant that those who were most in need of treatment were not receiving services and were more likely to be picked up by the criminal justice system.

Individuals with mental illness also became ensnared in the criminal justice system due to the war on drugs (Lurigio & Harris, 2007). The overall drug-related arrests soared in

the 1980s and those convicted of drug-related crimes were spending more time in prison and jail than those previously convicted for similar charges. High rates of co-morbidity (i.e., having both substance abuse and mental health disorders) meant that a substantial number of those arrested had a mental illness. Furthermore, given the lack of coordination between mental health and substance abuse service systems, those who had co-occurring mental health and substance abuse disorders were not likely to get their treatment needs met within the community (Lurigio & Harris, 2007).

Although the criminalization framework seems to point to system-level factors as the cause of overrepresentation of individuals with mental illness in the criminal justice system, it implies the same solution as the psychopathological perspective: treating individuals' mental illness will reduce criminal offense. Not only is this hypothesis not supported by empirical evidence but it also places the responsibility for the problem, and consequently its solution, solely on the mental health system (Fisher, Silver & Wolff, 2006). The criminalization hypothesis continues to shape policy and intervention practices that aim to build community mental health resources but it does not sufficiently address the systemic problems, namely the lack of collaboration between criminal justice and mental health systems (Fisher, Silver & Wolff, 2006; Keilitz & Roesch, 1992; Steadman, 1992). Certainly communities are in need of adequate and accessible services; however, mental health services alone will not decrease criminal justice involvement to the extent that mental illness is not the cause of criminal behavior.

Criminological models: Risk factors for criminal behavior. The third theoretical perspective focuses neither on the psychopathological perspective nor the system-level criminalization hypothesis. Rather, criminological models (those advanced by the field of

criminology) generated by social learning theory and social cognitive perspectives, point to multiple risk factors for criminal offense and recidivism (Andrews, Bonta & Wormith, 2006).

Social learning theory (Bandura, 1977) recognizes that “people are neither entirely determined by internal causes nor environmental stimuli, but psychological functioning is accounted for by a reciprocal interaction of personal and environmental determinants” (Bandura, 1977, p. 11-12). The addition of cognitive development perspectives further focuses the framework on deficiencies in offenders’ cognitive processes. By integrating social learning theory and social cognitive perspectives, criminologic theory posits that there are eight central risk factors that predict criminal involvement among the general population (Andrews, Bonta & Wormith, 2006): history of antisocial behavior, antisocial personality pattern, antisocial cognition, antisocial attitudes, strain in family and/or marital relationships, problems in school and/or work circumstances, lack of leisure and/or recreation activities, and substance abuse.

Criminologists assert that the risk mechanisms that predict criminal behavior in the general population are the same for those with mental illness and that mental illness alone does not cause criminal behavior. Rather, people with mental illness have more risk factors compared to the general population, which accounts for their disproportionate representation (Andrews, Bonta & Wormith, 2006). One of the most influential studies to support this assertion was a meta-analysis by Bonta, Law, & Hanson (1998) – which was repeated in 2014 (Bonta, Blais & Wilson, 2014) – that effectively summarized the growing evidence that the psychopathological approach was limited in its applicability and relevance to criminal offending among people with mental illness. Bonta, Law, & Hanson (1998) conducted a

meta-analysis of 58 empirical studies from 1959 to 1995 that examined the predictors of either general recidivism or violent recidivism among people with mental illness.

The most common diagnosis represented among the study samples was schizophrenia, which accounted for 70% of the samples, and the second most common was antisocial personality disorder (15%). Most samples of studies included in the meta-analysis were comprised only of men (71.4%) and just over a quarter of studies had a mixed gender sample. Almost 70% of the offenders were under supervision due to violent crimes (murder or attempted murder, sexual assault, assault, robbery) and the remaining had committed nonviolent offenses. The studies included in the meta-analysis measured general recidivism (43.8%) and violent recidivism (15.5%) and the remaining 40% were measures of a combination of re-hospitalization and general or violent criminal behavior. The final categories measured for recidivism were general recidivism (62.8%) and violent recidivism (37.2%).

The 58 studies identified 74 predictors of recidivism which were categorized into four domains: personal demographics, criminal history, deviant lifestyle history, and clinical. Results of the meta-analysis showed that the primary predictors of general and violent recidivism were adult criminal history, juvenile delinquency, substance abuse, and antisocial personality. Further, most clinical (psychopathological) factors were not related to recidivism or were negatively correlated. However, antisocial personality disorder (categorized as a clinical variable) was a strong predictor of criminal recidivism.

Overall, the results suggest that the predictors for general and violent recidivism among offenders with mental illness are nearly the same as the predictors of recidivism among those without mental illness. Based on these results, Bonta and colleagues concluded

that what is known about assessing for risk among the general population of offenders can be applied to offenders with mental illnesses and that clinical characteristics “have little relevance” when assessing for risk of recidivism (Bonta et.al, 1998); thus, interventions should target relevant risk factors, not necessarily mental illness.

Although this study has helped shift the focus away from the direct, causal relationship between mental illness and criminal justice, there are some study limitations that need to be considered. One major limitation of the study is the lack of an assessment of the quality of the studies included in the meta-analysis. Although the authors briefly discussed the need for quality articles to be included in the meta-analysis, the inclusion criteria did not assess for quality. Rather, authors indicated that studies needed to be longitudinal and “truly predictive” (p. 125) to be included in the study. This limited definition of quality rests solely on the fact that the studies had multiple measurement periods and ignores several major methodological shortcomings that would threaten the validity of the study findings. Further, researchers conducting meta-analyses of longitudinal studies could consider how autocorrelation was handled in the original studies and include this in their quality assessment and inclusion criteria along with additional factors such as sample size, sampling strategy, and data analysis methods.

An additional limitation that has implications for the findings of a meta-analysis is the way key constructs – such as mental illness – are defined. In the meta-analysis of the 58 studies, there was not a critical analysis of the definition of mental illness or mentally disordered offender. Distinctions between both how mental illness is defined and subsequently measured can have a significant impact on findings. For instance, ‘mentally disordered offender’ may be defined as an offender with a known mental health treatment

history. Another definition may rely on self-report where offenders have answered affirmatively to ever having been diagnosed with mental illness. Further, a mentally disordered offender may be defined as someone who has been screened and assessed for mental health symptoms in an institutional setting (i.e., prison, jail). There are substantive differences in these definitions that would impact reliability and validity of the measures and consequently the generalizability and validity of study findings.

Lastly, the final potential limitation of the meta-analysis involves the exploration of substance abuse as a risk factor among people with mental illness. Although the results of the study showed that substance abuse had a .08 effect size on violent recidivism ($p < .001$) and a .11 effect size on general recidivism ($p < .001$), research indicates that the relationship between mental illness and recidivism is more complex. For instance, a quasi-experimental, cross-sectional study of the National Survey on Drug Use and Health (NSDUH) using hierarchical linear regression examined the mediating effects of substance use on involvement with the criminal justice system among adults with serious mental illness (Swartz & Lurigio, 2007). Study results suggested that alcohol and drug use mediates the relationship between severe mental illness and drug-related and non-violent offense. Further, the relationship between serious mental illness and violent offense is only partially mediated, meaning that a direct effect or independent relationship between serious mental illness and violent offense remains.

The meta-analysis by Bonta, Law and Hanson (1998) was updated in 2014 by Bonta, Blais and Wilson to examine the predictive validity of the eight criminogenic risk factors as well as clinical variables (e.g., diagnosis, intellectual impairment) on violent and general recidivism. The 2014 meta-analysis included 126 studies with samples that ranged from 8 to

1,175 with an average sample size of 298 offenders. This updated meta-analysis showed consistent results with the 1998 meta-analysis, namely that clinical variables were not significant predictors of general or violent recidivism. More specifically, this study included six of the eight criminogenic risk factors as predictors of general and violent recidivism and all were significant predictors with mostly small to moderate effect sizes. On the other hand, most of the clinical variables included in the study – including psychosis, schizophrenia, treatment history, previous hospitalization, etc. – were not predictors of general or violent recidivism. Rather, intelligence was a significant predictor of general recidivism and variables associated with antisocial personality were predictors of both general and violent recidivism.

The study concluded that the predictors of criminal behavior are the same for offenders with mental illness as they are for the general population of offenders and that, among other criminogenic risk factors, procriminal attitudes and antisocial personality are consistently strong predictors of general and violent recidivism. This conclusion is consistent with, and advanced by, findings from a study examining criminal thinking patterns in a sample of 416 incarcerated adults with mental illness (Morgan, Fisher, Duan, Mandracchia & Murray, 2010) using the Psychological Inventory of Criminal Thinking Styles (PICTS) and the Criminal Sentiments Scale-Modified (CSS-M). Results from this study indicated that offenders with mental illness had criminal thinking and attitudes as high as offenders without mental illness, meaning that mental illness and criminal thinking co-occur. This finding challenges the notion that offenders with mental illness are ensnared in the criminal justice system because of their psychiatric symptoms. Rather, there is a level of criminality across

the population of offenders that explains their involvement in the criminal justice system and should be targeted for intervention.

These findings were supported by another study (Wolff, Morgan, Shi, Huening & Fisher, 2011) examining criminal thinking styles of 3,958 male and 217 female prisoners using the CSS-M. Study participants were included if they were approaching their parole eligibility date or their maximum sentence within two years. Participants were categorized as having a serious mental disorder ($n = 261$ for males and $n = 42$ for females), other mental disorder ($n = 521$ for males and $n = 58$ for females), or no mental disorder ($n = 3,167$ for males and $n = 117$ for females). Participants were identified as having a serious mental disorder if they had a diagnosis of schizophrenia or bipolar disorder and were identified as having another mental disorder if they had a diagnosis of depression, posttraumatic stress disorder, or anxiety disorder.

Results indicated that offenders with mental disorders showed antisocial attitudes at levels similar to, and sometimes greater than, offenders who did not have a mental illness. Further, males who had serious mental disorders had statistically significantly ($p < .05$) higher scores on most scales and subscales of the CSS-M compared to females. The results are consistent with the findings from Morgan et al. (2010) and provide additional support to the notion that offenders with mental illness, particularly those in prison, have criminogenic risk factors associated with antisocial personality and criminal thinking at rates equal to or greater than those without mental illness.

Recognizing the potential that criminal thinking may be different among jail inmates compared to prison inmates who may be repeat offenders or convicted of more serious crimes, researchers (Wilson, Farkas, Ishler, Gearhart, Morgan & Ashe, 2014) examined

criminal thinking styles using the PICTS among 138 young adults in a reentry program who were incarcerated in a county jail. These individuals were 18 to 24 years of age and had co-occurring serious mental illness and substance use disorders, which were confirmed using the Mini International Neuropsychiatric Interview (MINI; Sheehan, Lecrubier, Sheehan, Amorim, Janavs & Dunbar, 1998).

Results indicated that the sample of young adults incarcerated in jail mirrored the criminal thinking patterns on the subscales of PICTS (e.g., defensiveness, mollification, power orientation) of those in the prison sample used by Morgan et al. (2010). In other words, young adult offenders with serious mental illness have elevated criminal thinking styles which are consistent with patterns among adult offenders with serious mental illness as well as the criminal thinking styles of the general population of offenders. Consequently, approaches to addressing criminal justice involvement among offenders with mental illness must address these criminogenic risk factors and move beyond interventions that are solely focused on mental health treatment connection.

The empirical evidence provided by these studies (Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Morgan et al., 2010; Wilson et al., 2014; Wolff et al., 2011) adds to the mounting evidence that mental illness is not a significant predictor of criminal behavior. Rather, individuals with mental illness seem to have higher criminogenic risk, namely criminal thinking and antisocial attitudes, which accounts for the relationship between mental illness and criminal justice involvement (Andrews et al., 2006; Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Morgan et al., 2010; Wilson et al., 2014; Wolff et al., 2011).

Although there is a great deal of evidence to support the notion that criminogenic risk factors occur at greater rates among those with mental illness, and that these high rates account for higher risk of offending, it is not clear whether this same assumption would hold true for probation violations, particularly in regards to technical violations where officer discretion and organizational characteristics may play a greater role (Kerbs, Jones & Jolley, 2009).

Specific Aims

It is clear that persons with mental illness are disproportionately represented in the criminal justice system; however, strategies for accurately identifying these individuals are needed for routine use in criminal justice settings. In addition, there is a wealth of evidence to suggest that the criminogenic risk factors associated with criminal justice involvement are similar for offenders with and without a mental illness. However, this research does not sufficiently explain the relationship between mental illness and criminogenic risk factors and its impact on probation violations. To begin to address these gaps, this study aims to understand the scope of mental illness among probationers within this state as well as the risk factors for probation violations, and will address the following three aims:

- Specific aim 1. Use statewide administrative data to estimate the prevalence of mental illness among probationers and assess the concordance of different mental illness indicators.
- Specific aim 2. Use administrative data to examine the relationship between mental illness and criminogenic risk factors.

- Specific aim 3. Examine the relationships among mental illness, criminogenic risk factors and different types of probation violations (i.e., probation violations due to new crime and technical violations).

The study design, sample, measurement and data analysis for each of these aims are described separately below.

Method

Overview

Below, each aim of the study is restated and the methods to address each aim (i.e., study design, sample, measures, and data analysis) are presented. This research study was approved by the Institutional Review Board at the University of North Carolina at Chapel Hill.

Aim 1. Use statewide administrative data to estimate the prevalence of mental illness among probationers. The concordance of different mental health indicators will also be addressed. To address this study aim, the following research questions will be answered:

- RQ_{1.1}: What is the prevalence of mental illness among probationers in North Carolina?
- RQ_{1.2}: What is the degree of concordance between offender self-report about mental illness and probation officers' impression of offenders' mental illness?

Aim 1 study design and sample. A cross-sectional study design was used to examine indicators of mental illness among a statewide population of offenders under community supervision during a five-year period between 2009 and 2013. A statewide administrative data set was obtained from the North Carolina Department of Public Safety which contained individual-level data from the state's Risk and Needs Assessment (RNA) – the state's

offender self-report measure of criminogenic risks and needs – for 254,970 offenders who were supervised on probation between January 1, 2009 and December 31, 2013. Of the 254,970 probationers, 91% ($n = 231,905$) had one episode of probation during the five-year time period, 8.5% ($n = 21,797$) had two episodes, 0.48% ($n = 1,230$) had three episodes, and 0.014% ($n = 38$) had four episodes. Observations in the analytic data file were limited to a probationer's first episode of probation during that time period ($n = 231,905$).

The final analytic sample of probationers was 231,905. Among those in the sample, 73.93% ($n = 171,440$) were male, 48.37% ($n = 112,183$) identified as White/Caucasian, 44.91% ($n = 104,154$) identified as African American, 3.27% ($n = 7,585$) identified as Native American, 2.63% ($n = 6,103$) identified as Hispanic, 0.35% ($n = 816$) identified as Asian, and 0.46% ($n = 1,064$) identified as Other. Approximately 47.75% ($n = 110,734$) had a high school diploma. The average age was 37.46 ($SD = 12.04$).

Aim 1 measures. Demographic data concerning race, age, gender and education were available for all probationers. Race was coded as: (1) White/Caucasian; (2) Black/African American; (3) Hispanic; (4) Asian; (5) Native American; and (6) Other. Gender was reported as a dichotomous nominal variable – male and female – and age was coded as a continuous variable in years. Education was measured as a dichotomous nominal variable indicating whether a probationer had a high school diploma. To address Aim 1, the study examined two screening instruments designed to identify probationers who have mental illness: an offender self-report (OSR) inventory and an officer impression inventory (OII). These measures are a part of the North Carolina Department of Public Safety's Risk and Needs Assessment (RNA) administered by probation officers in the Division of Adult Correction and Juvenile Justice.

Indicators of any mental illness. To estimate the prevalence of any mental illness among probationers, two indicators were created from the OSR and OIL. The first indicator of any mental illness was developed from a series of four offender self-report questions. Within the first 60 days of entering probation, all probationers complete an offender self-report survey, which asks offenders to provide information about education, family history, mental health, substance abuse, transportation, employment, finances, anti-social values, anti-social cognitions, anti-social history, anti-social peers, and other topics.

Here, for the purposes of identifying probationers with any mental illness, scores on the mental health scale from the OSR survey were used. Probationers were asked to respond to four questions about mental illness using a 5-point Likert scale with the following response pattern: *never true* (0), *rarely* (1), *sometimes true* (2), *usually true* (3), or *always true* (4). The questions were as follows: (1) I hear or see things that other people say they don't hear or see; (2) I believe that other people can control my mind by putting thoughts into my head or taking thoughts out of my head; (3) I have so much energy that I can go for days without sleep and thoughts just race through my head; and (4) I feel so bad that I think of taking my own life.

From the responses to these items, a total mental health scale score was calculated by summing the responses to these items. Scores on the mental health scale for the 231,905 probationers in the sample ranged from 0 to 16, with a Mean score of 0.96 ($SD = 1.91$). Prior testing (Cuddeback & Lambert, 2012) determined that the mental health scale was reliable and valid and established clinical cut-off scores (i.e., one standard deviation above the mean) such that higher scores on the mental health scale indicated more mental health problems. Also, higher scores on the mental health scale were associated with increased probability of

recidivism while on probation and higher scores were associated with an increased probability of prison infractions (i.e., the mental health scale was also tested in prison settings). Using these cut-off scores, probationers with mental health scale scores of 3.0 or greater (2.87, which is one standard deviation [1.91] above the population mean 0.96) were considered as having any mental illness.

A second potential indicator of mental illness available within the RNA was created from a series of three questions concerning mental health issues answered by probation officers about their probationers (i.e., the Officer Impression Inventory [OII]). Specifically, probation officers asked their probationers the following questions: (1) Have you ever been hospitalized for emotional or mental health problems; and (2) Are you now on medication for emotional or mental health problems? Probationers were identified as having a mental illness if officers answered affirmatively to either one of these items.

To estimate the prevalence of severe mental illness, a variable for severe mental illness was created. Severe mental illness is typically defined by the conjunction of disability, duration, and diagnosis (Goldman, Gattozzi, & Taube, 1981). However, in the absence of these specific indicators, researchers determined that severe mental illness would be indicated by scores that were two standard deviations or more above the mean (i.e., scores of 3.82 above the sample mean of .96 for a total score of 4.78) or a score of 5 or higher.

Aim 1 data analysis. Descriptive statistics were used to examine the prevalence of mental illness among probationers. Cohen's Kappa Coefficient was then calculated to determine the degree to which the indicators of mental illness matched across sources (i.e., OSR, OII). The Cohen's Kappa coefficient measures the agreement between raters of categorical or nominal data and is chance-corrected in that it accounts for inter-rater

agreement that occurs by chance (Cohen, 1960). Acceptable Kappa statistics vary with some researchers indicating that Kappa statistics of .61 or greater show substantial agreement between measures (Landis & Koch, 1977).

Aim 2. Use administrative data to examine the relationship between mental illness and criminogenic risk factors.

- RQ_{2.1}: Do offenders with mental illness score higher on scales measuring criminogenic risks compared to offenders without mental illness?
- RQ_{2.2}: Do offenders with severe mental illness score higher on scales measuring criminogenic risks compared to offenders without severe mental illness?

Aim 2 study design and sample. An observational cohort study design was used to answer the research questions in Aim 2. The same original set of 231,905 probationers was described in Aim 1 was used to answer the research questions in Aim 2. However, three distinct and mutually exclusive categories for mental illness were created: (1) probationers with no mental illness ($n = 198,031$); (2) probationers with mental illness (20,374); and (3) probationers with severe mental illness ($n = 13,500$). No mental illness is defined as one standard deviation or less on the mental health scale, mental illness is defined as between one and two standard deviations above the sample mean and severe mental illness is defined as a score of two or more standard deviations above the mean.

Among probationers with no mental illness ($n = 198,031$), 74.12% ($n = 146,787$) were male, 49.47% ($n = 97,962$) identified as White, 43.76% ($n = 86,668$) identified as African American, 3.34% ($n = 6,624$) identified as Native American, 2.62% ($n = 5,186$) identified as Hispanic, 0.34% ($n = 668$) identified as Asian, and 0.47% ($n = 923$) identified as

Other. Approximately 48.59% ($n = 96,224$) had a high school diploma. The mean age was 37.61 ($SD = 12.04$).

Demographic characteristics were similar across categories of mental illness, with two noteworthy exceptions. First, there were statistically significant differences in racial demographics between those without mental illness, those with mental illness, and those with severe mental illness ($X^2 = 802.89$, $df = 10$, $p < .000$, $V = .042$). For instance, a greater percentage of probationers with severe mental illness identified as African American (53.16%, $n = 7,177$) compared to those with mental illness (50.60%, $n = 10,309$) and those without (43.76%, $n = 86,668$). Second, the percentage of probationers who had their high school diploma was lowest among those with severe mental illness (39.01%, $n = 5,266$) compared to those with mental illness (45.37%, $n = 9,244$) and probationers without mental illness (48.59%, $n = 101,807$; $X^2 = 515.83$, $df = 2$, $p < .000$, $V = .048$). See Table A2.

Aim 2 measures. Demographic variables measuring age, race, education, and gender were the same as those used for the analysis in Aim 1. In addition, there were five scales within the RNA that aimed to measure criminogenic risk factors (Andrews et al., 2006): (a) substance abuse; (b) antisocial personality; (c) self-control; (d) antisocial values; and (e) dysfunctional family history.

The substance abuse scale is a one-factor, 6-item scale that measures frequency of substance use, substance use at the time of crime, and other problems related to substance use. The reliability of the scale is .70 (Cuddeback & Lambert, 2012) and tests show convergent, concurrent, and predictive validity (see Cuddeback & Lambert, 2012). Scores on the substance abuse scale range from 0 to 25 with an average score of 2.71 ($SD = 3.18$) and cutoff values of one standard deviation above the sample mean.

The antisocial personality scale is a one-factor scale consisting of 10 items that measure characteristics of antisocial traits, such as impulse control and committing harmful acts against people or animals. The reliability of the scale is .68 and shows good convergent validity with scales that measure self-control, antisocial values, and substance abuse. Scores on the antisocial personality disorder scale range from 0 to 13 with a mean of 1.65 ($SD = 1.97$) and cutoff values of one standard deviation above the mean.

The self-control scale is a one-factor scale consisting of six items that measure impulse control and impulsive behavior. The reliability of the scale is .65 and shows convergent validity with scales that measure antisocial personality and substance abuse. Scores on the self-control scale range from 0 to 24 with a mean of 11.01 ($SD = 2.85$) and cutoff values of one standard deviation above the mean.

The antisocial values scale is a one-factor scale consisting of five items that measure antisocial styles of thinking, such as trying to get even with others and feeling angry when others try to tell them what to do. The reliability of the scale is .66 and shows convergent validity with scales that measure self-control, antisocial personality, and substance abuse. Scores on the antisocial values scale range from 0 to 20 with a mean of 2.37 ($SD = 2.73$) and cutoff values of one standard deviation above the mean.

The dysfunctional family history scale is a one-factor scale consisting of six items that measure family characteristics such as criminal involvement of family members, arguments and fighting within the family, and rules and consequences. The reliability of the scale is .64 and shows good convergent validity with scales that measure self-control, antisocial values, antisocial personality, and substance abuse. Scores on the dysfunctional

family history scale range from 0 to 24 with a mean of 9.51 ($SD = 2.79$) and cutoff values of one standard deviation above the mean.

Aim 2 data analysis. Pearson's chi-square tests were used to explore the association between categorical variables. Analysis of Variance was used to examine the relationship between categorical independent variables and continuously measured dependent variables, such as scores on the criminogenic risk factor scales among those without mental illness, those with mental illness and those with severe mental illness.

Multivariate regression with robust standard errors was conducted to examine the relationship between mental illness and criminogenic risk while controlling for demographic variables. First, scale scores (e.g., substance abuse) were regressed on age, race, gender, education level. Then, in a second step, the indicator of mental illness was added to the model. In each of the models, the reference group for gender was female, the reference group for age was 15-29 year olds, the reference group for race was White/Caucasian, and the reference group for education was lack of a high school diploma. Probationers with no mental illness served as the reference group, and separate regression models were estimated for each of the six criminogenic scales. All statistical tests were conducted using Stata 14 (StataCorp, 2015) and two-tailed tests with alpha set at .05 were used.

Aim 3: Examine the relationships among mental illness, criminogenic risk factors and probation violations. The following research questions were addressed:

- RQ_{3.1}: What is the relationship between mental illness and probation violations when controlling for criminogenic risk factors?
- RQ_{3.2}: What is the relationship between mental illness and new and technical violations when controlling for criminogenic risk factors?

- RQ_{3.3}: What is the relationship between severe mental illness and new and technical violations when controlling for criminogenic risk factors?

Aim 3 study design and sample. An observational cohort study design was used to examine the role of criminogenic risk factors, mental illness and criminal justice outcomes among probationers without mental illness, probationers with mental illness, and probationers with severe mental illness. This analysis examines violations data for a subset of 145,755 probationers (63%) from the original 231,905 probationers described in Specific Aims 1 and 2. Because of limitations in the data due to missing probation exit dates and missing violation dates, observations in this analytic subset were limited to probationers who had at least one violation during their probation period.

Of probationers with at least one violation, 84.10% ($n = 122,574$) did not have a mental illness (i.e., scores on the mental health scale were below one standard deviation above the sample mean), 9.28% ($n = 13,527$) had a mental illness (i.e., mental health scores between one and two standard deviations above the mean), and 6.62% ($n = 9,654$) had a severe mental illness (i.e., mental health scores greater than two standard deviations above the mean). See Table A10.

Among probationers without mental illness ($n = 122,576$), the largest age group was 30-44 year olds (40.15%, $n = 49,218$), followed by 15-29 year olds (36.15%, $n = 44,316$), and those over 45 years old (23.69%, $n = 29,040$). The largest racial category was Black/African American (50.17%, $n = 61,499$), followed by White/Caucasian (44.30%, $n = 54,303$). Three quarters of the probationers without mental illness were males and about 44.02% ($n = 55,995$) of the sample had a high school diploma. The average length of probation for those without mental illness was 1.88 years ($SD = 1.15$).

Among probationers with mental illness, the largest age category was 15-29 years old (40.36%, $n = 5,460$), followed by 30-44 year olds (37.31%, $n = 5,047$). A larger percentage of those with mental illness identified as Black/African American (55.66%, $n = 7,529$) compared to those without mental illness and White/Caucasian probationers comprised 39.27% ($n = 5,312$) of probationers with a mental illness. A majority of probationers with mental illness were male (74.24%, $n = 10,042$) and 41.10% ($n = 5,559$) had a high school diploma. The average length of probation was 1.64 years ($SD = 1.05$).

Among probationers with severe mental illness, the highest percentage were in the 15-29 year old age group (38.81%, $n = 3,747$). Approximately 57.29% ($n = 5,531$) of probationers with severe mental illness were Black/African American followed by 36.90% ($n = 3,562$) White/Caucasian. Males comprised 72.18% ($n = 6,968$) of those with severe mental illness and 35.48% ($n = 3,425$) had a high school diploma. The average length of probation was 1.53 ($SD = 1.02$) years.

Aim 3 measures. The same demographic variables and criminogenic risk measures that were used in Aim 2 were used to address the research questions for Aim 3. Gender was a self-report, nominal variable where probationers identified as either male or female. Race was a nominal variable where probationers identified as either White, African American, Hispanic, Native American, Asian, or Other. Age was a continuously measured variable and education was measured as a nominal variable where probationers indicated whether or not they had a high school diploma.

As stated above, the criminogenic scales included were substance abuse, antisocial personality, self-control, antisocial values, and dysfunctional family history. Mental illness was defined as any score between one and two standard deviations above the mean and

severe mental illness was defined as two or more standard deviations above the sample mean. Those scoring below one standard deviation were identified as not having a mental illness.

In addition, three dependent variables were created from the administrative data. First, any probation violation (coded as 0 or 1) indicated a documented violation for any reason (e.g., failure to comply with a mental health evaluation, absconding, DWI, assault, possession of a firearm). Next, variables were created to indicate a new violation (i.e., any violation that involved the committing of a new crime, such as a new felony or misdemeanor conviction, drug possession, sex offense violation) or a technical violation (i.e., failing to comply with the terms of probation such as failure obtain employment, failure to attend treatment). Violation codes obtained by the North Carolina Department of Public Safety were used to code violations as either new or technical.

Aim 3 data analysis. First, a series of bivariate analyses were conducted to examine the relationships between category of mental illness (i.e., no mental illness, mental illness, severe mental illness), demographic variables, criminogenic risk scales (e.g., antisocial personality, dysfunctional family) and violations. Next, a series of Poisson regression models were conducted to examine the predictors of probation violations for each type of violation while controlling for demographic characteristics, probation length, mental illness, and criminogenic risk factors.

In the first models, the number and types of violations were regressed on demographic variables (e.g., gender, race). In the second set of models, variables for mental illness were added. Criminogenic risk scales were added in the full model. Each model included a variable measuring the length of probation as the exposure variable to account for different lengths of probation for each case. The length of probation was determined by the

number or fraction of years from the supervision begin date until the release date or the observation date, which was the date the data were obtained. Robust standard errors and two-tailed significance tests with alpha set at .05 were used. Stata version 14.0 (StataCorp, 2015) was used for the data analysis.

Results

Overview

Results are presented for each of the three study aims: (a) the prevalence of mental illness among probationers in North Carolina; (b) the relationship between mental illness and criminogenic risk factors; and (c) the relationships among mental illness, criminogenic risks and criminal justice outcomes.

Results of specific aim 1. Specific Aim 1 was to use offender self-report data to estimate the prevalence of mental illness among probationers, and to examine the extent to which there is concordance between offenders' self-report (OSR) and officers' impression of mental illness among probationers (OII). See Table A3.

Among the sample of 231,905 probationers during the study period (2009 – 2013), prevalence of any mental illness was comparable between the OSR (14.61%, $n = 33,874$) and OII indicators (18.73%, $n=43,442$). The prevalence estimate of severe mental illness (i.e., scores two standard deviations above the sample mean) was 5.82% ($n = 13,500$).

Concordance between the OSR and OII estimates, as measured by Cohen's Kappa, was 76.90%, with a Kappa value of 0.17. This suggests that the OSR and OII agreed about 77% of the time after correcting for chance agreement; however, a Kappa value of .17, although statistically significant, indicates weak agreement between these two indicators of mental illness (Landis & Koch, 1977).

Results of aim 2. Specific Aim 2 examined the relationship between mental illness and criminogenic risk factors. This section first examines relationships between criminogenic risk factors and mental illness indicators. The relationships between probation violations (by type) and mental illness and severe mental illness are then examined.

Criminogenic risks. Analysis of variance showed a statistically significant relationship between mental illness and each of the five criminogenic risk scales. The following summarizes results from the analyses of variance and multivariate regressions by criminogenic scale.

Substance abuse. The analysis of variance for the substance abuse scale showed a statistically significant difference between groups (see Table A4) on the substance abuse scale [$F(2,231902) = 2,837, p = .000$] with a small effect size (as measured by eta-squared) of $\eta^2 = .02$ (Cohen, 1988). Post hoc Bonferroni tests showed that the greatest mean difference in substance abuse scores was between those with severe mental illness ($M = 4.41, SD = 4.23$) and those without mental illness ($M = 2.53, SD = 3.01$). There was also a sizable difference in scores between those without mental illness and those with mental illness (2.53 vs. 3.43), as well as those with mental illness and those with severe mental illness (3.43 vs. 4.41). After controlling for the demographic variables, results of the multivariate regression with Huber-White correction using robust standard errors, indicated that those with severe mental illness ($\beta = 1.950, \text{Robust } SE = .037, p < .05$) had scores on the substance abuse scale that were nearly two times those without mental illness (i.e., the reference group). See Table A5 for results.

Antisocial personality. Similar to the substance abuse scale, the analysis of variance for the antisocial personality scale showed statistically significant differences between all

three groups [$F(2,231902) = 5630.14, p = .000, \eta^2 = .05$], with the highest scores among those with severe mental illness ($M = 3.14, SD = 2.71$) followed by probationers with mental illness ($M = 2.22, SD = 2.25$), and probationers without mental illness ($M = 1.49, SD = 1.82$). Although these mean differences were statistically significant, the eta-squared effect size was low to medium at .05 (Cohen, 1988). The statistically significant relationship between mental illness and antisocial personality remained after controlling for demographic characteristics. That is, those with severe mental illness had antisocial personality scale scores that were higher by a factor of 1.58 compared to the reference group (i.e., those without mental illness; $SE = 0.023, p < 0.000$). See Table A6.

Self-control. The analysis of variance for the self-control scale indicated that the mean differences between each category of mental illness were statistically significant [$F(2,231902) = 6463.3, p = .000, \eta^2 = .05$]. Post hoc Bonferroni tests showed that average scores for those with severe mental illness were 2.4 points higher ($M = 13.15, SD = 3.19$) than those without mental illness ($M = 10.75, SD = 2.72$) and approximately one point higher than average scores for those with mental illness ($M = 12.10, SD = 2.94$). Results of the multivariate regression confirmed these results indicating that, after controlling for other variables, severe mental illness accounted for a 2.4-unit increase in scores on the self-control scale ($SE = 0.028, p < 0.000$) and mental illness accounted for a 1.33-unit increase on the self-control scale compared to those without mental illness (i.e., the reference group; $SE = 0.21, p < 0.000$). See Table A7.

Dysfunctional family history. The analysis of variance for the dysfunctional family history scale showed a statistically significant difference between groups [$F(2,231902) = 2,267.85, p = .000, \eta^2 = .02$] with a small effect size (as measured by eta-squared) of $\eta^2 = .02$

(Cohen, 1988). Post hoc tests showed that the greatest mean difference in dysfunctional family history scores was between those with severe mental illness ($M = 10.79$, $SD = 3.54$) and those without mental illness ($M = 9.36$, $SD = 2.66$). After controlling for the demographic variables, results of the multivariate regression indicated that those with severe mental illness had scores on the substance abuse scale that were 1.3 units higher than those without mental illness (i.e., the reference group; $SE = 0.031$, $p < 0.000$). See Table A8.

Antisocial values. Similar to all other scales, the analysis of variance and post-hoc tests for the antisocial values scale showed statistically significant differences between all three groups [$F(2,231902) = 16054.71$, $p = .000$, $\eta^2 = .12$], with the highest scores among those with severe mental illness ($M = 5.65$, $SD = 3.85$) followed by probationers with mental illness ($M = 3.75$, $SD = 3.07$) and probationers without mental illness ($M = 2.00$, $SD = 2.38$). The effect size, as measured by eta-squared, was medium to large at .12 (Cohen, 1988). The statistically significant relationship between mental illness and antisocial values remained after controlling for demographic characteristics. Specifically, severe mental illness accounted for a 3.6-unit increase in scores on the antisocial values scale compared to those without mental illness (i.e., the reference group; $SE = 0.033$, $p < 0.000$) and those with mental illness had scores that were 1.7-units higher than those without mental illness ($SE = 0.02$, $p < 0.000$). See Table A9.

Results of specific aim 3. Specific Aim 3 examined the relationships among mental illness, criminogenic risks and probation violations. Poisson regression was used to examine the effects of demographic characteristics, mental illness, and criminogenic risk on total number of probation violations, technical violations, and violations due to new crimes.

Bivariate analyses of probation violations. Of offenders who committed probation violations, there were no statistically significant differences in the total number of violations based on the category of mental illness (see Table A11). That is, those without mental illness had as many violations ($M = 6.06$, $SD = 6.21$) as those with mental illness ($M = 6.10$, $SD = 5.82$) or severe mental illness ($M = 6.19$, $SD = 5.91$), $F(2,145752) = 2.32$, $p < .10$). In terms of technical violations, probationers with severe mental illness had slightly higher rates ($M = 5.03$, $SD = 4.66$) compared to those with mental illness ($M = 4.97$, $SD = 4.59$) and those without mental illness ($M = 4.90$, $SD = 4.89$; $F(2,145752) = 4.15$, $p < .05$). However, the effect size for this statistically significant difference was zero. In terms of violations due to new crimes, those without mental illness had statistically significant higher rates ($M = 0.77$, $SD = 1.70$) compared to those with mental illness ($M = 0.71$, $SD = 1.57$) and those with severe mental illness ($M = 0.72$, $SD = 1.58$; $F(2,145752) = 11.46$, $p < .000$), but the effect size was zero.

In terms of the bivariate relationships between criminogenic risk scales and violations, all relationships were statistically significant. That is, the total number of violations had a statistically significant correlation with substance abuse ($r(145,753) = .104$, $p < .000$), antisocial personality ($r(145,753) = .103$, $p < .000$), self-control ($r(145,753) = .053$, $p < .000$), dysfunctional family history ($r(145,753) = .042$, $p < .000$), and antisocial values ($r(145,753) = .054$, $p < .000$). In addition, the number of technical violations was statistically significantly correlated with substance abuse ($r(145,753) = .095$, $p < .000$), antisocial personality ($r(145,753) = .092$, $p < .000$), self-control ($r(145,753) = .050$, $p < .000$), dysfunctional family history ($r(145,753) = .040$, $p < .000$), and antisocial values ($r(145,753) = .050$, $p < .000$).

Lastly, the number of new violations was statistically significantly correlated with substance abuse ($r(145,753) = .058, p < .000$), antisocial personality ($r(145,753) = .062, p < .000$), self-control ($r(145,753) = .027, p < .000$), dysfunctional family history ($r(145,753) = .017, p < .000$), and antisocial values ($r(145,753) = .027, p < .000$). However, none of the criminogenic scales had a strong relationship with the total number of violations, number of technical violations, or the number of violations due to new crime. See Table A12.

The first set of regression models (see Table A13) examined the effect of demographics, mental illness, and criminogenic variables on the number of probation violations. In the first model, the total number of violations was regressed on demographic variables. All variables in this first model (i.e., gender, race, age, education) were statistically significant: gender ($\beta = 0.09, SE = .007, p < .000$), African American (White/Caucasian is the reference group; $\beta = -0.086, SE = .006, p < .000$), Hispanic ($\beta = -0.164, SE = .021, p < .000$), Asian ($\beta = -0.233, SE = .057, p < .000$), Native American ($\beta = -0.303, SE = .017, p < .000$), Other race ($\beta = -0.290, SE = .044, p < .000$), age 30-45 (15 to 29 is the reference group; $\beta = -0.156, SE = .006, p < .000$), age 45 and older ($\beta = -0.381, SE = .007, p < .000$), and high school diploma ($\beta = -0.145, SE = .005, p < .000$).

The second model in this set regressed total number of violations on the demographic variables as well as mental illness. Once controlling for mental illness (i.e., no mental illness, mental illness, and severe mental illness), all variables remained statistically significant. Moreover, results indicated that, compared to the reference group of probationers without a mental illness, those with mental illness were slightly more likely to have higher rates of probation violations ($\beta = 0.132, SE = .009, p < .000$), as were probationers with severe mental illness ($\beta = 0.210, SE = .010, p < .000$). That is, compared to probationers without

mental illness, the expected log count increases by 0.132 for probationers with mental illness and by 0.210 for probationers with severe mental illness.

The third regression model examined predictors of violations and included each of the five criminogenic risk factors in addition to demographic and mental illness variables. Although coefficient sizes are small, both mental illness ($\beta = 0.049$, $SE = .009$, $p < .000$), and severe mental illness ($\beta = 0.037$, $SE = .011$, $p = .001$) remain statistically significant predictors of the number of probation violations. In addition, the criminogenic risk factors of substance abuse ($\beta = 0.031$, $SE = .001$, $p < .000$), antisocial personality disorder ($\beta = 0.014$, $SE = .001$, $p < .000$), self-control ($\beta = 0.008$, $SE = .001$, $p < .000$), and antisocial values ($\beta = 0.016$, $SE = .001$, $p < .000$) are statistically significant predictors of the number of probation violations. However, the coefficients for the criminogenic risk scales are slightly lower than those of mental illness and severe mental illness.

The second set of regression models examines the effect of demographics, mental illness, and criminogenic variables on the number of technical violations (e.g., failure to comply with treatment). In the first model of this set, demographic variables are regressed on the number of technical violations (see Table A14) and all variables are statistically significant predictors of technical violations: gender ($\beta = 0.056$, $SE = .006$, $p < .000$), African American (White/Caucasian is the reference group; $\beta = -0.050$, $SE = .005$, $p < .000$), Hispanic ($\beta = -0.163$, $SE = .020$, $p < .000$), Asian ($\beta = -0.230$, $SE = .055$, $p < .000$), Native American ($\beta = -0.310$, $SE = .017$, $p < .000$), Other race ($\beta = -0.280$, $SE = .044$, $p < .000$), age 30-45 (15 to 29 is the reference group; $\beta = -0.221$, $SE = .006$, $p < .000$), age 45 and older ($\beta = -0.402$, $SE = .007$, $p < .000$), and high school diploma ($\beta = -0.181$, $SE = .005$, $p < .000$).

The second model in this set regressed total number of technical violations on the demographic variables as well as mental illness. Once controlling for mental illness, all variables remained statistically significant. Results indicated that, compared to the reference group of probationers without a mental illness, those with mental illness were slightly more likely to have higher rates of technical violations ($\beta = 0.138$, $SE = .009$, $p < .000$), as were probationers with serious mental illness ($\beta = 0.210$, $SE = .010$, $p < .000$). That is, compared to probationers without mental illness, the expected log count of technical violations increases by 0.138 for probationers with mental illness and by 0.210 for probationers with severe mental illness.

The third regression model examining predictors of technical violations controls for the criminogenic risk factors in addition to demographic and mental illness variables. Similar to the first set of regressions examining the number of violations, results indicate that although coefficient sizes are small, all but one of the criminogenic risk scales (dysfunctional family history) is a statistically significant predictor of the number of probation violations. That is, the criminogenic risk factors of substance abuse ($\beta = 0.029$, $SE = .001$, $p < .000$), antisocial personality disorder ($\beta = 0.011$, $SE = .001$, $p < .000$), self-control ($\beta = 0.008$, $SE = .001$, $p < .000$), and antisocial values ($\beta = 0.016$, $SE = .001$, $p < .000$) are statistically significant predictors of the number of probation violations. In addition, in this full model, mental illness ($\beta = 0.060$, $SE = .009$, $p < .000$) and severe mental illness ($\beta = 0.048$, $SE = .011$, $p < .000$) remain statistically significant predictors of the number of technical violations; however, the coefficients are significantly smaller than those in the second model but slightly larger than the criminogenic risk scales.

The last set of models examines the effect of demographics, mental illness and criminogenic variables on the number of violations due to new crime. Results examining demographic variables regressed on the number of violations due to new crimes indicate that all demographic variables are statistically significant: gender ($\beta = 0.289$, $SE = .013$, $p < .000$), African American (White/Caucasian is the reference group; $\beta = -0.260$, $SE = .011$, $p < .000$), Hispanic ($\beta = -0.263$, $SE = .044$, $p < .000$), Asian ($\beta = -0.260$, $SE = .122$, $p < .05$), Native American ($\beta = -0.372$, $SE = .032$, $p < .000$), Other race ($\beta = -0.430$, $SE = .110$, $p < .000$), age 30-45 (15 to 29 is the reference group; $\beta = -0.236$, $SE = .012$, $p < .000$), age 45 and older ($\beta = -0.534$, $SE = .015$, $p < .000$), and high school diploma ($\beta = -0.133$, $SE = .011$, $p < .000$).

In the second model, the number of probation violations due to new crime were regressed on the demographic variables and mental illness indicators (See Table A15). Once controlling for mental illness (i.e., no mental illness, mental illness, and severe mental illness), the same demographic variables from the first model remained statistically significant. In addition, both mental illness ($\beta = 0.057$, $SE = .019$, $p < .010$) and severe mental illness ($\beta = 0.134$, $SE = .023$, $p < .000$) are significant predictors of violations.

The third regression model in this set examining predictors of violations due to new crime controls for each of the five criminogenic risk factors in addition to demographic and mental illness variables. Results indicate that all but one demographic variable (i.e., Asian) are statistically significant. In addition, although coefficient sizes are small, all but one of the criminogenic risk scales (dysfunctional family history) are statistically significant predictors of the number of probation violations due to new crimes. That is, the criminogenic risk factors of substance abuse ($\beta = 0.031$, $SE = .002$, $p < .000$), antisocial personality disorder (β

= 0.027, $SE = .003$, $p < .000$), self-control ($\beta = 0.010$, $SE = .002$, $p < .000$), and antisocial values ($\beta = 0.016$, $SE = .002$, $p < .000$) are statistically significant predictors of the number of probation violations. Further, in this third model, the direction of the variables measuring mental illness ($\beta = -0.038$, $SE = .020$, $p = 0.53$) and severe mental illness ($\beta = -0.061$, $SE = .024$, $p < .05$) have changed such that, compared to probationers without mental illness, probationers with severe mental illness have a 0.061 lower expected log count ($p < .05$). The same trend is true for those with mental illness; however, the p-value for the coefficient is 0.53.

Discussion

In this study, an observational cohort design and statewide administrative data were used to answer a number of important questions about the relationship between mental illness, criminogenic needs and the number and types of probation violations. First, data were used to estimate the prevalence of mental illness and severe mental illness among probationers in one southeastern state. Second, congruence between two indicators of mental illness – mental illness determined by self-report data and mental illness determined by the impression of probation officers – was examined using the Kappa statistic for chance-corrected agreement. Third, using bivariate and multivariate analyses, the relationship between mental illness, severe mental illness and criminogenic risk scales was examined. Fourth, using bivariate and multivariate analyses, the predictors of the number and type of violations were examined. The following section examines the results from these analyses and is organized by the specific aims of this paper.

Prevalence of mental illness and severe mental illness

There are three key findings regarding the prevalence of mental illness and severe mental illness among probationers. First, results suggest that between 14.61% and 18.73% of probationers in the sample have a mental illness. These results are similar to estimates found in the literature, namely studies by Ditton (1999) and Lurigio et al. (2003). However, OSR (i.e., offender self-report) and OII (i.e., officer impression) estimates in this study are substantially lower than the study by Crilly et al. (2009) which estimated prevalence of mental illness among probationers at nearly 30%. The estimates obtained in this study further confirm the large number of justice-involved persons with mental illness.

Second, results from this study also contribute to the research by distinguishing between mental illness and severe mental illness. Although the estimates obtained in this study have a number of limitations and need to be tested for validity and reliability, they can provide probation agencies with a potential tool to target services and resources. For instance, community corrections officials could use a similar measure of intensity that examines scores two standard deviations above the sample mean to flag individuals for being potentially eligible for probation interventions targeted to individuals with mental illness, such as specialty mental health probation. Probation agencies will likely not have the resources for trained screeners to confirm a diagnosis for each of their probationers, but they may be able to use existing data from their risk and needs assessments to “flag” potentially eligible individuals.

Third, the concordance between offender self-report and officer impression is acceptable but there is still incongruence between these instruments. This incongruence is problematic for a number of reasons. For instance, if probation agencies define mental illness based solely on offender self-report, then they must rely on probationers’ willingness to

disclose their mental health condition or even their awareness of having a mental health condition. Similarly, if agencies rely on officer impression then the reliability of this indicator is only as good as the training officers have in identifying mental illness. Consequently, with mediocre agreement between these two indicators, many probationers with mental illness will remain unidentified.

Probation agencies are also faced with a policy dilemma of casting a wide net in their definition of mental illness (e.g., screening for any occurrence of mental illness in one's lifetime) or implementing a narrower definition that focuses on current mental health condition (e.g., screening for current mental illness). This decision has obvious implications from a resource perspective. On the one hand, casting a wide net may mean a great deal of resources are spent up front to make sure all who may have a mental health condition are identified. On the other hand, implementing a narrower definition of mental illness may result in targeting fewer resources on the front end (e.g., fewer follow-up assessments) but an increased risk of missed opportunities to identify probationers with mental illness from the outset, which could then create a resource drain later on. In making this decision, probation agencies must consider the resources available in their agency in terms of screening tools, availability of interventions for probationers with mental illness (e.g., specialty mental health probation, mental health courts, etc.) and probation officer training.

Relationship between mental illness and criminogenic risk

Based on the analyses of variance and multivariate analysis, we can confirm that: (a) there is a statistically significant relationship between mental illness and criminogenic risk factors; (b) the strength of these relationships vary by criminogenic scales (e.g., stronger relationship between mental illness and antisocial values versus a weaker relationship

between mental illness and dysfunctional family); and (c) that severity of mental illness predicts higher scores on each of the criminogenic risk scales even after controlling for demographic variables. These results appear to support findings in the criminal justice literature that those with mental illness have higher rates of criminogenic risk (Andrew, Bonta & Wormith, 2006; Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Morgan et al., 2010; Wilson et al., 2014; Wolff et al., 2011).

Further, results of this study make an additional contribution to the literature by examining the relationship between severe mental illness among probationers and each of the criminogenic risk scales. This analysis showed that probationers with severe mental illness scored statistically significantly higher on each of the five criminogenic risk scales than those with mental illness and those without. Further, the strength of the relationship between severe mental illness and criminogenic risk was highest for the self-control scale and the antisocial values scale, which provides additional support to the notion that mental illness alone may not have a direct and significant impact on criminal behavior; rather, probationers with severe mental illness may have higher rates or levels of criminogenic risk factors like antisocial attitudes or criminal thinking (Andrews, Bonta & Wormith, 2006; Wolff et al., 2011).

Here, the implications for practice, policy, and research are interconnected. For instance, in order for probation officers to identify and modify their supervision practices to address self-control and antisocial values among probationers with severe mental illness, they will need the resources and support of probation agencies. For probation agencies to target resources through reliable identification of probationers with severe mental illness and then implement interventions, researchers need to focus on validating screening instruments and

adapting criminal justice interventions – particularly those that focus on self-control and antisocial attitudes – for people with severe mental illness.

One potential intervention to consider is Reasoning and Rehabilitation (R&R; Wilson, Bouffard & Mackenzie, 2005) which has also been modified for those with mental illness (Reasoning and Rehabilitation 2 Mental Health Program; Rees-Jones, Gudjonsson & Young, 2012). Another intervention that could be modified for this population is one that is advanced by the National Institute of Corrections (NIC) called Thinking for a Change (T4C; Bush, Glick, Taymans & Guevara, 2011) which is a manualized intervention that targets self-change, social skills, and problem-solving skills. Although the evidence base for these interventions among the general population is promising, more research is needed to modify these interventions for adults with severe mental illness.

Predictors of violations

This study partially confirms the hypothesis that criminogenic risk factors fully predict the relationship between mental illness and criminal behavior (Bonta, Law & Hanson, 1998). Results from this study indicated that there are some instances in which controlling for criminogenic risk factors renders the relationship between mental illness and violations statistically insignificant, which is consistent with the work of Bonta and colleagues (1998). In this study, probationers with mental illness or severe mental illness had a lower probability of violations compared to those without mental illness. However, for some types of violations, the relationship between mental illness and violations remained statistically significant suggesting that the relationship between mental illness and violations is more complicated.

For instance, for the total number of violations as well as the number of technical violations, both mental illness and severe mental illness were statistically significant predictors of violations even after controlling for criminogenic risk factors. On a practice level, these findings indicate that some aspect related to a person's mental health condition influences officer discretion such that they are more likely to issue formal sanctions (i.e., technical violations) for probationers with mental illness when issues of non-compliance arise. Although some studies have found that higher rates of technical violations are linked to officers' attempts to reengage offenders in treatment – i.e., officers would arrest a person for a probation violation who was non-compliant with their mental health treatment so they could then be reengaged with treatment while in jail (Solomon & Draine, 1995) – a more comprehensive understanding of multilevel risk factors for technical violations is needed.

For example, is greater probability of technical violations simply a result of probationers with mental illness having more requirements (e.g., treatment mandates) associated with the terms of their probation? Are officers using violations and rearrests as a way to connect probationers to treatment? Does officer bias or stigma impact the rate at which they issue violations for those with mental illness? The answers to each of these questions will have different implications for probation agencies tasked with managing high rates of violations among those on community supervision.

Limitations

The first limitation associated with this study pertains to its research design. This is an observational cohort design that represents all probationers sentenced to probation during a five-year period between 2009 and 2013. Thus, the violations represent only those violations that offenders accrued during this time period and not the number of violations

accrued throughout their sentence. For instance, a person who was sentenced to probation on January 1, 2009 may have had 12 violations before exiting in one year. On the other hand, a person who entered on December 29th, 2013 may not have had any violations before the end of the study period on December 31st, 2013. Differences in time period were controlled for in the Poisson regression using probation length as the exposure variable. However, the design is not a truly longitudinal design. Further, the data set was limited to only those who had at least one violation. It is possible that criminogenic risk factors and severity of mental illness may be different among those who do not have a probation violation and those who do; however, the data set did not allow for this comparison.

A second limitation is the reliability and validity of the measurement instruments used. Although the measures for mental illness and the various criminogenic risk scales were examined and found to be acceptable, it is best to use standardized assessment tools with known reliability and validity statistics that are stronger than those provided in this study. For instance, a more comprehensive assessment of the validity and reliability of the OSR and OII indicators could include an examination of validity using standardized assessment that confirms the mental health diagnosis of the probationer, such as the MINI (Sheehan et al., 1998), or a measure that examines symptom type and severity. In addition, measures such as the PICTS and CSS-M could be used to examine the validity of the existing criminogenic risk scales available through the RNA. Although ideal, these specific study improvements would not be feasible on the statewide population of probationers that this study uses, but could be implemented with a smaller representative sample.

The size of the sample used for this study can also be problematic given the statistical tests used for these analyses. Sample size plays a large role in tests of significance such that

even small differences can appear statistically significant. To address this limitation, effect sizes were calculated and readers should examine both tests for significance and effect sizes provided to better understand the strength of the factors. In addition, these data are from one state and consequently has unknown generalizability to other states.

Lastly, due to the challenges associated with the use of administrative data, the data set available for this study was missing key variables related to timing, probation officer assignment, and criminogenic risks. For instance, dates of probation violations and exits were not available. Consequently, instead of using a longitudinal design that addressed problems associated with autocorrelated data and censoring, this study was an observational cohort design that examined the number of violations among probationers within a given five year timeframe.

An additional challenge related to availability of variables was probation officer assignment. Probation officer assignment was not available in this sample and, as a result, the analysis could not control for nested data. That is, probationers are “nested” within caseloads of probation officers, which are nested within probation units and so on. This nesting means that observations that are assigned to the same probation officer could be related and thus violate the independence assumption. A longitudinal study using a survival analysis (i.e., time to violation) or hierarchical linear modeling (i.e., controlling for time, probationer, and officer-level effects) would be more appropriate models for such an analysis.

The last limitation related to missing variables is that not all of the criminogenic risks were included in the study. The full set of criminogenic risk factors consists of the central eight risk factors: history of antisocial behavior, antisocial personality patterns, antisocial cognition, antisocial associates, family or marital strain/lack of support, poor

performance/lack of satisfaction in work or school, lack of leisure or recreation, and substance abuse (Andrews, Bonta & Wormith, 2006; Bonta, Law and Hanson, 1998). Of these, the first four – which are related to antisocial behavior, personality, cognition, and associates – are considered the “big four” and the primary criminogenic risk factors. Although the scales used in this study – substance abuse, antisocial personality, antisocial values, self-control, and dysfunctional family history – accounted for a great number of these risk factors, a few were not addressed (e.g., leisure and recreation, performance or satisfaction at work or school). These missing risk factors could partially account for the low model fit.

Nevertheless, there are a number of strengths of this study. First, the study used a large and representative sample of probationers in this state. Second, the analyses used in this study controlled for multiple key variables known to predict criminal behavior. Third, the study distinguishes between probationers with mental illness and those with severe mental illness to examine the risk factors for recidivism and advance our understanding of the relationship between criminogenic risk, mental illness, and probation violations.

Implications

Results from previous studies examining risk factors for mental illness are best applied to models of criminal behavior and criminal recidivism (e.g., Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998), but may not help us understand the complexity of the causes of probation violations among probationers with mental illness. Results of this analysis support the findings of studies that indicate mental illness may not be a predictor of criminal behavior (Andrews, Bonta & Wormith., 2006; Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Morgan et al., 2010; Wilson et al., 2014; Wolff et al., 2011). However,

this analysis also suggests that mental illness, or some factor related to mental illness, is a predictor of technical violations. This finding, combined with the low fit of the model suggest that a more comprehensive framework for understanding probation violations should be considered. When considering a framework for understanding the risk factors for probation violations – and hence the intervention targets – a multilevel approach that considers individual-, interpersonal-, agency-, and community-level factors is needed.

On an individual level, criminogenic risk factors that are known to predict criminal behavior may also impact the occurrence or rate of violations due to new crime. For instance, antisocial personality patterns may make it more likely that an offender will willfully avoid the terms of his or her probation. On an interpersonal level, one influential predictor of violations may be the officer-probationer relationship. For example, research indicates that the role of the probation officer and probationer is instrumental in remaining compliant with the terms of probation compliance (Skeem, Eno Louden, Polaschek & Camp, 2007). Namely, the nature of the dual relationship of care and control between the probation officer and the probationer with mental illness predicts rule compliance. Specifically, the degree to which officers can effectively manage these dual roles predicts rule compliance among probationers with mental illness and, one can assume, may decrease technical violations.

On an agency-level, researchers have found a lack of formal policies that govern how probation officers must respond to probationers with mental illness, including the number and duration of contacts with offenders and how to respond to technical violations (Eno Louden, Skeem, Camp & Christensen, 2008). Consequently, officers have a great deal of discretion when working with probationers with mental illness and determining sanctions for violations, including whether or not to file a violation. In addition, some research suggests

that organizational factors related to caseload size, number of officers, and organizational policies also have an impact on officers' decision-making (Kerbs, Jones & Jolley, 2009). Further, on a system-level, the degree to which officers are linked with the agencies in the community will impact whether the probationer is connected to services and thus compliant with their potential terms of supervision (e.g., treatment compliance).

To address the multiple levels of risk factors that impact the incidence of probation violations and keep people with mental illness involved in the criminal justice system, interventions targeting multiple levels of influence are needed. Specialized mental health probation – an organization-level intervention that integrates specialized mental health training, caseload reduction, and enhanced approaches for problem-solving challenges with probationers (Skeem, Emke-Francis & Eno Louden, 2006) – may be a viable platform for implementing a multilevel intervention aimed at reducing the number of violations among probationers with mental illness. With specialty mental health probation serving as the platform for intervention, agencies should:

- Create protocol and policies that guide the frequency, nature, and duration of contacts with probationers with mental illness;
- Create clear guidelines for determining the level and severity of sanctions when violations occur;
- Provide effective and ongoing training for officers in working with probationers with mental illness and balancing their dual role responsibilities of care and control; and
- Focus on developing cross-agency partnerships that connect probation officers to local resources to help connect probationers to services.

Conclusion

Understanding the primary risk mechanisms impacting probation violation rates among people with serious mental illness is paramount. Although evidence suggests that the risk mechanisms or predictors of recidivism in the general population of offenders is the same as those for offenders with mental illness, this hypothesis was only partially confirmed in this study. Rather, evidence suggests that there is a more complex relationship between mental illness and criminal recidivism and that multi-level risk factors should be targeted for intervention.

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PAPER II

THE IMPLEMENTATION OF SPECIALTY MENTAL HEALTH PROBATION: CHALLENGES AND FACILITATORS.

In 2014, there were nearly 6.9 million adults under correctional supervision (Kaeble, Glaze, Tsoutis & Minton, 2015). Studies of the prevalence of mental illness indicate a wide range of estimates based on definitions of mental illness, available indicators, and study setting (i.e., prison, jail, community corrections). According to the U.S. Department of Justice, 45% of those in federal correctional facilities (which amounts to more than 700,000 prisoners) and 64% of jail inmates (which amounts to nearly half a million inmates) had a mental health condition (James & Glaze, 2006; Kaeble et al., 2015).

Despite varying prevalence estimates, studies consistently indicate that rates of mental illness within the corrections system are higher than in the general population. The proportion of individuals with mental illness in jails and prisons is approximately five times higher than those in the general population, and psychotic disorders are nearly ten times more prevalent among offenders (Lamberti, 2007; Teplin, 1990). In addition, 17% of the general population had symptoms of a mental disorder compared to 27% of probationers (Crilly et al., 2009). Offenders with mental illness comprise a substantial portion of the population of adults in the criminal justice system and have a higher risk of re-incarceration compared to offenders who do not have mental illness (Crilly, et al., 2009; Ditton, 1999; James & Glaze, 2006; Steadman et al., 2009; Teplin, 1994).

Although over-representation of offenders with mental illness remains an issue throughout the criminal justice system, it is most pressing for community corrections officers (i.e., probation and parole officers) who supervise 70%, or 4.7 million of those under correctional supervision (Kaeble et al., 2015). Although the census for community supervision has continued to gradually decline since 2007 (Kaeble et al., 2015), the prevalence of mental illness among probationers remains high. Between 16% and 27% of probationers have a mental illness, which amounts to between 753,296 and 1,271,187 probationers and parolees (Crilly et al., 2009; Ditton, 1999; Kaeble et al., 2015).

Specialty mental health probation has proliferated as a promising criminal justice response to managing the large numbers of probationers with mental illness. Although the structure and implementation of SMHP varies by criminal justice agency, five key elements are identified as the prototypical model: (a) caseloads consisting exclusively of probationers with mental illness; (b) reduced caseload size; (c) ongoing mental health training for officers; (d) a problem-solving supervision orientation; and (e) collaboration with internal and external resources to link probationers with supports (Skeem, Emke-Francis & Eno Loudon, 2006).

A 2006 examination of the efficacy of SMHP by Skeem & Eno Loudon showed growing empirical evidence that SMHP had a positive impact on treatment and criminal justice outcomes; however, none of these studies were randomized control trials that examined the prototypical SMHP model. Since the review by Skeem and Eno Loudon, the evidence of the impact of SMHP on criminal justice and mental health outcomes continues to build (Manchak, Skeem, Kennealy & Eno Loudon, 2014; Wolff, Epperson, Shi, Huening, Shuman & Sullivan, 2014); however, there are two key limitations of this research. First,

research evaluating the efficacy of SMHP is limited to quasi-experimental designs which do not fully control for threats to internal validity. Some studies have used advanced statistical methods, such as propensity score matching (Manchak et al., 2014), to improve the internal validity of the study, but researchers also note that differences in unobserved characteristics may still persist and impact results. Therefore, a true experimental design is necessary to assess the efficacy of SMHP to improve mental health and criminal justice outcomes (Manchak, Skeem, Kennealy & Eno Loudon, 2014; Wolff et al., 2014)

The second key limitation is related to variability in the SMHP model across agencies (Manchak et al., 2014; Skeem, Emke-Francis & Eno Loudon, 2006; Skeem & Eno Loudon, 2006) and how this variability might be impacted by challenges related to implementation of the SMHP model (Manchak et al., 2014). There is a clear lack of focus on implementation within the corrections literature in general (Alexander, 2011; Gendreau, Goggin & Smith, 1999) and within studies of SMHP in particular (Manchak et al., 2014). A lack of focus on implementation – particularly the challenges and barriers that may impede implementation with fidelity (Manchak et al., 2014) – impedes the effectiveness of interventions (Gendreau, Goggin & Smith, 1999) and the efforts to build the evidence base, particularly around understanding what elements of an intervention are vital and account for the improvements in targeted outcomes (Manchak et al., 2014). The field needs implementation-focused studies examining factors that facilitate and impede the implementation of prototypical SMHP models that incorporate the five elements mentioned above (Skeem, Emke-Francis & Eno Loudon, 2006).

Literature Review

More than 15 years ago, Gendreau, Goggin, & Smith (1999) discussed the lack of focus on program implementation of offender treatment programs within the corrections literature and offered a set of guidelines for program implementation. Since Gendreau and colleagues published their article, the field of implementation science and translational research has greatly expanded and studies regarding implementation of effective programs in multiple settings and fields of practice have proliferated. However, the corrections literature has not kept pace with other disciplines and has lagged in its implementation focus. In the past, much of the corrections literature focused on developing effective assessment practices and interventions for offenders (Bourgon, Bonta, Rugge, Scott, & Yessine, 2010; Gendreau, Goggin, & Smith, 1999). Developing effective interventions and risk assessment tools is important; however, research now needs to attend to the implementation of these interventions within correctional settings and ensuring that what works in a controlled study also works in a “real world” environment (Alexander, 2010; Bourgon et al., 2010).

Despite the call for more focus on implementation within corrections and the growing expertise in translational research and implementation science across many disciplines, the knowledge gap between effective interventions and effective implementation persists, particularly for the implementation of interventions in adult probation settings. For example, a search of the literature for implementation studies in probation yielded a handful of recent studies (Bourgon et al., 2010; Curran, Bauer, Mittman, Pynt & Stetler, 2012; Welsh et al., 2015; Welsh et al., 2016) examining implementation strategies (i.e., a grouping of techniques or activities used to promote the implementation of an intervention; Curran et al., 2012) and commentary (Alexander, 2011) on the need for a focus on implementation within adult

corrections but no implementation studies of SMHP. The lack of studies that examine the implementation of SMHP is a remarkable gap in our understanding of how to implement interventions at the interface of the criminal justice and mental health systems.

Despite the lack of implementation studies of SMHP, there are some insights from the corrections literature that may help illuminate factors that impact the implementation of SMHP. For example, although dated and based on observations from a single research team's experiences in program implementation in the field of corrections, the guidelines identified by Gendreau, Goggin, & Smith (1999) merit consideration. The 32 principles proposed by Gendreau and colleagues – which appear to be one of the first applications of the implementation literature to the corrections setting – are thought to apply to corrections settings, in general, and are organized into four categories: organizational factors, program factors, change agent, and staffing activities.

According to this model, organizational factors (i.e., factors related to the corrections agency in which the intervention is housed, such as prison or probation) pertain to the way a correctional agency resolves its issues, levels of staff turnover, the organization's commitment to educating and training officers, and the agency's experiences with adopting new initiatives. The program factors (i.e., factors related to the criminal justice intervention being implemented) refer to whether there is an established need for the intervention, considerations about the intervention's evidence base, stakeholder beliefs about the intervention's efficacy and relevance, the degree to which the program addresses the needs of the clients, and how the program is implemented. Factors related to change agents (i.e., those with corrections who are responsible for program implementation) include a change agent's knowledge about the agency and the staff, the change agent's credibility and experience with

program implementation, the skill set the change agent uses to effect change, and the change agent's involvement until the program is implemented. The final category is staff factors. This category refers to the staff's sense of self-efficacy, access to the change agent, knowledge of the program, skill set, availability of resources, and the degree to which they have participated in the design of the intervention.

The factors that Gendreau, Goggin & Smith (1999) described were largely based on practitioner experiences with implementing interventions within criminal justice settings but appear to be consistent with more empirically-based models such as those advanced by researchers in the field of implementation science and translational research. For example, in a side-by-side comparison (see Table B1), the Consolidated Framework for Implementation Research (CFIR; Damschroder, Aron, Keith, Kirsh, Alexander, & Lowery, 2009) seems to be consistent with – and builds upon – the guidelines from Gendreau and colleagues (1999). CFIR is one of many implementation frameworks (Tabak, Khoong, Chambers & Brownson, 2012) that are intended to enhance implementation. CFIR aims to consolidate theories and evidence from across the field of implementation science research to provide a typology of constructs that can guide theory development about “what works where and why” (Damschorder et al., 2009, p. 2).

The CFIR model is comprised of five domains: innovation characteristics (which parallels program factors in the guidelines offered by Gendreau, Goggin & Smith, 1999), outer setting, inner setting (which parallels organizational factors), characteristics of individuals (which parallels staff factors), and the implementation process (which includes elements from the change agent category). The CFIR model aligns well with the guidelines

from Gendreau and colleagues which may validate the use of CFIR towards understanding implementation of interventions within corrections, in general, and SMHP, in particular.

Although CFIR and the principles offered by Gendreau and colleagues may help illuminate potential important elements (i.e., constructs) that impact implementation in corrections settings, we must be cautious about generalizing from these frameworks to the context of SMHP in probation settings as there has been no research that directly examines the implementation of SMHP. Consequently, we do not know the challenges and facilitators associated with implementing SMHP. Without understanding the implementation challenges, we cannot effectively target implementation strategies to enhance the implementation and decrease the variability of SMHP models. This is a significant gap in our understanding of how to implement interventions at the interface of the criminal justice and mental health systems, especially given the large number of probationers with mental illness and the dissemination of SMHP across the country. Here, to address this gap and contribute to the knowledge base of SMHP, this study examined the facilitators and challenges of implementing SMHP.

Method

SMHP Study Context

In 2011, the North Carolina Department of Public Safety (DPS) convened a meeting with stakeholders from the Department of Health and Human Services (DHHS), Treatment Accountability for Safer Communities (TASC), and the School of Social Work at the University of North Carolina at Chapel Hill (UNC-CH) to discuss and conceptualize a strategy for addressing the large numbers of offenders with mental illness on community supervision (i.e., probation). After a series of planning meetings, stakeholders from DPS,

DHHS, and UNC-CH agreed to implement a SMHP pilot program in one rural county and one urban county. Principals from UNC-CH applied for and were awarded funding from the North Carolina Governor's Crime Commission (GCC) to implement and evaluate SMHP.

The original leadership group, consisting of key stakeholders from DPS, DHHS and UNC-CH, formed an Executive Committee for SMHP to make decisions regarding funding, intervention design, policies, and protocols. There were six members of this group comprised of three representatives from DPS, one from TASC, one from DHHS, and one from the UNC-CH. Separately, an Implementation Team was formed to focus on facilitating the implementation of SMHP in partnership with local DPS and TASC leaders. The Implementation Team focused on SMHP officer training, community capacity building, SMHP officer support, logistical coordination, and study recruitment, enrollment and follow-up. All four members of the Implementation Team were from UNC-CH, one of whom also served on the Executive Committee. Partners and stakeholders at the local level included DPS and TASC representatives, as well as representatives from the local managed care organizations (MCO) that manage the mental health and substance abuse service delivery system.

The core components of the SMHP pilot were based on the prototypical SMHP model advanced by Skeem, Emke-Francis & Eno Loudon (2006) and included the following: (a) SMHP officer caseloads made up exclusively of probationers with mental illness; (b) reduced caseload sizes; (c) on-going officer training; (d) a problem-solving supervision orientation; and (e) increased collaboration with community behavioral health providers and other service providers.

Responsibility for the implementation of the five SMHP components was spread among different stakeholders across DPS, DHHS, TASC, and UNC-CH. For example, DPS was responsible for identifying SMHP officers, making officers available for training, reducing SMHP officers' caseloads, transferring probationers to standard or SMHP officers as needed, and other activities related to the day-to-day implementation of SMHP.

Stakeholders from TASC and the MCOs helped facilitate contact with local mental health and substance abuse treatment providers and other community-based services. Principals from UNC-CH were responsible for coordinating and providing initial and on-going mental health training and clinical supervision for the SMHP officers and, in concert with DPS, helping the SMHP officers develop a problem-solving supervision orientation that balanced public safety and the behavioral health needs of the offenders with mental illness under their supervision. Further, the implementation team coordinated and facilitated case consultations (i.e., collaborative meetings to assist probation officers with addressing challenging situations) and community capacity building meetings that were aimed to educate community partners about the pilot and to build relationships between partnering agencies. For a diagram of the inter-organizational structure of the SMHP intervention implementation see Figure B1.

Study Design

A hybrid implementation-efficacy design was used to assess the challenges and facilitators of implementing the core components of SMHP while examining the intervention's efficacy with respect to the mental health and criminal justice outcomes of probationers with mental illness who were randomly assigned to SMHP or standard probation. To the author's knowledge, this is the first hybrid implementation-efficacy study

of SMHP and the first to use a randomized controlled trial (RCT) design to grow rigorous evidence for SMHP and its impact on important mental health outcomes for probationers with severe mental illness.

Hybrid or blended designs, such as the one implemented here, allow for: rapid generation of useful knowledge about an intervention that will aid in decision making; more effective design of implementation strategies; and quicker uptake of the intervention (Curran et al., 2012). The hybrid typology described in the literature (Curran et al., 2012) specifies the use of effectiveness studies in hybrid designs to examine implementation under real world conditions. Although this RCT is considered an efficacy study aimed to determine whether SMHP impacts mental health and criminal justice outcomes within the context of a small pilot study, some elements of the design were implemented under real world conditions (e.g., community partners and the lead agency had control over some of the study conditions, such as officer and site selection). Consequently, a blended efficacy-implementation design was ideal for the context of this study of SMHP.

The efficacy arm of this hybrid study involves a randomized control trial (RCT) of SMHP, with separate RCTs conducted in an urban county and a rural county. In each RCT, probationers who were eligible and who agreed to participate in the study were randomly assigned to treatment (SMHP) or control (standard probation) conditions (see paper 3). The focus of this paper is the implementation arm of the hybrid study, which is a simultaneous formative evaluation (Curran et al., 2012) in which qualitative data from key stakeholders involved in the early implementation (i.e., planning and initial implementation of intervention components) of the intervention were collected and analyzed to advance our knowledge about the challenges and barriers to implementing SMHP in routine probation

settings. The implementation arm of the hybrid design was declared exempt by the Institutional Review Board of the University of North Carolina at Chapel Hill.

Data Collection and Sample

To investigate the challenges and facilitators of SMHP, members of the research team – consisting of a doctoral student, a research associate, and the principal investigator – developed a semi-structured interview guide (Appendix B). The interview guide consisted of 17 questions pertaining to the planning and implementation of SMHP. Purposive sampling was used to recruit study participants who were involved in the implementation of SMHP. All key stakeholders who were involved at any level of the inter-organizational structure (see Figure B1) were contacted through email and were invited to participate in the study. All of the 26 individuals who were contacted agreed to participate in the semi-structured interviews.

Of the 26 interviews, 24 were conducted in person and two interviews were conducted over the phone. Two interviewers were present for 77% ($n=20$) of the interviews. All but two interviews were conducted by at least one of two members of the implementation team – a doctoral student and a masters-level research associate – both of whom were familiar with the key informants prior to the interviews. Other interviewers included masters-level students involved with a larger research team. Interviews ranged in length from 25 to 75 minutes and all interviews were audio-recorded and transcribed verbatim.

Of the 26 respondents, 54% ($n=14$) were female, 85% ($n=22$) were White, 15% ($n=4$) were African American. In addition, 23% ($n=6$) were Executive Committee members (one member served on both the Executive Committee and the Implementation Team), 12% ($n=4$) were Implementation Team members, and 65% ($n=17$) were involved with the implementation of SMHP at the local level (e.g., probation officers, mental health partners

for the local managed care organization). Further, 46% ($n = 12$) of the respondents represented the criminal justice system, 15% ($n = 4$) were mental health-criminal justice bridge partners (i.e., TASC) and 23% ($n = 6$) represented the mental health system (i.e., DHHS and MCO).

Data Analysis

Data analysis of the transcribed interviews occurred in three steps. In the first step, line-by-line open coding techniques (Miles, Huberman & Saldana, 2013) were used to identify the full range of barriers and facilitators to implementing SMHP. In the second step, a deductive strategy was used where the CFIR constructs (Damschroder et al., 2009) were applied to the barriers and facilitators to provide a framework for understanding the implementation barriers and facilitators identified in step one. The third step in the analysis used open coding techniques to analyze data identified in the first step that did not fit within the CFIR constructs used in step two.

In this study, CFIR was chosen as a deductive coding strategy for the barriers and facilitators associated with implementation for a number of reasons. First, although the guiding principles of implementation in corrections settings offered by Gendreau et al. (1999) had several parallels with CFIR, the Gendreau article was written 15 years ago and was largely based on one researcher's observations and experiences implementing interventions within the criminal justice context. Second, since the publication of the Gendreau article, several implementation frameworks have proliferated and are being used to guide the work of researchers, and CFIR is a widely recognized framework that includes a comprehensive set of constructs that impact implementation (Damschroder et al., 2009). Third, resources pertaining to CFIR constructs, templates for gathering data and other tools

were available online (see www.cfirguide.org) which was helpful during the coding process. The final reason for choosing CFIR was to connect the implementation of SMHP to the existing theoretical and empirical literature within implementation science rather than grounding this study on the principles advanced by Gendreau and colleagues (1999).

There are five broad domains within CFIR: (a) innovation characteristics; (b) outer setting; (c) inner setting; (d) characteristics of individuals; and (e) implementation processes (Damschröder et al., 2009). Within the CFIR framework, innovation characteristics refer to characteristics associated with the intervention including the perceived quality of the intervention, its complexity, how it is designed, and its cost. For the purposes of this study, the innovation is SMHP (see Table B3).

Outer setting refers to the environment in which the agency exists (e.g., the degree to which an agency is linked to external organizations). In this study, the outer setting refers to the counties in which SMHP is implemented as well as the partnering organizations.

Inner setting refers to the characteristics associated with the organization implementing the innovation (e.g., agency communication, culture, climate, and leadership). For this study, the inner setting refers to the characteristics associated with the local probation agency or the larger Department of Public Safety.

Characteristics of individuals refers to the characteristics of those involved in the intervention (e.g., individuals' knowledge about the intervention and their sense of self-efficacy). In this case, individuals include anyone that was involved with the implementation of SMHP, such as specific specialty officers or implementation team members.

Lastly, implementation process refers to the characteristics of the strategies and processes used to facilitate the implementation of the intervention (e.g., planning,

engagement, executing, and evaluating). For the purposes of this study, process can refer to tactics used to enhance the implementation of SMHP at the local or state level. For a full list of constructs, see Damschroder et al. (2009) or visit the website www.cfirguide.org.

Consensus coding techniques were used at each stage in the process to enhance the rigor of the analysis and to decrease the threat of bias. Specifically, the first researcher completed all three steps of coding for each of the 26 interviews, or 100% of the transcripts. A second researcher coded a sample of 50% ($n = 13$) of the first step of coding, 23% ($n = 7$) of the second step coding, and 23% ($n = 7$) of the third step of coding. Then, the two researchers reviewed the results and engaged in an intensive discussion about any discrepancies in coded statements. Discrepancies were resolved once the two researchers reached an agreement about the codes. Throughout this process, a third senior researcher and expert qualitative methodologist reviewed coding memos, observed consensus coding sessions, and reviewed results to ensure the rigor of the analyses.

Results

Given the aims of this study and the diversity of perspectives within this cross-agency partnership (i.e., criminal justice, behavioral health services and administration, and a research university) and between the different levels of leadership (i.e., top-level administrators, university researchers, and front-line criminal justice and mental health service providers), this analysis presents a range of responses regarding implementation challenges and facilitators. The analysis results are organized by the key research questions identified in this paper (i.e., implementation challenges and facilitators), and are further described in terms of the CFIR domains and constructs that provide a larger theoretical framework and useful context for understanding the implementation of SMHP.

Implementation Challenges of SMHP

Challenges associated with the inner setting. The inner setting is defined as “features of structural, political, and cultural contexts through which the implementation process will proceed” (Damschroder et al., 2009, p. 5). For the purposes of this study, the inner setting is defined as DPS, namely Division of Adult Corrections, which was the lead organization in this effort and the organizational home for SMHP. A prominent factor or construct within the inner setting was related to implementation climate, in general, and compatibility, in particular. *Implementation climate* within the CFIR framework refers to an agency’s capacity for change and *compatibility* refers to “the fit” between the innovation and the values, norms, and perceptions of the agency, as well as the existing workflow (Damschroder et al., 2009). Within the context of SMHP, compatibility largely refers to the fit between what the innovation (i.e., SMHP) required and whether these requirements fit within the existing workflow of the specialty officers.

One key challenge related to compatibility pertained to SMHP officers’ existing workloads at the start of the SMHP pilot. One SMHP officer explained:

Well, the first thing that comes to my mind in terms of challenges has been time. Because you know, you have a full caseload of defendants, not just focusing on individuals that have mental health disorders. I’m not just focusing on the training. I’m not just focusing on implementing what I have learned, or how we are handling this pilot program. So it is fitting everything into the schedule in the time frame that I have. So I would say just trying to meet the needs that are there and learning what I needed to do and doing it. Time, basically (P015).

This perspective was consistent across stakeholders in the study. For instance, a participant from a partnering agency (i.e., a person not part of the host agency) commented:

I feel like, well of course challenges with any probation officer, juvenile or adult, is workload. They're so busy doing all these other things. I feel like with [SMHP] they should have had their plate wiped clean and then given them this pilot to solely focus on. I feel like they were kind of thrown into it, with already this caseload and then an extra burden on top of training... court and all these other things (P024).

In addition, an implementation team member noted:

Another interesting issue is that these officers already have to go to so many trainings because they have all their law enforcement trainings. [SMHP officer] told me the other day that [they are] going to a [week-long training]. So that's a week that [they are] away from cases. So they have a lot of training... they have to have their routine CPR and firearms training...and they're going to have to do so many mental health trainings (P1005).

These quotes illustrate the challenges related to the capacity of the inner setting with respect to officer workflow and workload. Specifically, respondents from multiple sectors of the intervention (i.e., from the officers to implementation team members and partnering agencies) noted that officers' existing duties were a challenge in implementing SMHP.

Another challenge related to workflow compatibility was caseload size. In a prototypical SMHP model, caseload sizes are reduced to approximately 40 probationers (Skeem, Emke-Francis, & Eno Louden, 2006). However, participants noted a lack of reduction in caseload size at the initial implementation of SMHP. For instance, one officer explained: "I told [my supervisor], I said look, I got 80 cases. I'm trying to do the [SMHP

pilot]...it's too much and [my supervisor] agreed...This pilot cannot be done with that amount of cases" (P013). The challenge of large caseload sizes was also noted by a member of the implementation team who stated: "They have huge caseloads, a lot of paper work to do, a lot of visits, and a lot of other stuff, and I think the perception is that this is just one more thing added on to my already stressful job, so there's that" (P023). In addition, a participant from a partnering organization also noted:

I know in the beginning one of the reasons why it took so long to get off was because [the SMHP officers] still had full caseloads, it was hard for them to kind of delve into it...They still have a lot of regular offenders on their caseload that also take up a lot of their time. I know that they're overwhelmed with everything they have on their plate—which makes it more difficult to take on an extra thing and be really intensive with it (P024).

Although these responses are from representatives from different stakeholder groups involved in the study (e.g., SMHP officer, implementation team member, and staff from a partnering agency), members of the leadership within the host agency nor those on the executive committee commented on the challenge of large caseload sizes of SMHP officers.

Another CFIR construct, *available resources*, associated with the inner setting may offer some understanding of why the reduction in caseloads was challenging to implement in this study. The CFIR construct available resources is an indicator of an organization's readiness for implementation and is characterized by the presence of organizational resources that are committed to the implementation of the intervention (Damschroder et al., 2009). In the context of this study, available resources of the inner setting can refer to staffing patterns, probation officer turnover, physical space, and dedicated time. In particular, respondents

noted the number of vacancies among probation officers and that these vacancies impacted whether and how probation cases were reassigned. One respondent explained,

I mean we must have about 20 new officers. So that is kind of challenging too. We have a very young staff, staff that are coming right off the street and don't have a lot of experience. We don't have a lot of veteran staff. So that's kind of a barrier to this too. The officers are overwhelmed with cases because the new staff who haven't gone to basic yet can't get cases. Caseload numbers are not drastically too high, we're not in crisis, but they are high (P012).

Another participant from probation explained additional challenges related to caseloads that may help understand the difficulty with caseload reduction.

...when I'm looking at the [number of cases] and keeping caseloads balanced, it's keeping our [SMHP officers], keeping their numbers balanced with everyone else's now until a decision is made to reduce their caseload if that ever comes about. It's keeping their numbers balanced with everyone else (P011).

This quote suggests that there are some complicating factors that impact caseload reduction, such as the need to balance cases across SMHP officers and standard officers and that a decision about caseload reduction had not yet been made or communicated.

Challenges associated with the implementation process. A second prominent source of implementation challenges was the implementation process. Implementation process refers to characteristics associated with strategies and tactics aimed at facilitating the implementation of SMHP (Damschroder et al., 2009). Many of the responses in this domain involved constructs related to *engagement*, which generally refers to how individuals are engaged in the implementation process. For instance, Executive Committee members and

Implementation Team members reflected on communication challenges with respect to bridging mental health and criminal justice terminology and language. One respondent (P003) described this challenge as “bridging the gap between academics and operations” and an Executive Committee member described the challenge of engaging across systems in the following way:

With me, it was the language and understanding all the different terms and then how to put it in layman’s terms, and then how to relate it to the probation officers. ‘Cause I’m still getting a lot of that...“this is too medical, this isn’t our role,” but how do we put it in terms that, “it’s not your role to be the counselor, but it is your role to understand the terms and understand the process to get the person to services.” And then the challenges of you know, working with TASC, and ourselves, and then with [the Implementation Team], we just all speak different languages and kind of, kind of understanding what the priorities are and you know at times I think I was frustrated, but that was because I was still learning myself (P009).

In addition, an Implementation Team member commented:

I would say that the biggest thing I think was really language and I think there were times in meetings where it seemed we were on different pages talking about different things maybe in a completely different book but when in reality we really weren’t. I think getting the language down, getting the acronyms down, learning how to speak probation, how to speak mental health, and all of the stuff that comes with this – the different policies, different procedures, understanding each other’s systems – I think that was a challenge. I think everyone did very well with that challenge and

recognizing that this is really just an issue of not totally understanding everyone else's environment and language. I'd say that was the biggest one (P023).

These statements describe the challenge of beginning to engage in discussions around the planning and implementation of SMHP due to differences in how mental illness is described and talked about.

Another challenge related to the implementation process domain and the engagement construct was understanding agency roles. One participant described the challenge of working across systems in the following way:

Probably role confusion or not knowing different roles. So here's TASC and what are they going to bring to the table? Here's DPS and what are they going to do? Here's [the university]. And at those larger meetings, we had a lot of folks and folks that we couldn't even really identify from our perspective, you know, who was TASC and who was DPS and who was DHHS? So just knowing all the players and different players moving in and out. I think it was a size issue, being just a big group with lots of perspectives and opinions. I think ironing out the details – what we were going to do, who were we going to identify, who were we going to target – it took some education on our part (P004).

A second theme within the implementation process domain was engaging standard probation officers. Although the intervention itself is focused on developing specialty mental health officers and reassigning probationers to them, this process still relies on the engagement of standard probation officers. One SMHP officer noted:

And then, getting the other officers to identify potential candidates and get them scheduled to come in. It was hard. I'm not sure we were all really ever on the same

page, some people were getting emails, some people weren't, some were referring directly to [the implementation team] and [we] weren't sure what was going on (P016).

One participant's response may help identify a key challenge to engaging standard probation officers in the referral process.

I wanted to meet with [Executive Committee member] and talk about what was going on and some of the things [expressed in the] emails sent out to the [probation officers]. I think [the Implementation Team] was getting maybe 48% [response rate from standard probation officers], or a little under 50% response and one of the concerns that I kind of brought up...was [that] the email was extremely lengthy...They're probably not going to have time to read these... it was very detailed and it was very wordy and [they need] to condense it and just say these are the offenders that are eligible, I need to see them on these dates (P012).

An additional challenge engaging standard officers may be related to a misconception they had about the intervention itself. For instance, respondents indicated that some standard probation officers believed that members of the Implementation Team were counselors delivering an intervention to probationers, as opposed to SMHP officers being the source of the intervention. One participant noted:

I don't know, maybe it is maybe it's not but another challenge is [standard probation] officer education on what [the intervention] is. When we go out to do intakes, despite how many emails or meetings they have or how often it is explained, it still looks and feels like it is an intervention that [the Implementation Team] is doing when we show up. So the [standard probation] officers don't really get what it is. They think it is a

program that when [we] show up [the probationers] are going to go to us and that we are counselors. So that is a perception that, I think, is hard in general to set right (P023).

In summary, there are multiple challenges – such as communication with and education of standard probation officers – that appear to impact engagement and the implementation process.

Emerging construct. There was one theme that seemed to be related to the outer setting but did not appear to fit within the existing CFIR constructs and is best described as *availability of resources*. Responses related to availability of resources within the outer setting referred to both mental health resources as well as other community resources. For instance, one challenge related to availability of resources that respondents indicated as a challenge to implementing SMHP – and for probationers and probation officers in general – is transportation. Multiple respondents from the rural county identified transportation as a key challenge. For example one respondent said, “...as far as barriers, [this rural county] is a very large county. It’s debatable whether it’s the largest in the state or second largest, but it’s a very large county, a very poor, very rural county. So transportation can be an issue” (P011). Another participant explained:

One of the biggest factors the rural county faces is the transportation issue. And I really don’t know what can be done about that from [the Implementation Team]. I’m always going to throw out transportation most of the time in anything that we’re talking about as far as what our agency participates in, what our people – what our offenders do. In a rural county, that is – you’ve got to understand – it is a really big issue, especially when we don’t have the public transportation like a lot of urban

places do. Some counties have county-funded transportation. Here, it's very limited and they even suspended it because of budget constraints – what little bit they do have here. I don't know what you could do as far as this project goes moving forward looking into transportation, but I do consider transportation to be a big issue in a rural county (P019).

In addition, another rural participant responded commented:

Probably one of the biggest challenges is transportation, I would think. We have a little bus situation but lots of times I think it's based on Medicare or whatever funding they can get. That's another issue. People can't get to their appointments so then they have to pay somebody...an exorbitant amount of money to drive them from one part of the county to another part of the county. And gas money...That's one the biggest things, that's one of the biggest challenges here is transportation (P020).

In addition to transportation, respondents also indicated implementation challenges that were related to mental health service availability within the context of changes that occurred to the mental health service delivery system.

Well, when we did have the mental health agencies in each county, it was easy. Just make a referral to mental health. Go out to county complex, see someone there. But when they did away with mental health, that's when, in my opinion, it became more difficult for us as officers. Because that was a one stop shop – you sent them there they'll know what you need, they'll get you the help, point you in the right direction. But once that went away, we knew that was gone, but we didn't...we were never told that now that mental health is gone, this is the agency that you go to now. It seemed like everyone and their brother was hanging a shield. We were having people coming

by all the time. “Here’s my card. We’re open now. We can do this, we can do that.”

Then we tell the [probationers] and start sending them and then two weeks later, the shield [is] gone and [the mental health service providers] are gone. They left town.

Then you would ask the offender, have you been to see your provider? Have you been to see your counselor? “Yeah, but when I got there the door was locked.” So that posed a problem (P011).

Although the challenges identified here could apply to probationers with mental illness in general – including those not enrolled in the pilot study – this lack of available mental health services may be particularly challenging for SMHP officers since a key component of SMHP is interfacing with external resources. In fact, one SMHP officer noted “there aren’t as many mental health [service] providers as there were [at] one time...Not having the resources – that definitely would be the biggest barrier. Not having the resources to rely on to assist the individual in a proper manner” (P015). The CFIR model does include this same construct (i.e., availability of resources) within the inner setting domain; however, that construct does not account for the presence or absence of available resources (e.g., transportation, mental health services, other community services) in the community, which participants indicated were important implementation challenges.

Implementation Facilitators of SMHP

Facilitators associated with the implementation process. Although there were several challenges related to the implementation process as noted in the previous section, respondents also believed process-related factors helped facilitate the implementation of SMHP. More specifically, respondents noted that *engagement* from multiple groups helped facilitate implementation. For instance, in terms of CFIR constructs, respondents indicated

that engagement with the *formally appointed implementation leaders* was a facilitator. In the context of this study, the formally appointment implementation leaders refer to the Implementation Team. One participant explained:

Well, yeah, having [the implementation team] to run things by and having the positive feedback from [them] has been really great. The encouragement that we have received when we may feel, “oh goodness I don’t know what I’m doing” or “I don’t know how to handle this,” it seems as if it’s been laid out, you know, like a map as far as I’m concerned. So, having that available and having it be available to refer to has made it [a] very positive and rewarding experience (P015).

Another participant recalled:

I remember thinking this was going to be too huge. How in the world are we going to do all of this and it’s that bite the elephant one bite at a time kind of thing. So [the Implementation Team] really helped break it down, did a tremendous amount of the work for us, and just kind of kept us on track (P002).

Further, another respondent commented:

Well, the work that [the Implementation Team] did in keeping everything coordinated certainly was helpful in getting the emails, having someone follow-up after each meeting with emails that kind of keep it in your mind – okay – that this is what we said we were going to do, and this is what we’ve got to have done by the next time. Just having someone to coordinate that process is great. DPS’s willingness to help – to provide the meeting space – all of that was helpful (P021).

Responses indicated that the engagement of the Implementation Team provided necessary follow through, logistical assistance, timely feedback, and general support, and assisted the Executive Committee with coordination, follow up and project management.

Further, engagement with opinion leaders and external change agents was considered to be essential to the implementation process. In the context of this study, the CFIR construct *opinion leaders* refers to individuals within DPS who influenced the implementation of the intervention, and the CFIR construct *external change agents* refers to the Executive Committee members – individuals from DHHS, TASC, and UNC-CH – who had influence over the design and implementation of the intervention (i.e., SMHP). One respondent described how the Executive Committee and Implementation Team engaged in the process:

I mean [SSW], [DPS], [everyone] came to the table – and [DHHS] and [TASC].

Everybody wanted to do something to help, you know? And I think [the Implementation Team], as the center, just helped to keep everybody on task and helped move it forward. I mean, I totally deferred to [others in DPS] and their knowledge (P002).

Facilitators associated with the inner setting. Similar to the previous theme of engagement, a key facilitator within the inner setting pertained to the CFIR constructs *readiness for implementation* in terms of leadership engagement (Damschroder et al., 2009). The CFIR construct *leadership engagement* refers to the leadership's level of involvement and commitment to SMHP. Respondents described leadership as being open and committed to the innovation and actively promoting the implementation within the DPS setting. For instance, one respondent said “I mean, from the beginning, [the Director] and the Commissioner have been very supportive – it was something they wanted, it was something

they felt was very important” (P003). Another respondent also commented on the Director’s involvement in the pilot saying, “Well, being present I think was really helpful, just the fact that she was there and then requiring other people’s presence at the meetings that we had and at every step of the way she communicates how important the project is” (P023). Further, another respondent noted that an implementation facilitator was “certainly the buy-in with the state at the top. I mean, if you think about it, that’s really the buy-in we need. That certainly was a big help” (P004). A member of the Implementation Team noted:

I think, going back to the response rate improving in [this county], I think that the management of [this county] is really behind the project and is really pushing the project and letting the chiefs and the officers know that it’s really important. And I think that’s helped a lot. And again just the willingness on the part of DPS to support this project, I think has been really helpful (P022).

Facilitators associated with the outer setting. One of the key facilitators associated with the outer setting pertained to the CFIR construct *cosmopolitanism*. According to CFIR, cosmopolitanism refers to “the degree to which an organization is networked with other external organizations” (Damschroder et al., 2009, p. 7). For instance, one SMHP officer describe their new connections with local mental health providers saying: “And the agencies, the mental health agencies that I’ve formed a very positive rapport to be able to call and ask questions or sending information. We work really well together” (P015). Another SMHP officer noted:

That’s the other thing, you’ve [asked] about what’s been [helpful], I mean just the relationship with [the MCO] has been extremely [helpful]. I mean people have had questions and I’ve been able to give them [my contact’s] phone number and say here,

call [my contact] and he'll help you. If he can't help you right this second, he'll get right back to you (P014).

In addition, other partners at the local level discussed how these new contacts within the community had already helped SMHP officers to implement boundary-spanning tasks associated with SMHP. For example, a local partner further described SMHP officers' new contacts with mental health agencies:

Every time we go to [an agency], [the SMHP officer] gives feedback to that provider about how we met with the previous providers and it went really well, and how [the officers] have found it really useful because [they know] if [they] has an issue [they] know who [they] can pick up and call. If [the mental health provider] knows who [the officer] is they're going to respond immediately because we've been out there and established those relationships (P024).

Creating these relationships across networks is a key facilitator given the role of officers within the SMHP model and the need for SMHP officers to engage and collaborate with external resources to access the treatment needs of the probationers on their caseloads.

Discussion

In this qualitative study examining the context of the implementation of SMHP several key themes emerged. Respondents experienced several challenges related to the implementation of SMHP, namely challenges related to the workflow and resource capacity of DPS, the lack of available resources in the community, the language barriers that exist between the mental health and criminal justice fields that hinder the cross-agency engagement process, and the challenge of engaging standard probation officers to respond to SMHP implementation activities.

Facilitators for implementation crossed these same CFIR domains. Respondents believed that engagement across systems (i.e., mental health and criminal justice), the commitment from leaders, and the willingness to be at the planning table were essential facilitators necessary to implement SMHP. Respondents also believed that connections that were fostered across agencies and systems were important factors for implementation.

Limitations

There are several limitations worth noting. First, during the data collection phase, the two primary interviewers had worked with each of the respondents during the course of the project. This may mean that respondents could have been reluctant to disclose certain challenges related to the implementation of the project. In addition, these two interviewers were also the primary coders for the data analysis. This limitation was addressed using a team-based approach to consensus coding. In this approach, the two main coders independently coded interview transcripts and then compared results. Any discrepancies were debated and discussed until reaching consensus. This process was also supervised by a third coding team member who was not involved in the interviews (except for interviewing the two researchers) or the implementation of the study. This third reviewer examined coding sessions for bias, reviewed coding memos, and challenged emerging consensus.

A second limitation is that the findings are still preliminary. Roughly half of the interviews have been through the consensus coding process. In addition, most of these interviews reflect an early stage of implementation before additional implementation challenges emerged. So these results should be viewed as a snapshot of the implementation of SMHP and not descriptive of the entire implementation process. A third limitation is the lack of probationer-level data. For a more comprehensive understanding of the facilitators

and barriers of implementing SMHP we need to understand the perspectives on the acceptability and accessibility of SMHP among probationers with severe mental illness.

Implications

From this exploratory study of the challenges and facilitators of SMHP, there are three key findings that can inform practice, policy, and research as the implementation and evaluation of SMHP continues.

Availability of resources may impact variability of prototypical SMHP. Results from this study suggest that there are key elements associated with the prototypical model of SMHP (Skeem, Emke-Francis & Eno Louden, 2006) that pose significant implementation challenges to probation agencies, namely caseload reduction and ongoing training. The prototypical model of SMHP calls for caseloads of approximately 40 probationers (Skeem, Emke-Francis & Eno Louden, 2006). One participant in the study reported a caseload of 80 probationers, some of whom were enrolled in the pilot and some who were not. Participants noted that large caseload sizes impeded the degree to which officers could complete the tasks associated with the pilot as well as other required duties. It is important to note that these responses reflect the initial implementation of the intervention. Consequently, even though caseload reduction may have occurred later on, it was still a prominent implementation challenge at the outset suggesting that probation agencies could consider alternative methods for assigning or reassigning probationers with mental illness to SMHP caseloads. For instance, this SMHP implementation used a gradual reduction in caseloads that was not immediately experienced by officers.

Another option, and one that was suggested by a community partner, is to start SMHP officers from an empty caseload. That is, with this approach, SMHP officers' caseloads are

“wiped clean” and they are then assigned 40 probationers with mental illness. This alternative assignment strategy would be a way to ensure reduced caseload sizes as well as exclusive mental health caseloads. However, this approach does not consider the challenges to caseload reduction that were described by the participants in the study. With respect to caseload reduction and reassignment, probation agencies indicated that the lack of resources (i.e., sufficient staffing) prevented them from reducing SMHP caseloads. This lack of resources stemmed from probation officer vacancies and having new trainees that could not yet take on a caseload.

Given the challenge of reducing caseloads within the context of insufficient resources available for probationer reassignment, it is easy to see how variability in SMHP models may occur. For instance, probation agencies intending to implement SMHP in, for example, rural counties where the probation census may be smaller and a fewer number of probation officers stretch wider distances to supervise caseloads, creating exclusively mentally ill caseloads could be a challenge. In addition, agencies in any type of county that are not fully staffed may not be able to sufficiently reduce caseloads. Consequently, the problem associated with variability in the model described by numerous studies (Manchak et al., 2014; Skeem, Emke-Francis & Eno Loudon, 2006; Skeem & Eno Loudon, 2006) may be due in part to these implementation challenges that are related to organizational factors. In addition, there may be other organizational characteristics (e.g., culture) not measured here that may impact implementation and the variability of SMHP. Going forward, research studies should draw on the organizational literature, particularly studies focusing on implementation, to better understanding the impact on implementing of SMHP and what barriers may be unique to probation agencies.

Identifying relevant domains can help develop strategies. This study has begun to elucidate which domains are most salient in implementing SMHP within probation settings. Understanding what constructs and domains are salient to a particular implementation context (e.g., SMHP in probation agencies, rural vs. urban counties) will help practitioners and researchers develop strategies to address implementation barriers. For instance, one domain that is particularly salient to SMHP is the outer setting. SMHP officers are tasked with interfacing with community resource providers and communication can sometimes be a challenge. However, a facilitator identified in this study is the inter-organizational network that was fostered between SMHP officers and resource providers. Here, implementation facilitators could be leveraged in order to address the challenges. In other words, researchers and practitioners can develop strategies to build inter-organizational networks in order to enhance implementation of SMHP, particularly in regards to coordinating with mental health service providers. Findings from this study suggest opportunities for multiple implementation strategies such as the previous example. Future research should specify implementation strategies using the guidelines established by Proctor, Powell, & McMillen (2013) and the recommendations identified by Powell and colleagues (2015).

Design of SMHP may require a different implementation framework. CFIR was selected as the framework to guide the exploration of the implementation challenges and facilitators for three key reasons: (a) it expanded upon an early framework developed by practitioners within corrections (Gendreau, Goggin & Smith, 1999); (b) CFIR is widely recognized for its comprehensive set of constructs from multiple fields of research; and (c) there are ample resources to assist practitioners and researchers in using CFIR. This analysis

shows that CFIR provided guidance for conceptualizing factors related to the adult probation system, which is the context of this study.

Despite the relevance of CFIR to several SMHP constructs, some responses related to the outer context were difficult to categorize within the existing CFIR constructs. Although additional exploration is needed, this is still a noteworthy finding, particularly because interfacing with external resources is a core component of SMHP. Given the inter-organizational nature of SMHP, it may help to examine other implementation frameworks used for interventions that span agency partners. For instance, an implementation framework that may provide guidance around inter-organizational factors is the framework advanced by Aarons, Hurlburt, and Horwitz (2011), which is a conceptual model of evidence-based practice (EBP) implementation in public service sectors. Although this model was developed within the context of public agencies that serve children and families, the factors included in the model appear to be relevant to public agencies in general. In addition, the factors also appear to focus on multiple domains relevant to the outer context, including the inter-organizational networks among the entities in the service environment, cross-agency leadership, and partnership between public agencies and academic institutions (Aarons, Hurlburt & Horwitz, 2011). Although the analysis of this research study does not aim to verify the appropriateness of any implementation framework, the findings do suggest that there may be additional domains that could be relevant to the implementation of the core components of the SMHP model but that are not included in the framework used in the analysis of this study.

Conclusion

This paper advances the field by identifying the range of challenges and facilitators that stakeholders, from each level of the implementation (i.e., from administrators to front-line staff) and each agency involved, encountered while implementing SMHP. In addition, this study indicated the key domains (i.e., inner setting, outer setting, and implementation process) associated with the challenges and facilitators of implementation. These findings address an important gap in the research literature and helps to identify potential implementation strategies for further development and research to enhance the effectiveness of the implementation of SMHP.

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PAPER III

A RANDOMIZED CONTROL TRIAL OF SPECIALTY MENTAL HEALTH PROBATION: OFFICER-INITIATED MENTAL HEALTH ENGAGEMENT.

In 2014, approximately 6.85 million adults were under some type of correctional supervision (Kaeble, Glaze, Tsoutis & Minton, 2015), which includes probation, parole, jails, and prisons. Although estimates of the number of offenders in the criminal justice system who have a mental illness varies by the study setting (e.g., jail vs. parole) and definition of mental illness, best estimates suggest that a substantial portion of those under correction supervision have a mental health condition. For instance, one study estimated that between 7% and 16% of incarcerated adults had a mental illness (Ditton, 1999). Another study (James & Glaze, 2006) reported that between 45% and 64% of incarcerated adults had a mental illness. Further, the estimate of mental illness among probationers ranges between 16% and 27% (Crilly et al., 2009; Ditton, 1999).

Regardless of the variability between estimates, rates of mental illness among justice-involved adults is high and greater than those in the general population. For instance, the proportion of individuals with mental illness in jails and prisons is approximately five times higher than those in the general population, and psychotic disorders are nearly ten times more prevalent among offenders (Lamberti, 2007; Teplin, 1990). In addition, 17% of the general population of adults not on probation had symptoms of a mental health condition compared to 27% of probationers (Crilly et al., 2009).

Disproportionate rates of mental illness in the criminal justice system compared to the general population is most likely due to multiple compounding factors. Arguably, one of the most significant risk factors for criminal justice involvement for individuals with mental illness is substance abuse. Among offenders with mental illness in prisons, jails, and on probation, 49% to 65% were under the influence of drugs or alcohol at the time of offense (Ditton, 1999). Furthermore, between 24% and 38% of offenders with mental illness in state and federal prisons, jails, and community corrections (i.e., parole or probation) met criteria for alcohol dependence and 40% of probationers reportedly had a substance abuse disorder (Ditton, 1999; Osher et al., 2012). In addition to substance use, offenders with mental illness have unique sets of needs and challenges related to cognitive deficits i.e., poor problem-solving and decision-making skills, difficulty interpreting social cues, interpersonal relationships, neighborhood and community challenges, and agency or system-level issues (Bonta, Law & Hanson, 1998; Draine et al., 2002; Fisher, 2006; Hiday, 1998; Lamberti, 2007; Skeem, Manchak & Peterson, 2011).

Although meeting the needs of justice-involved individuals is a challenge across the criminal justice system, it is perhaps most pressing for those working within community corrections (i.e., probation and parole) who must supervise 70% of the nation's 6.85 million adults (Kaeble et al., 2015) in the criminal justice system. Probation officers are tasked with enforcing the terms of probation in the community where probationers are routinely exposed to the risk factors that led to their initial incarceration (e.g., homelessness, substance abuse, and association with deviant peers) and where probationers often struggle to meet the requirements of their supervision.

The challenge of meeting probation requirements is particularly difficult for probationers with mental illness who typically have additional requirements related to mental health and substance abuse treatment, but often lack the means to meet those requirements (e.g., health insurance, transportation, income; Osher et al., 2012). Consequently, offenders with mental illness have higher rates of probation suspension and revocation.

In addition, compared to supervising probationers without mental illness, when working with probationers with mental illness, probation officers spend more time enforcing the terms of probation, addressing the barriers to compliance, performing case management functions, coordinating services, handling crises, and coping with functional limitations (Skeem & Eno Louden, 2006). Consequently, with a mix of probationers with and without mental illness, probation officers often have less time to supervise those without mental illness because of the complex and time-intensive needs of probationers with mental illness (Skeem & Eno Louden, 2006). Providing probation officers with the tools and resources needed to effectively supervise probationers with mental illness, such as comprehensive mental health and substance abuse training, as well as reduced caseload sizes, could improve criminal justice outcomes for probationers with and without mental illness, and improve public safety.

In 2002, the Council of State Governments called for specialized approaches to addressing the needs of probationers with mental illness by primarily assigning probationers with mental illness to officers who have specialized training in mental health and who have reduced caseload sizes (Council of State Governments, 2002). Although specialized mental health probation (SMHP) approaches existed at that time, there was little research about SMHP's efficacy and great variability in the way SMHP was implemented in different

agencies (Skeem, Emke-Francis & Eno Louden, 2006). Since 2002, there have been a number of key studies aimed at identifying the core components of SMHP (Skeem, Emke-Francis & Eno Louden, 2006) and growing the evidence of the efficacy of SMHP (Manchak, Skeem, Kennealy & Eno Louden, 2014; Skeem & Eno Louden, 2006; Wolff, Epperson, Shi, Huening, Schumann & Sullivan, 2014).

Literature Review

The Core Components of Specialty Mental Health Probation

When the Council of State Governments recommended SMHP as a promising practice, there was a large degree of variability across agencies that implemented specialized approaches for probationers with mental illness (Skeem, Emke-Francis & Eno Louden, 2006). In response, researchers (Skeem, Emke-Francis & Eno Louden, 2006) conducted a survey-based study of a sample of probation agencies that implemented specialized mental health approaches ($n = 66$) and compared them to a sample of comparable agencies implementing standard probation ($n = 25$). Findings indicated core differences between specialty agencies and standard probation and identified five key elements that appeared to be consistent among specialty probation agencies.

The first three features were related to specific structural characteristics of probation: caseload composition, caseload size, and training. In terms of caseload composition, SMHP caseloads were comprised exclusively of probationers with mental illness. In terms of caseload size, SMHP had significantly reduced caseloads ($M = 48$, $SD = 22.4$) compared to standard probation caseloads ($M = 130$, $SD = 63.4$). Regarding training, SMHP officers often received training at the start of SMHP and typically had additional follow-up training (e.g., between 20 and 40 hours a year).

Another key feature is related to contact and coordination with external resources providers. SMHP officers are more likely to interface with external resources in order to facilitate service connections. In addition, SMHP officers are more likely to maintain that connection with providers. The fifth feature of the prototypical SMHP approach was the probation officers' use of problem-solving approaches. These problem-solving approaches meant that officers were not relying on threats to enforce probationer compliance. Rather, SMHP officers were more likely to use problem-solving approaches where the officer and probationer together design other strategies to address a given issue.

Efficacy of Specialty Mental Health Probation

At the last count (Skeem, Emke-Francis & Eno Loudon, 2006), there were 137 specialty mental health probation agencies across the nation. Now, 10 years later, this number has likely increased and outpaced the evidence of the efficacy of SMHP. Although much of the research cited in a review by Skeem and Eno Loudon (2006) indicated promising developments, the research evidence of the effectiveness was limited by two significant challenges. First, studies of SMHP lacked rigorous research designs. For instance, one study (Roskes & Feldman, 1999) included in the 2006 review showed an increase in compliance for 16 probationers who participated in the program. However, as the authors note, the study has limited internal validity due to the lack of a comparison or control group and the small sample size.

The second significant challenge indicated by Skeem and Eno Loudon (2006) was the variability in the model assessed. For instance, one of the controlled studies described in the review had a number of intensive services – such as on-call staff and psychiatric emergency responders – that are not available in a prototypical SMHP model. Consequently, findings

from studies of these models are not generalizable. The review by Skeem and Eno Louden (2006) concluded that the evidence to support SMHP had significant methodological limitations but that the results indicated that SMHP was a promising practice for supervising probationers with mental illness. Since this review, there have been a two key articles that address some of the limitations reported by Skeem and Eno Louden (2006) and supported some of the findings from prior studies.

One of the two recent studies (Wolff et al., 2014) used a quasi-experimental design comparing mental health and criminal justice outcomes for three groups: probationers with mental illness (defined by whether probationers received mental health treatment) assigned to standard probation where officers had a caseload size of 130 ($n = 5,453$), probationers with mental illness assigned to a pilot specialized caseload where officers had a caseload size of 30 ($n = 1,367$), and probationers with mental illness assigned to a specialty mental health caseload where officers had a caseload size of 50 and received fidelity monitoring ($n = 495$).

In the latter two samples (i.e., the two specialty mental health caseloads) a probationer must have had an Axis I diagnosis for mental illness and be considered “in distress,” meaning that they had current behaviors associated with their mental illness that were putting them at risk of supervision failure. Then, researchers used hierarchical logistic modeling and propensity score matching to examine group differences in a number of outcomes. Results indicated that for those in the sample of probationers on specialty mental health caseloads of 30 probationers, the percentage of probationers who had one or more violations increased from 17.7% at 6-months prior to assignment to 21.1% 6 months post assignment to specialty mental health caseloads. In addition, all groups experienced an increase in the number of violations 6 months after assignment; however, this change was

only statistically significant for the pilot group and the traditional caseload group. Further, those assigned to specialty mental health caseloads had fewer jail days and fewer violations that resulted in the probationer's arrest. Lastly, those assigned to specialty mental health caseloads reported positive improvements in mental health outcomes and outcomes related to quality of life (e.g., less loneliness).

Although results from this study (Wolff et al., 2014) are promising, researchers indicated the need for RCTs to compare the specialized mental health caseloads to other alternatives to working with probationers with mental illness (e.g., mental health courts). Moreover, there is little information about what the officers did to engage probationers with mental illness in mental health services. Also, without doing an experimental design where the researcher controls who is enrolled in the study, there is no guarantee that the samples are equivalent.

A second study (Manchak et al., 2014) compared a sample of probationers on traditional caseloads ($n = 176$) to those on prototypical specialty mental health caseloads ($n = 183$) in terms of probation violations, officer practices, and access to treatment. The study used a quasi-experimental design with propensity score matching and controlled for clustering of probationers on probation officer caseloads. Results of the study indicated that specialty officers met more frequently with their probationers compared to standard probation officers and exhibited more boundary spanning behaviors, enhanced relationships with probationers, and a greater orientation to problem-solving. Further, those on specialty caseloads showed greater access to mental health or dual disorder treatment services and had lower rates of violations compared to those on standard probation. Although the researchers used matching techniques, these techniques still cannot fully control for differences in

unobserved characteristics of the groups and consequently limits the internal validity of the study (i.e., the degree to which we can say that the treatment caused the outcome).

In summary, evaluations of SMHP show promising results for both criminal justice and mental health outcomes. However, these results are not consistent across studies. Variability in study findings can be due to heterogeneity in the implementation of specialty mental health caseloads, differences in study design and differences in measurements used (Manchak et al., 2014; Skeem & Eno Louden, 2006; Wolff et al., 2014). Although some of these studies employed rigorous statistical analyses (Manchak et al., 2014; Wolff et al., 2014) to account for potential group differences in treatment and comparison groups, a true experimental design is needed in order to sufficiently control for threats to internal validity and to ensure group equivalence. To improve the evidence supporting SMHP and to draw causal inferences about the efficacy of the intervention, these studies call for consistency across specialty mental health probation sites and the use of randomized control trials to determine the efficacy of SMHP.

Specific Aims

This study advances the literature by using an experimental design to examine the impact of SMHP on treatment engagement among probationers with severe mental illness.

The following aims are addressed:

- Specific Aim 1. Examine whether SMHP officers are more likely to address mental illness during supervision meetings with probationers with mental illness compared to standard probation officers.

- Specific Aim 2. Examine whether probationers enrolled in SMHP are more likely to successfully complete action steps or goals related to their mental health and substance abuse compared to probationers assigned to standard probation.

Method

Study Design

A randomized control trial (RCT) was used to examine differences in whether SMHP officers were more likely to issue mental health-related action steps compared to standard probation officers, and whether those probationers who were assigned to SMHP caseloads were more likely to complete action steps related to mental health and substance abuse compared to probationers on standard probation caseloads. This study was approved by the Institutional Review Board at the University of North Carolina at Chapel Hill.

Probationers who: (a) scored positive on the state's mental health screening questions included in its risk and needs assessment (RNA); (b) had at least one year remaining on his or her probation sentence; and (c) were not assigned to any other specialty officer (e.g., domestic violence) were eligible for the study. A list of potentially eligible probationers was generated by research staff, who then contacted each eligible probationers' assigned probation officer to inform him or her of the probationer's potential eligibility. Probation officers were asked to briefly discuss the pilot study with the probationer using a script written by research team staff members and to ask probationers if they would be interested in talking with research staff about the study. If probationers agreed to learn more about the pilot study, research staff members were asked to come to the probationer's next supervision meeting.

At the supervision meeting, research staff met individually with the probationer and described the purpose and risks of the study and reviewed informed consent documents.

Probationers willing to participate were then given a brief study competency quiz to test whether they understood the purpose, risks, and benefits of the study before proceeding with the consent and enrollment process. After consent was obtained, research staff conducted the Mini International Neuropsychiatric Interview (MINI; Sheehan, Lecrubier, Sheehan, Amorim, Janavs & Dunbar, 1998) to confirm that the probationer had at least one of the following four eligible diagnoses included in the study: major depressive disorder, bipolar disorder, psychotic disorder, or post-traumatic stress disorder (PTSD). Probationers who met eligibility criteria, including diagnosis, then completed the enrollment process consisting of several measurement instruments measuring substance use, mental health symptoms, interpersonal and family support, mental health stigma, relationship with their probation officers, and the number and nature of their personal and formal support networks.

Sample

The data report of potentially eligible offenders (i.e., those sentenced to probation with at least one year remaining on probation and who had positive scores on the mental health scale within the RNA, and those who were not assigned to any other type of specialty probation officer) identified 758 probationers. Research staff emailed the officers to inform them that an offender on their caseload was potentially eligible for the pilot study and asked whether staff could attend their next supervision meeting to further discuss the pilot study with the probationer. Of the 758 potentially eligible probation officers, 275 (36%) were referred to research staff. In addition, another 71 probationers who did not appear on the data report were referred to the study, amounting to 346 probationers referred to the study for screening and enrollment.

Of the 346 individuals referred for screening, 14 (4%) were not scheduled to be screened by the research team due to, among other reasons, transfers out of county, lack of availability of screeners, or probationer's refusal. Of the 332 remaining, 103 (31%) were missed and not rescheduled due to, for example, having multiple no shows or being incarcerated. Of the remaining 229 probationers, 123 (54%) were either ineligible (53%), declined at the time of their study screening (21%), or were not willing to leave their assigned probation officer (26%). The final number of those enrolled in the study was 106. Of the 106 probationers, seven were not able to be randomized due to their being assigned to other specialty officers (e.g., domestic violence caseloads) leaving the total sample enrolled in the study at 99.

Probationers in the sample had a mean age of 35.59 ($SD = 12.40$) and just over half (55%, $n = 54$) were male. Over half (65.31%, $n = 64$) of the sample had at least a high school education and more than half were unemployed (53.06%, $n = 52$). Approximately 43% ($n = 42$) of probationers identified as Black or African American and 40% ($n = 39$) identified as White or Caucasian. At the time of enrollment in the study, nearly half (49%, $n = 48$) had health insurance and almost two thirds (70%, $n = 69$) had previously been assigned to probation. The mean length of probation sentence was 25 months ($SD = 13.24$).

Approximately 57% ($n = 50$) were enrolled in mental health services at the time of study enrollment and the most common mental health diagnosis was bipolar disorder (63%, $n = 62$), followed by depression (24%, $n = 24$), psychosis (7%, $n = 7$), and PTSD (6%, $n = 6$).

Of the 99 probationers in the sample, 44 were randomly assigned to SMHP and 55 were randomly assigned to standard probation. Randomization appeared to be successful such that characteristics between the two samples were equivalent, balanced, and comparable

to each other. That is, there were no statistically significant differences between the two groups in terms of age, education, gender, race, employment status, previous probation sentence, length of probation sentence, enrollment in mental health services at baseline, and mental health diagnosis. Furthermore, there were no statistically significant differences in probationers' symptoms or their perceptions of their relationship with their assigned officer in terms of trust, caring and fairness, or toughness (see Table C1).

For the final analytic sample of probationers enrolled in the pilot study, those who did not reach their six month follow-up data collection point by the time of the analysis (February 29, 2016) were omitted from the analytic data set ($n = 8$). The final analytic data set consisted of 91 probationers, 49 of whom were assigned to standard probation and 42 of whom were assigned to SMHP.

Measures

Demographic variables. For this analysis, age was a continuous variable measured in years. Race was a categorical variable with six options: White/Caucasian, Black/African American, American Indian/Alaskan Native, Asian, Native Hawaiian/Pacific Islander, or Other. Gender was labeled as a dichotomous variable where probationers identified as either male or female and education was a categorical variable with eight options: (1) none; (2) elementary school; (3) middle school; (4) high school or GED; (5) some college, associates or technical degree; (6) bachelor's degree; or (7) graduate or professional degree. Employment was a categorical variable with five values: (1) unemployed; (2) employed, part time; (3) employed full time; (4) disabled or unable to work; or (5) student. Health insurance status was a dichotomous variable indicating whether or not a probationer had health insurance of any type.

Probation-related variables. Previous probation sentence was a self-report measure indicating whether a probationer had previously been sentenced to probation. The length of the current probation sentence was a self-report variable where probationers indicated the length of their current probation sentence.

Mental health variables. Probationers were asked whether they were enrolled in mental health services at the time of their intake and were considered as having mental health services if they self-reported any type of mental health treatment. Probationers also completed the Symptom Checklist 10-Revised (SCL-10R) measuring psychiatric distress (Rosen, Drescher, Moos, Finney, Murphy & Gusman, 2000).

Officer-probationer relationship. To measure the perceptions of the probationer about the relationship with his or her probation officer, the Dual Relationship Inventory-Revised (Skeem, Eno Loudon, Polaschek & Camp, 2007) was used. The total score ($\alpha = 0.95$) on the measure as well as the scores of each of three subscales were reported: caring-fairness ($\alpha = 0.96$), toughness ($\alpha = 0.90$), and trust ($\alpha = 0.87$).

Follow-up measures. Two sets of measures were used to examine the actions taken by SMHP and standard officers within the six-month follow-up period: (1) mental health and substance abuse action steps addressed during supervision meetings; and (2) mental health and substance abuse action steps completed by probationers. Examples of action steps included: obtain a substance abuse assessment, attend a mental health assessment as scheduled, follow all instructions for any medications prescribed, and provide the officer with verification of prescriptions. Data for both measures originated from electronic administrative records of each officer's probation supervision meetings. All officers across the state are expected to electronically document the proceedings from each of the probation

supervision meetings, including whether action steps were initiated as well as the status of those action steps.

The first part of this analysis examined whether SMHP officers were more likely to initiate action items related to mental health and substance abuse compared to standard probation officers. Cases where officers addressed mental health and substance abuse action steps were coded positively if a mental health or substance abuse action step appeared in the case notes. An action step was coded as a mental health action step if it indicated one of the following: (a) obtain a mental health evaluation; (b) attend a mental health assessment as scheduled; (c) participate in psychiatric counseling; and (d) follow all instructions for any medications prescribed and provide officer with verification of prescriptions.

An action step was coded as a substance abuse action step if it indicated one of the following: (a) obtain a substance abuse assessment; (b) attend regular intensive outpatient three times a week as scheduled or attend regular outpatient two times per week as scheduled; or (c) complete recommended substance abuse treatment. These action steps were pre-determined by the North Carolina Department of Public Safety and are intended to be used by all probation officers.

The second part of the analysis examines the completion of probationers' mental health action steps. The status of an action steps was determined by examining responses of two variables. The first variable listed the status of an action step with potential responses of the following: achieved, discontinued, new, ongoing, projected, revised, and deleted. The second variable listed the reason an action step was ceased and included the following potential responses: requirements satisfied, released, new pending charges/conviction, absconder, other non-compliant, moved out of state, system closed, offender died, not started,

and open. In this analysis, mental health action steps were also coded as complete if this variable was labeled “requirements satisfied.” Mental health action steps were labeled as incomplete if the status on the action plan was labeled “discontinued” or the reason for an action step to cease was labeled “new/pending charges/conviction,” “absconder,” or “other non-compliant.” Action steps labeled as “new,” “ongoing,” “projected,” “revised,” or “deleted” were not included in this part of the analysis. The same coding strategy was applied to the substance abuse action steps.

Data Analysis

Univariate descriptive statistics were used to examine the characteristics of the total sample and bivariate statistics were used to examine potential group differences between probationers randomly assigned to SMHP and those assigned to standard probation. Pearson’s chi-square tests were used to explore the association between categorical variables (e.g., group assignment and gender) and effect sizes for categorical variables were measured by Odds Ratios for 2x2 chi square tests and Cramer’s V for tables larger than 2x2. Independent samples t-tests were used to examine mean differences in continuous variables, such as the mean number of action steps assigned per treatment group. Cohen’s D statistics were calculated to determine the effect size based on mean comparisons. All statistical tests were conducted using Stata 14 (StataCorp, 2015) and two-tailed tests with alpha set at .05 were used.

Results

In the first part of the analysis, bivariate statistics were used to examine whether action steps related to mental health and substance abuse were more likely to be established during probation meetings with SMHP officers versus standard probation officers. The

results indicate that SMHP officers had higher rates of initiating action items related to substance abuse treatment (40.48%, $n = 17$) compared to standard probation officers (26.63%, $n = 13$; $\chi^2 = 1.99$, $df = 1$, $p = 0.158$, $OR = 1.88$, 95% $CI [0.71, 5.02]$) and also have a higher average number of substance abuse-related tasks initiated compared to standard probation officers (0.67[1.03] versus 0.39 [0.73]; $t(89)=-1.51$, $p = 0.14$, $D = -0.32$). However, the differences in substance abuse-related action items were not statistically significant. See Table C2.

In terms of the second objective of the analysis, of the 30 substance abuse action steps initiated, a total of 80% ($n = 24$) were considered complete. Although not statistically significant, a greater percentage of probationers on SMHP caseloads (82.35%, $n = 14$) completed substance abuse-related action steps compared to those supervised on standard probation caseloads (76.92%, $n = 10$; $\chi^2 = 0.136$, $df = 1$, $p = 0.713$, $OR = 1.40$, 95% $CI [0.15, 12.63]$).

SMHP officers had higher rates of initiating mental health actions steps (54.76%, $n = 23$) during supervision meetings compared to standard probation officers (14.29%, $n = 7$; $\chi^2 = 16.77$, $df = 1$, $p = 0.000$, $OR=7.26$, 95% $CI [2.43, 23.16]$). However, there were no statistically significant differences between the average number of mental health action steps completed by probationers on SMHP caseloads compared to those on standard probation (1.26 [0.54] vs 1.14 [0.38], $t(89) = -0.54$, $p = 0.60$, $D = -0.88$).

Results indicate that a greater percentage of mental health action steps assigned to those on SMHP caseloads (95.65%, $n = 22$) were completed compared to the percentage completed by those on standard probation (71.43%, $n = 5$) and that this difference was approaching statistical significance ($\chi^2=3.50$, $df = 1$, $p = 0.061$, $OR = 8.80$, 95% $CI [.35,$

541.84]). Although there was a sizable difference in the percentage of mental health action steps completed, there was a small difference in the number of action steps completed. Further, there was no statistically significant difference between the number of mental health action steps completed by those on SMHP caseloads ($M = 1.37$, $SD = 0.73$; $t(25)=0.105$, $p = 0.92$, $D = 0.05$) versus those on standard caseloads.

Discussion

A randomized control trial was conducted to compare mental health-related outcomes of probationers who were assigned to SMHP and those who were assigned to standard probation. The study begins to address a significant methodological limitation in the literature – the lack of RCTs that examine the efficacy of SMHP. Results from this RCT indicate core differences between the actions of SMHP officers and those of standard probation officers in terms of their focus on probationers' service connection. In particular, SMHP officers were more likely to set mental health action steps with probationers. In addition, probationers assigned to SMHP officers had higher action step completion rates compared to those who were assigned to standard probation. Although the difference in completion rates between the two groups was approximately 14%, this difference was not statistically significant.

Findings from this study are consistent with the results of other studies of SMHP. For instance, Manchak and colleagues (2014) found no statistically significant differences in accessing substance use treatment. Although this study used different measures than Manchak and colleagues, it is reasonable to assume that this study may report similar findings. For instance, SMHP does not necessarily increase officers' focus on substance use treatment as this was not necessarily the aim of the intervention. Consistent with other

studies (Manchak et al., 2014; Wolff et al., 2014), mental health outcomes – in this case mental health action steps initiated and completed – were greater for those enrolled in SMHP compared to standard probation.

Limitations

In addition to the rigorous RCT design, a strength of this analysis is that it examines outcomes for all probationers who met the six-month follow-up period, which included those who ultimately left the study (e.g., incarcerated in prison, absconded) and those who remained.

Despite the strengths of this study, there are a number of limitations. First, this study represents the mental health outcomes from the initial implementation of the study. Consequently, elements of the prototypical SMHP model were not fully implemented. More specifically, the two elements of the prototypical design that this study failed to meet were exclusive mental health caseloads and reduced caseload size. Results from the hybrid implementation-efficacy study reported in Paper 2 of this dissertation indicated that reducing caseload sizes was a challenge and that this process was delayed. Consequently, SMHP officers had mixed caseloads of both probations with mental illness and those without.

A second limitation to the study is related to how the outcome variables were conceptualized and measured. There were a number of barriers to obtaining verified rates of mental health treatment engagement from service providers or other administrative data sources. Instead, researchers accessed existing measures used by the Department of Correction to examine whether officers are addressing mental health and substance abuse during supervision and whether probationers are following up on and completing those action

steps. Although these measures arguably have good face validity, the reliability and validity of these measures have not been examined.

A third potential limitation that may impact the findings is associated with nested data. In this study, for example, mental health action steps are nested within probationers such that one probationer can contribute multiple initiated or completed action steps. Probationers are also nested within probation officer caseloads such that one officer may actively initiate mental health action steps across their caseload and contribute a much higher number of action steps. Consequently, differences in initiated and completed mental health action steps could be due to one SMHP officer contributing a large number of initiated and completed mental health action steps and not necessarily because the SMHP intervention is impacting this outcome (i.e., overestimating the impact of the intervention on outcomes). Nesting could be addressed by using a multilevel model such as hierarchical linear modeling. In such a model, probationer and officer assignment variables could be used to estimate the multilevel effects. Such an approach was not used for this study because of the small sample size and lack of statistical power.

Implications

Nevertheless, there are a number of key implications of these research findings. First, in this study, SMHP officers exhibit differences in initiating action steps compared to standard probation. These differences may account for the increased number of probationers completing action steps related to mental health treatment. These findings, as well as the results from other research studies, support the expansion of SMHP as a viable intervention that aims to enhance mental health treatment among probationers with mental illness.

Although setting and achieving goals pertaining to mental health and substance abuse treatment are important and relevant objectives for probation agencies to pursue, linkage to mental health services alone will not necessarily improve criminal justice outcomes (Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Epperson, Wolff, Morgan, Fisher, Frueh & Huening, 2014; Manchak et al., 2014; Skeem, Emke-Francis & Eno Loudon, 2006; Skeem, Manchak & Peterson, 2011). Probation agencies should be aware of the research literature (see Epperson et al., 2014 for a recent review) that examines interventions that focus on mental health treatment linkage with the intent to improve criminal justice outcomes and should understand the limitations of the evidence that currently supports SMHP in regards to supervision failure (Manchak et al., 2014; Skeem, Emke-Francis & Eno Loudon, 2006; Skeem, Manchak & Peterson, 2011; Wolff et al., 2014).

Rigorous evidence, ideally from a controlled study, is needed that shows the impact of SMHP on probation violations. Although there is significant research that suggests that high rates of criminogenic risk factors are the core predictors of crime among people with mental illness, these predictors may not necessarily apply to supervision failure. For instance, given the amount of officer discretion in determining consequences of non-compliance (Kerbs, Jones & Jolley, 2009), as well as the terms of supervision that probationers with mental illness face (e.g., treatment mandates), and the fees and fines associated with supervision, there may be multiple pathways to increased supervision failure among probationers with mental illness (Skeem & Eno Loudon, 2006) and researchers must understand these risks and pathways in order to target interventions to reduce supervision failure among probationers with mental illness.

Conclusion

To address the needs of the large number of probationers with mental illness, specialty mental health probation has emerged as one solution for probation agencies. This study is the first to use a RCT to examine the impact of SMHP on mental health treatment outcomes. Results indicate that SMHP officers are more likely to address mental health during supervision meetings and that probationers on SMHP caseloads are more likely to complete their action steps related to mental health compared to those on standard probation. Consequently, probation agencies should consider SMHP a viable option for addressing mental health treatment engagement among this population. However, probation agencies should be cautious in assuming that increased mental health treatment rates means an improvement in criminal justice outcomes as well.

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DISCUSSION

Summary of the Studies

This three-paper dissertation addresses key challenges and limitations within the research literature pertaining to the scope of mental illness within probation, the risk mechanisms that predict probation violations among this population, the evidence that supports promising interventions like SMHP and the challenges of implementing complex cross-system interventions. This dissertation first used an observational cohort design to examine statewide administrative data to determine the prevalence of both mental illness and severe mental illness among probationers as well as the risk factors for probation violations. This study found that there are substantial numbers of probationers with mental illness and severe mental illness and that the relationship between mental illness and the number and frequency of probation violations is complicated.

The second study was an observational study that used primary qualitative data from 26 interviews with key stakeholders involved in the implementation of the SMHP. This study identified a number of challenges associated with the implementation of SMHP, such as issues related to the workflow and the capacity of the probation agency. This study also identified several facilitators that aided the implementation of SMHP, including engaging and networking across systems, and agency partners' willingness to participate in the planning and implementation process.

The third study used an experimental design (i.e., RCT) to examine the efficacy of SMHP in regards to selected mental health outcomes. In particular, the study examined the

number of mental health action steps initiated by specialty mental health and traditional probation officers during supervision meetings with probationers with mental illness as well as the number of action steps completed among probationers with mental illness who were assigned to SMHP officers versus those assigned to standard probation officers. Results indicated that SMHP officers were more likely to set mental health action steps with probationers compared to standard probation officers. In addition, probationers assigned to SMHP officers had higher action step completion rates compared to those who were assigned to standard probation. Although the difference in completion rates between the two groups was approximately 14%, this difference was not statistically significant.

Strengths and Limitations

There are a number of strengths of these three papers related to the study methods. The first strength is the use of a large and representative samples of probationers – those with and without mental illness – in paper one. In addition, in paper two, 100% of the 26 key stakeholders who were recruited agreed to participate in the study which meant that all levels of leadership from cross agency partners were represented in the sample. A second major strength is distinguishing between those with mental illness and those with severe mental illness to examine how severity of symptoms can impact criminogenic risk. Further, a major strength of this dissertation is this analysis is the use of a randomized control trial. To the author's knowledge, this is the first RCT of a prototypical model of SMHP and significantly adds to the literature on the efficacy of this intervention, specifically in regards to mental health outcomes.

Although there are a number of strengths there are also several limitations worth describing here. First, research paper one uses an observational cohort design instead of a

true longitudinal design. Consequently, this study cannot fully represent the patterns of probation violations across the time period identified in the study.

A second limitation is the reliability and validity of the measurement instruments used. Although the measures for mental illness and the various criminogenic risk scales were examined and found to be acceptable, it is best to use standardized assessment tools with known reliability and validity statistics that are stronger than those provided in this study. It is possible that the low fit of the regression models was impacted by the tools used to measure mental illness and criminogenic risk.

Further, there may be some key variables missing from the data that were available for paper one and these missing variables may also help explain the low fit of the regression models. For instance, measures for other criminogenic risks (e.g., work and school satisfaction/performance and antisocial associations) or community-level variables that could account availability of mental health or other resources in the community. In addition, there were no variables that indicated assigned probation officer and thus no way to directly measure officer-level effects. It could be that some officers were more likely to file technical violations compared to other officers and there was no way of controlling for this in the available data set.

A fourth limitation that impacted the study results pertained to the stage of implementation of SMHP. The analysis of SMHP occurred before full implementation – specifically, core components were not yet implemented as intended (i.e., in accordance with the prototypical model; Skeem, Emke-Francis & Eno Loudon, 2006). Consequently, results from paper three represent outcomes of a SMHP model that includes all of the elements of prototypical SMHP, except exclusive mental health caseloads. That is, SMHP officers had a

mixed caseload of probationers with and without mental illness. Similarly, results in paper two largely describe the implementation facilitators and challenges present during the initial implementation of SMHP.

Implications for Practice, Policy, and Research

Risk factors for violations and a multi-level approach. Although this study can provide evidence that there is a relationship between severe mental illness and technical violations even after controlling for demographic characteristics and criminogenic risk, it is still not clear what accounts for differences in violations. Research studies that examine criminal involvement among people with mental illness or evaluate the mental health and criminal justice outcomes of interventions (Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Manchak et al., 2014; Wolff et al., 2014) largely focus on individual-level factors (e.g., mental illness, criminogenic risk factors) and do not account for system- or community-level factors that may help explain criminal justice involvement. This is particularly problematic when examining probation violations as an outcome. As discussed, probation officers have a great deal of discretion (Kerbs, Jones & Jolley, 2009) in their decision making and – coupled with variability in agency practices and policies (Eno Loudon, Skeem, Camp & Christensen, 2008) – have a great deal of influence on violations. Consequently, the focus on individual-level risk factors is short-sighted and practitioners, researchers, and policymakers need to refocus to a more comprehensive view of the risk factors for recidivism among offenders with mental illness.

In a recent review, Epperson and colleagues (2014) offered a new framework for understanding criminal justice involvement among people with mental illness. This framework provides a more comprehensive and complex understanding of why rates of

criminal involvement are high among people with mental illness. This framework includes person-level factors (i.e., mental illness, criminogenic risk, addictions, and trauma), place-level factors (i.e., social disadvantage and environmental disadvantage), and the stress produced by the conditions that are created by person- and place-level factors. This framework seems a helpful starting point for understanding probation violations. A couple of elements that could be further specified in this model are organizational- and system-level factors. For instance, researchers could estimate the impact of organizational characteristics (e.g., staffing patterns, organizational capacity, leadership, caseload sizes) and characteristics associated with the external service environment (e.g., lack of services available in surrounding community, lack of transportation) on how officers respond to instances of non-compliance.

Designing implementation strategies by leveraging facilitators. Results from paper two suggest that implementation frameworks are helpful in understanding the challenges and facilitators associated with an intervention. In particular this study applied the domains and constructs of the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009) to the data collected regarding implementation challenges and facilitators. Although some results indicated that aspects of the intervention pertaining to inter-organizational relationships and availability of resources in the outer setting may be better described with other frameworks (e.g., Aarons, Hurlburt & Horwitz, 2011) CFIR was useful in identifying which domains (e.g., inner setting, outer setting) are most salient in implementing SMHP within probation settings.

Understanding what constructs and domains are salient to a particular implementation context (e.g., SMHP in probation agencies, rural vs urban counties) will help practitioners

and researchers develop strategies to address implementation barriers. In general, researchers can focus on leveraging facilitators to address the implementation challenges. For instance, SMHP officers are tasked with interfacing with community resource providers and communication can sometimes be a challenge. However, a facilitator identified in this study is the inter-organizational network that was fostered between SMHP officers and resource providers. Here, implementation facilitators could be leveraged in order to address the challenges. In other words, researchers and practitioners can develop strategies to build inter-organizational networks in order to enhance implementation of SMHP, particularly in regards to coordinating with mental health service providers. Once implementation strategies are identified, researchers and practitioner should work towards sufficiently specifying these strategies in accordance with the guidelines established by Proctor, Powell, & McMillen (2013) and the recommendations identified by Powell and colleagues (2015).

The need for RCTs examining criminal justice outcomes. Setting and completing mental health treatment goals for probationers with mental illness is a laudable achievement in itself. Improved mental health treatment engagement among SMHP participants may lead to greater participation in social activities, less loneliness, and less interference from emotional and mental health problems. However, there appear to be no RCTs of prototypical SMHP that examines criminal justice outcomes. Without this evidence, the research base regarding the impact of SMHP on criminal justice outcomes, namely probation violations, relies on quasi-experimental designs that cannot fully control for threats to internal validity.

Re-evaluating the model. In the absence of RCTs examining the impact of SMHP on probation violations, we can look to the available research evidence that indicates linkage to mental health services alone has not necessarily improved criminal justice outcomes (Bonta,

Blais & Wilson, 2014; Bonta, Law & Hanson, 1998; Epperson, Wolff, Morgan, Fisher, Frueh & Huening, 2014; Manchak et al., 2014; Skeem, Emke-Francis & Eno Loudon, 2006; Skeem, Manchak & Peterson, 2011). Given the growing body of research (Bonta, Blais & Wilson, 2014; Bonta, Law & Hanson, 1998) – with its own set of limitations – of the lack of causal relationship between mental illness and criminal behavior as well as the lack of evidence indicating the efficacy of treatments aimed to reduce criminal justice involvement (see Epperson et al., 2014 for a recent review of “first generation interventions”), the intervention targets of SMHP need to be critically examined and reevaluated. For instance, the prototypical model of SMHP was based on a survey of what was already being implemented in agencies with SMHP caseloads (Skeem, Emke-Francis & Eno Loudon, 2006). Although the prototypical model helps unify the practice and research around SMHP and allows for comparative evaluation across agencies, having a consistent model does not necessarily mean that the components are each grounded in a clear theoretical framework that can explain the purpose and targets for each of the five core components of SMHP. The field may be at a point when it is time to reexamine and reevaluate the theory of change behind each of the core components in order to better target criminal justice outcomes.

CONCLUSION

To address the needs of the large number of probationers with mental illness, specialty mental health probation has emerged as one option for probation agencies. This study contributes to the research on estimates of probationers with severe mental illness and the risk factors for probation violations. In addition, this study is the first to use a RCT to examine the impact of a prototypical SMHP pilot on mental health treatment outcomes and the first study to explore the challenges and facilitators of implementing SMHP in probation

agencies. Results from these studies illuminate the challenges of estimating the scope of mental illness among probationers and of implementing an inter-organizational intervention at the interface of the mental health and criminal justice systems. Despite these challenges, results indicate that SMHP seems to have a positive impact on mental health engagement outcomes. Future research should examine predictors of probation violations, specify implementation strategies, and focus on evaluating the impact of SMHP on probation violations using a randomized controlled trial.

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APPENDIX A: PAPER 1 TABLES

Table A1
Prevalence and Definitions of Mental Illness

Citation	Methods and sample	Definition	Prevalence
Ditton, 1999	Data collected from the 1995 Survey of Adults on probation; nationally representative sample	Self-report of current “mental or emotional condition” or an overnight stay in psychiatric treatment (p. 2)	16%
Lurigio, Cho, Swartz, Johnson, Graf & Pickup, 2003	Random sample of 627 adult probationers in one state	Use of standardized assessment tool, Mini International Neuropsychiatric Interview 2.2	Estimates by disorder <u>Current</u> Major depressive episode, 13.2 Manic episode, 3.0 Post-traumatic stress disorder, 3.2 Psychotic disorder, 11.2 Mood disorder with psychotic features, 9.4 <u>Lifetime</u> Major depressive episode recurrent, 6.7 Manic episode, 7.5 Hypomanic episode, 13.9 Psychotic disorder, 18.8 Antisocial personality disorder, 15.9
Crilly, Caine, Lamberti, Brown & Friedman, 2009	2001 National Household Survey on Drug abuse; adults between 18 and 64;	Self-report of past year symptoms of panic, depression, phobia, anxiety, PTSD, mania, or psychosis with at least mild severity and mild impairment on functioning (p. 542)	26.6% met definition criteria

Table A2
Probationer Demographics

	Comparison Across Mental Illness				Analysis
	Total (n=231,905) %(n)	No MI (n=198,031) %(n)	MI (n=20,374) %(n)	SMI (n=13,500) %(n)	
Age (M(SD))	37.46 (12.04)	37.61(12.04)	36.48 (12.00)	36.73 (11.87)	$F=109.23, p<.000 (\eta^2=.001)$ $X^2=802.89, df=10, p<.000,$ $V=.042$
Race					
White	48.37 (112,183)	49.47 (97,962)	43.14 (8,790)	40.23 (5,431)	$X^2=46.28, df=2, p<.000,$ $V=.014$
Black	44.91 (104,154)	43.76 (86,668)	50.60 (10,309)	53.16 (7,177)	
Hispanic	2.63 (6,103)	2.62 (5,186)	2.53 (515)	2.98 (402)	
Asian	0.35 (816)	0.34 (668)	0.46 (93)	0.41 (55)	
Native American	3.27 (7,585)	3.34 (6,624)	2.91 (593)	2.73 (368)	
Other	0.46 (1,064)	0.47 (923)	0.36 (74)	0.50 (67)	
Gender					
Male	73.93 (171,440)	74.12 (146,7874)	73.62 (15,001)	71.50 (13,500)	$X^2=515.83, df=2, p<.000,$ $V=.048$
Female	26.07 (60,465)	25.88 (51,244)	26.37 (5,373)	28.50 (3,848)	
Education					
HS diploma	47.75 (110,734)	48.59 (101,807)	45.37 (9,244)	39.01 (5,266)	

Table A3

Results: Prevalence of Mental Illness and Severe Mental Illness (n=231,905)

Indicator	% (n)	Kappa % agreement (Kappa)
Any mental illness		76.90 (0.17)
Officer impression inventory ¹	18.73 (43,442)	
Offender self report ²	14.61 (33,874)	
Severe mental illness ³	5.82 (13,500)	-

¹Indicated by positive scores on either of the two officer impression questions²Indicated by a score that is at least one standard deviation above the sample mean³Indicated by a score that is two standard deviations above the sample mean

Table A4

Scores on Criminogenic Risk Scales

Scale	Total (n=231,905) M(SD)	No mental illness ¹ (n=198,031) M(SD)	Mental illness ² (n=20,374) M(SD)	Severe mental illness ³ (n=13,500) M(SD)	Analysis
Substance abuse	2.71 (3.18)	2.53 (3.01)	3.43 (3.54)	4.41 (4.23)	F=2837.59, df=2,231902, p<.000 ($\eta^2=.024$)
Antisocial personality	1.65 (1.97)	1.49 (1.82)	2.22 (2.25)	3.14 (2.71)	F=5630.14, df=2,231902, p<.000 ($\eta^2=.046$)
Self-control	11.01 (2.85)	10.75 (2.72)	12.10 (2.94)	13.15 (3.19)	F=6463.30, df=2,231902, p<.000 ($\eta^2=.053$)
Dysfunctional family	9.51 (2.79)	9.36 (2.66)	10.13 (3.06)	10.79 (3.54)	F=2267.85, df=2,231902, p<.000 ($\eta^2=.019$)
Antisocial values	2.37 (2.73)	2.00 (2.38)	3.75 (3.07)	5.65 (3.85)	F=16054.71, df=2,231902, p<.000 ($\eta^2=.12$)

¹Scores of less than one standard deviation above the sample mean on the mental health scale

²Scores between one and two standard deviations above the sample mean on the mental health scale

³Scores above two standard deviations above the sample mean on the mental health scale

Table A5

Scores on Substance Abuse Scale, Regression Results with Huber-White Correction

	Model 1			Model 2		
	Coef.	S.E.	p-value	Coef.	S.E.	p-value
Intercept	2.657	0.018	0.000	2.429	0.018	0.000
Gender (male)	0.608	0.015	0.000	0.632	0.014	0.000
Race						
African American	-0.766	0.014	0.000	-0.827	0.013	0.000
Hispanic	-0.535	0.041	0.000	-0.569	0.041	0.000
Asian	-0.678	0.099	0.000	-0.753	0.097	0.000
Native American	-0.727	0.034	0.000	-0.722	0.034	0.000
Other	-1.020	0.081	0.000	-1.036	0.080	0.000
Age						
30-45	0.286	0.015	0.000	0.317	0.015	0.000
45+	0.324	0.017	0.000	0.345	0.017	0.000
HS Diploma	-0.422	0.013	0.000	-0.373	0.014	0.000
Mental illness						
Mental illness	-	-	-	0.962	0.025	0.000
Severe mental illness	-	-	-	1.950	0.037	0.000
R ²			0.027			0.053
F			762.80			1030.27
ΔR^2			-			0.026
ΔF			-			267.47

Table A6

Scores on Antisocial Personality Scale, Regression Results with Huber-White Correction

	Model 1			Model 2		
	Coef.	S.E.	p-value	Coef.	S.E.	p-value
Intercept	2.098	0.011	0.000	1.921	0.011	0.000
Gender (male)	0.416	0.008	0.000	0.435	0.008	0.000
Race						
African American	-0.054	0.008	0.000	-0.101	0.008	0.000
Hispanic	-0.221	0.026	0.000	-0.248	0.025	0.000
Asian	-0.307	0.064	0.000	-0.364	0.063	0.000
Native American	-0.695	0.021	0.000	-0.691	0.021	0.000
Other	-0.629	0.050	0.000	-0.642	0.049	0.000
Age						
30-45	-0.307	0.010	0.000	-0.283	0.009	0.000
45+	-0.681	0.001	0.000	-0.666	0.010	0.000
HS Diploma	-0.826	0.008	0.000	-0.787	0.008	0.000
Mental illness						
Mental illness	-	-	-	0.690	0.016	0.000
Severe mental illness	-	-	-	1.58	0.023	0.000
R ²			0.079			0.121
F			2202.62			2396.59
ΔR^2			-			0.042
ΔF			-			193.97

Table A7

Scores on Self-Control Scale, Regression Results with Huber-White Correction

	Model 1			Model 2		
	Coef.	S.E.	p-value	Coef.	S.E.	p-value
Intercept	11.808	0.016	0.000	11.513	0.016	0.000
Gender (male)	-0.218	0.013	0.000	-0.189	0.013	0.000
Race						
African American	-0.283	0.013	0.000	-0.360	0.011	0.000
Hispanic	-0.532	0.040	0.000	-0.574	0.39	0.000
Asian	-0.737	0.099	0.000	-0.834	0.094	0.000
Native American	-1.075	0.035	0.000	-1.068	0.034	0.000
Other	-0.658	0.083	0.000	-0.674	0.080	0.000
Age						
30-45	-0.328	0.014	0.000	-0.287	0.013	0.000
45+	-0.601	0.015	0.000	-0.573	0.150	0.000
HS Diploma	-0.342	0.012	0.000	-0.281	0.011	0.000
Mental illness						
Mental illness	-	-	-	1.333	0.021	0.000
Severe mental illness	-	-	-	2.386	0.028	0.000
R ²			0.018			0.070
F			458.47			1381.68
ΔR^2			-			0.052
ΔF			-			923.21

Table A8

Scores on Dysfunctional Family History Scale, Regression Results with Huber-White Correction

	Model 1			Model 2		
	Coef.	S.E.	p-value	Coef.	S.E.	p-value
Intercept	10.306	0.016	0.000	10.141	0.016	0.000
Gender (male)	-0.332	0.013	0.000	-0.316	0.011	0.000
Race						
African American	0.059	0.012	0.000	0.015	0.012	0.000
Hispanic	-0.141	0.040	0.000	-0.165	0.039	0.000
Asian	-0.645	0.091	0.000	-0.699	0.090	0.000
Native American	-0.490	0.038	0.000	-0.486	0.037	0.000
Other	-0.422	0.091	0.000	-0.432	0.090	0.000
Age						
30-45	-0.271	0.013	0.000	-0.248	0.013	0.000
45+	-0.615	0.015	0.000	-0.600	0.015	0.000
HS Diploma	-0.588	0.011	0.000	-0.553	0.011	0.000
Mental illness						
Mental illness	-	-	-	0.726	0.022	0.000
Severe mental illness	-	-	-	1.358	0.031	0.000
R ²			0.023			0.040
F			596.36			759.92
ΔR^2			-			0.017
ΔF			-			163.56

Table A9

Scores on Antisocial Values Scale, Regression Results with Huber-White Correction

	Model 1			Model 2		
	Coef.	S.E.	p-value	Coef.	S.E.	p-value
Intercept	2.649	0.015	0.000	2.236	0.016	0.000
Gender (male)	0.419	0.12	0.000	0.462	0.011	0.000
Race						
African American	0.198	0.012	0.000	0.089	0.011	0.000
Hispanic	0.123	0.038	0.001	0.061	0.036	0.085
Asian	0.309	0.098	0.002	0.174	0.089	0.050
Native American	-0.059	0.033	0.077	-0.049	0.031	0.114
Other	-0.077	0.081	0.342	-0.106	0.074	0.154
Age						
30-45	-0.578	0.014	0.000	-0.522	0.013	0.000
45+	-0.753	0.014	0.000	-0.716	0.014	0.000
HS Diploma	-0.529	0.011	0.000	-0.440	0.010	0.000
Mental illness						
Mental illness	-	-	-	1.692	0.022	0.000
Severe mental illness	-	-	-	3.582	0.033	0.000
R ²			0.032			0.15
F			826.27			2889.51
ΔR^2			-			0.12
ΔF			-			2063.25

Table A10

Demographic Characteristics of Subsample

	Comparison Across Mental Illness				Analysis
	Total (n=145,755) %(n)	No MI (n=122,574) %(n)	MI (n=13,527) %(n)	SMI (n=9,654) %(n)	
Age					$X^2=127.52$, $df=4$ $p<.000$, $V=.021$
15-29	36.72 (53,523)	36.15 (44,316)	40.36 (5,460)	38.81 (3,747)	
30-44	39.67 (57,828)	40.15 (49,218)	37.31 (5,047)	36.91 (3,563)	
45+	23.60 (34,404)	23.69 (29,040)	22.33 (3,020)	24.28 (2,344)	
Race					$X^2=347.15$, $df=10$, $p<.000$, $V=.034$
White	43.34 (63,177)	44.30 (54,303)	39.27 (5,312)	36.90 (3,562)	
Black	51.15 (74,559)	50.17 (61,499)	55.66 (7,529)	57.29 (5,531)	
Hispanic	2.44 (3,560)	2.41 (2,958)	2.35 (318)	2.94 (284)	
Asian	0.21 (310)	0.20 (245)	0.28 (38)	0.28 (27)	
Native American	2.51 (3,656)	2.56 (3,143)	2.17 (294)	2.27 (219)	
Other	0.34 (493)	0.35 (426)	0.27 (36)	0.32 (31)	
Gender					$X^2=28.40$, $df=2$, $p<.000$, $V=.014$
Male	74.42 (108,478)	74.62 (91,468)	74.24 (10,042)	72.18 (6,968)	
Female	25.58(37,277)	25.38 (31,106)	25.76 (3,485)	27.82 (2,686)	
Education					$X^2=292.51$, $df=2$, $p<.000$, $V=.045$
HS diploma	43.18 (62,939)	44.02 (53,995)	41.10 (5,559)	35.48 (3,425)	
Length of probation Sentence (M(SD))	1.83 (1.14)	1.88 (1.15)	1.64 (1.05)	1.53 (1.02)	$F=634.68$, $df=2,145754$, $p<.000$ ($\eta^2=.008$)

Table A11

Bivariate Relationship between Mental Illness and Probation Violations

Scale	Total (n=145,755) M(SD)	No mental illness ¹ (n=122,574) M(SD)	Mental illness ² (n=13,527) M(SD)	Severe mental illness ³ (n=9,654) M(SD)	Analysis
Number of violations	6.07 (6.15)	6.06 (6.21)	6.10 (5.82)	6.19 (5.91)	F=2.32, df=2,145752, p<.10 (η^2 =.000)
Number of technical violations	4.91 (4.84)	4.90 (4.89)	4.97 (4.59)	5.03 (4.66)	F=4.15 df=2,145752, p<.05 (η^2 =.000)
Number of new violations	0.76 (1.68)	0.77 (1.70)	0.71 (1.57)	0.72 (1.58)	F=11.46, df=2,145752, p<.000 (η^2 =.000)

¹Scores of less than one standard deviation above the sample mean on the mental health scale²Scores between one and two standard deviations above the sample mean on the mental health scale³Scores above two standard deviations above the sample mean on the mental health scale

Table A12

Correlation between Criminogenic Risk and Probation Violations

Scale	Substance abuse	Antisocial personality	Self-control	Dysfunctional family	Antisocial values
Number of violations	0.104***	0.103***	0.053***	0.042***	0.054***
Number of technical violations	0.095***	0.092***	0.050***	0.040***	0.050***
Number of new violations	0.058***	0.062***	0.027***	0.017***	0.027***

*** p<.000

Table A13

Predictors of Probation Violations

	Model 1: demographic			Model 2: MI only			Model 3: full model		
	Coef.	Robust S.E.	p-value	Coef.	Robust S.E.	p-value	Coef.	Robust S.E.	p-value
Intercept	1.45	0.007	0.000	1.420	0.008	0.000	1.17	0.016	0.000
Gender (male)	0.092	0.006	0.000	0.094	0.006	0.000	0.063	0.006	0.000
Race									
African American	-0.086	0.005	0.000	-0.093	0.005	0.000	-0.052	0.005	0.000
Hispanic	-0.164	0.021	0.000	-0.170	0.021	0.000	-0.146	0.020	0.000
Asian	-0.233	0.057	0.000	-0.239	0.057	0.000	-0.199	0.055	0.000
Native American	-0.303	0.017	0.000	-0.304	0.017	0.000	-0.263	0.016	0.000
Other	-0.290	0.044	0.000	-0.296	0.043	0.000	-0.234	0.043	0.000
Age									
30-45	-0.156	0.006	0.000	-0.204	0.006	0.000	-0.207	0.006	0.000
45+	-0.381	0.007	0.000	-0.425	0.007	0.000	-0.407	0.007	0.000
HS Diploma	-0.145	0.005	0.000	-0.186	0.005	0.000	-0.154	0.005	0.000
Mental illness									
Mental illness	-	-	-	0.132	0.009	0.000	0.049	0.009	0.000
Severe mental illness	-	-	-	0.210	0.010	0.000	0.037	0.011	0.001
Substance abuse	-	-	-	-	-	-	0.031	0.001	0.000
Antisocial personality	-	-	-	-	-	-	0.014	0.001	0.000
Self-control	-	-	-	-	-	-	0.008	0.001	0.000
Dysfunctional family history	-	-	-	-	-	-	-0.001	0.001	0.369

Antisocial	-	-	-	-	-	-	0.016	0.001	0.000
values									
R ²			0.032			0.035			0.051
Wald			5876.02			6588.17			9685.16
Δ R ²			-			0.003			.016
Δ F			-			712.15			3096.99

Table A14

Predictors of Technical Violations

	Model 1: demographic			Model 2: MI only			Model 3: full model		
	Coef.	Robust S.E.	p-value	Coef.	Robust S.E.	p-value	Coef.	Robust S.E.	p-value
Intercept	1.236	0.007	0.000	1.210	0.007	0.000	0.978	0.016	0.000
Gender (male)	0.056	0.006	0.000	0.057	0.006	0.000	0.030	0.006	0.000
Race									
African	-0.050	0.005	0.000	-0.058	0.005	0.000	-0.019	0.005	0.000
American									
Hispanic	-0.163	0.020	0.000	-0.170	0.020	0.000	-0.147	0.020	0.000
Asian	-0.230	0.055	0.000	-0.237	0.054	0.000	-0.200	0.053	0.000
Native	-0.310	0.017	0.000	-0.311	0.017	0.000	-0.273	0.017	0.000
American									
Other	-0.280	0.044	0.000	-0.284	0.043	0.000	-0.232	0.043	0.000
Age									
30-45	-0.221	0.006	0.000	-0.217	0.006	0.000	-0.211	0.006	0.000
45+	-0.402	0.007	0.000	-0.400	0.007	0.000	-0.386	0.007	0.000
HS Diploma	-0.181	0.005	0.000	-0.174	0.005	0.000	-0.146	0.005	0.000
Mental illness									
Mental	-	-	-	0.138	0.009	0.000	0.060	0.009	0.000
illness									
Severe	-	-	-	0.210	0.010	0.000	0.048	0.011	.0000
mental									
illness									
Substance	-	-	-	-	-	-	0.029	0.001	0.000
abuse									
Antisocial	-	-	-	-	-	-	0.011	0.001	0.000
personality									
Self-control	-	-	-	-	-	-	0.008	0.001	0.000
Dysfunctional	-	-	-	-	-	-	-0.001	0.001	0.346
family history									

Antisocial	-	-	-	-	-	-	0.016	0.001	0.000
values									
Pseudo R ²			0.025			0.027			0.042
Wald			5202.12			5933.10			8679.39
ΔR^2			-			0.002			0.015
ΔF			-			730.98			2746.29

Table A15

Predictors of Violations Due to New Crime

	Model 1: demographic			Model 2: MI only			Model 3: full model		
	Coef.	Robust S.E.	p-value	Coef.	Robust S.E.	p-value	Coef.	Robust S.E.	p-value
Intercept	-0.692	0.016	0.000	-0.706	0.016	0.000	-0.981	0.033	0.000
Gender (male)	0.289	0.013	0.000	0.291	0.013	0.000	0.253	0.014	0.000
Race									
African	-0.260	0.011	0.000	-0.264	0.011	0.000	-0.218	0.011	0.000
American									
Hispanic	-0.263	0.044	0.000	-0.266	0.044	0.000	-0.239	0.044	0.000
Asian	-0.260	0.122	0.030	-0.264	0.122	0.028	-0.218	0.120	0.069
Native	-0.372	0.032	0.000	-0.372	0.032	0.000	-0.321	0.032	0.000
American									
Other	-0.430	0.110	0.000	-0.432	0.110	0.000	-0.364	0.108	0.001
Age									
30-45	-0.236	0.012	0.000	-0.234	0.012	0.000	-0.222	0.012	0.000
45+	-0.534	0.015	0.000	-0.533	0.015	0.000	-0.503	0.015	0.000
HS Diploma	-0.133	0.011	0.000	-0.129	0.011	0.000	-0.089	0.012	0.000
Mental illness									
Mental	-	-	-	0.057	0.019	0.003	-0.038	0.020	0.053
illness									
Severe	-	-	-	0.134	0.023	0.000	-0.061	0.024	.0012
mental									
illness									
Substance	-	-	-	-	-	-	0.031	0.002	0.000
abuse									
Antisocial	-	-	-	-	-	-	0.027	0.003	0.000
personality									
Self-control	-	-	-	-	-	-	0.010	0.002	0.000
Dysfunctional	-	-	-	-	-	-	-0.003	0.002	0.160
family history									

Antisocial	-	-	-	-	-	-	0.016	0.002	0.000
values									
Pseudo R ²			0.020			0.021			0.028
Wald			2466.92			2519.34			3677.11
ΔR^2			-			0.001			.007
ΔF			-			52.42			1157.77

APPENDIX B: PAPER 2 TABLES AND FIGURES

Table B1

CFIR Definitions Compared with Principles from Gendreau and Colleagues

Damschroder et al. (2009)		Gendreau, Goggin & Smith (1999)	
Category	CFIR definition	Category	Damschroder et al. (2009)
Innovation characteristics	Characteristics associated with the core components (“the essential and indispensable elements of an intervention”) or the adaptable periphery (“adaptable elements, structures, and systems related to the intervention and organization in to which it is being implemented”; p. 3) . Examples of constructs: adaptability of intervention, intervention quality, cost	Program factors	These principles are related to the specific intervention (called program) such as: the need for the intervention (referred to as program) is demonstrated, there is scientific evidence to support the intervention, stakeholders agree that the intervention is needed and is in line with agency’s values and practice; the intervention is cost-effective, there is a pilot phase of the program.
Outer Setting	“...the outer setting includes the economic, political, and social context within which an organization resides...” (p. 5). Examples of constructs: patient needs and resources, cosmopolitanism		
Inner Setting	“...the inner setting includes features of structural, political, and cultural contexts through which the implementation process will proceed.” (p. 5). Examples of constructs: networks and communication, structural	Organizational factors	Refers to host agency for intervention and addresses: history of adoption new interventions, efficiency of agency’s implementation, staff turnover, manner in which issues are resolved, organization of bureaucratic structure, etc.

	characteristics, organizational culture, implementation climate		
Characteristics of Individuals	These are individuals who are involved in the implementation of the innovation who are “carriers of cultural, organizational, professional, and individual mindsets, norms, interests, and affiliations.” (p. 5). Examples of constructs: knowledge and beliefs about the intervention, self-efficacy, individual stage of change	Staff factors	Staff refers to people who deliver the intervention and those who supervise them. Characteristics include: staff having access to change agent, staff understanding the purpose of the interventions, staff has sense of self-efficacy
Implementation Process	<p>“...an active change process aimed to achieve individual and organizational level use of the intervention as designed.” (p. 5)</p> <p>Examples of constructs: planning, engaging, executing, reflecting and evaluating</p>	Change agent	Refers to the person (internal or external) who initiates/implements the intervention and describes the characteristics necessary of the change agent: must have knowledge of agency and staff, must have support of leaders and line staff, must have credibility, must be persuasive and demonstrate skills in motivational interviewing, problem solving and advocacy

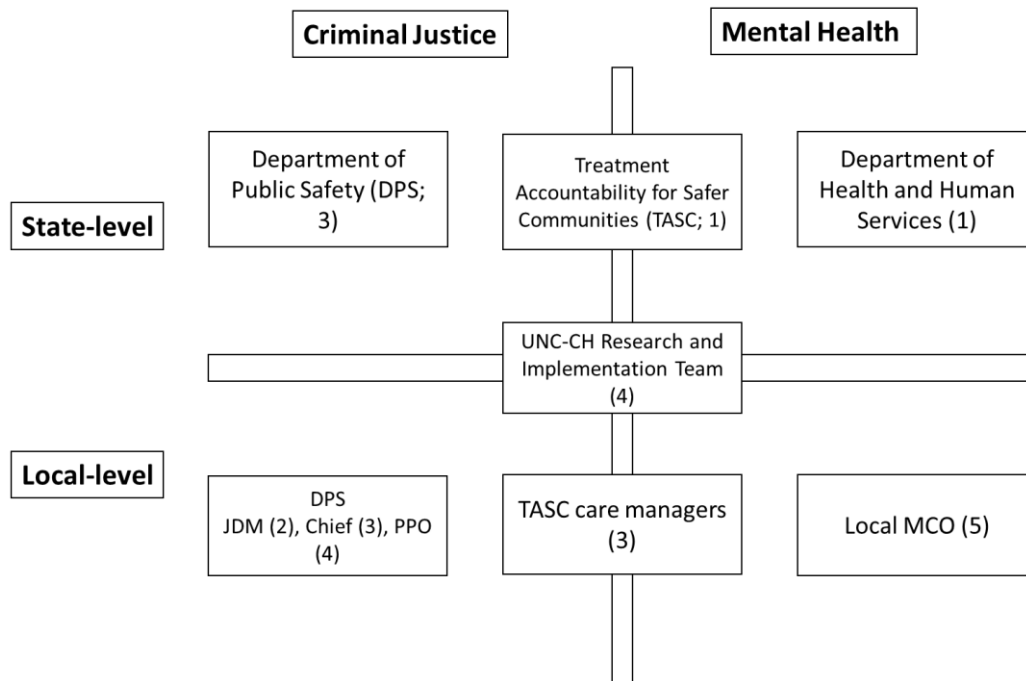


Figure B1. Diagram of the Local and State Inter-organizational Structure of SMHP

Table B2

Open Coding Results for First Cycle of Coding

Category	Description
Population description	Description of the challenges probationers with mental illness face in the community.
Impetus	Description of the reasons that the SMHP pilot was initiated; descriptions could reflect specific instances or general need for intervention/innovation
Design or activities	Description of tasks or components related to the pilot that are part of the SMHP model, either initially intended (e.g., reduced caseload size, ongoing supervision) or developed during the project (e.g., case staffing) that are meant as a long term component or task (i.e., beyond initial implementation).
Barriers	People, activities, resources or other factors that hindered the implementation of the intervention. Items coded as actual or anticipated barriers.
Facilitators	People, activities, resources or other factors that helped the implementation of the intervention. Items coded as actual or anticipated facilitators.
Outcomes	Achievements that are perceived to have resulted from the pilot. Items coded as actual or anticipated.
Strategies	Activities (intended or unintended) that stakeholders (e.g., implementation team members, executive committee members, local partners) used to implement different aspects of the intervention (e.g., outreach to officers from local community agencies, building interagency partnerships).
Recommendations	Any suggestions about activities of the pilot that should be maintained or any additional activities that can strengthen the pilot (this can include implementation-related activities).

Table B3

CFIR Definitions and Descriptions Adapted to the Local Context

Category	CFIR definition	Description
Innovation characteristics	Characteristics associated with the core components (“the essential and indispensable elements of an intervention”) or the adaptable periphery (“adaptable elements, structures, and systems related to the intervention and organization in to which it is being implemented”; Damschroder et al., 2009, p. 3) .	Characteristics associated with the core components of Specialty Mental Health Probation including: reduced caseload size, problem-solving orientation, ongoing supervision, ongoing training, interfacing with external organizations that could impact the successful implementation of SMHP. In addition, innovation characteristics refer to the characteristics associated with the ‘adaptable periphery’ (i.e., attributes that can be modified based on setting of the intervention) such as case staffing, service provider contacts, and other consultation with the managed care organization for mental health services. This does not include activities associated with selection and assignment or other activities necessary for carrying out the trial/study (for this coding, see Process).
Outer Setting	“...the outer setting includes the economic, political, and social context within which an organization resides...” (Damschroder et al., 2009, p. 5)	Characteristics associated with the environmental context (e.g., economic, political, structural context) of the counties in which SMHP is implemented and the characteristics of the partnering organizations that may impact the successful implementation of SMHP. Outer setting organizations include: mental health agencies, the courts, LMEs/MCOs, NC DHHS, TASC, and other organizations or agencies.
Inner Setting	“...the inner setting includes features of structural, political, and cultural contexts through which the implementation process will	Characteristics associated with the local DPS unit (e.g., organizational culture, structural context) and the larger DPS agency in which SMHP is located that impact the successful implementation of SMHP.

Characteristics of Individuals	<p>proceed.” (Damschroder et al., 2009, p. 5)</p> <p>These are individuals who are involved in the implementation of the innovation who are “carriers of cultural, organizational, professional, and individual mindsets, norms, interests, and affiliations.” (Damschroder et al., 2009, p. 5)</p>	<p>Characteristics of individuals involved in SMHP that could impact successful implementation. Individuals include the officers who are delivering the intervention as well as internal and external partners associated with the pilot. Individuals on SMHP are not included in this category.</p>
Implementation Process	<p>“...an active change process aimed to achieve individual and organizational level use of the intervention as designed.”</p>	<p>Characteristics associated with strategies and tactics aimed at facilitating the implementation of SMHP but are not necessarily planned to be a feature of the intervention itself.</p>

Semi-structured interview guide

1. How long have you worked for (DPS, DHHS, TASC, MCO, other)?
2. What other positions, if any, have you held at (DPS, DHHS, TASC, MCO, other)?
3. Have you worked at any of the other agencies involved in the pilot (i.e., DPS, DHHS, TASC)?
4. Thinking back to before the Governor's Crime Commission grant was funded, based on your perspective, what was the impetus for implementing SMHP and statewide mental health training?
5. During the planning stage (i.e., developing the grant proposal, applying for the grant, developing the plan for implementation), what were the challenges and barriers that the group faced?
6. What were some things (e.g., conditions, people) that may have helped the planning process?
7. During implementation (i.e., developing training modules, hosting training for officers, randomization and probationer assignment), what were/are the challenges and barriers?
8. What were some things (e.g., conditions, people) that may have helped the implementation process?
9. In your opinion, what would a successful SMHP pilot look like?
 - How will we know if this works?
 - What would be different if SMHP worked?
10. What are the necessary elements or conditions for the success of SMHP?
11. What are potential or likely barriers to the success of SMHP?
12. In your opinion, what would a successful statewide mental health training program look like?
 - How will we know if it works?
 - What would be different if the statewide mental health training program worked?
13. What are the necessary elements or conditions for the success of the statewide mental health training program?
14. What are potential or likely barriers to the success of the statewide mental health training program?
15. What are your expected long term outcomes in terms of interagency partnerships with (DPS, DHHS, TASC, MCO/LMEs, etc.)?
16. How does SMHP and the statewide mental health training program fit within existing agency operating principles or structures, such as OMM and TASC?
17. How might SMHP and statewide mental health training program help to reinforce these efforts?

APPENDIX C: PAPER 3 TABLES

Table C1

Probationer Characteristics of SMHP and Standard Caseloads

	Total (n=99) %(n)	Standard probation (n=55) %(n)	SMHP (n=44) %(n)	Analysis
Age (M(SD))	35.59 (12.40)	35.98 (12.82)	35.09 (11.98)	$t(97)=0.3537$, $p=0.724$, $D=-0.33$
Race				$\chi^2=1.83$, $df=3$, $p=0.608$, $V=.14$
White/Caucasian	39.80 (39)	38.89 (21)	40.91 (18)	
Black/African American	42.86 (42)	46.30 (25)	38.64 (17)	
American Indian/ Alaskan Native	4.08 (4)	1.85 (1)	6.82 (3)	
Other	13.27 (13)	12.96 (7)	13.64 (6)	
Gender				$\chi^2=0.010$, $df=1$, $p=0.920$ OR=1.04, 95% CI [0.43, 2.50]
Male	55.10 (54)	55.56 (30)	54.55 (24)	
Female	44.90 (44)	44.44 (24)	45.45 (20)	
Education				$\chi^2=8.22$, $df=7$, $p=0.223$, $V=.29$
Elementary school	1.02 (1)	1.82 (1)	-	
Middle school	33.67 (33)	32.73 (18)	34.88 (15)	
High school /GED	37.76 (37)	30.91 (17)	46.51 (20)	
Some college	14.29 (14)	20.00 (11)	6.98 (3)	
Associates degree	7.14 (7)	5.45 (3)	9.30 (4)	
Bachelors degree	3.06 (3)	3.64 (2)	2.33 (1)	

Graduate degree	3.06 (3)	5.45 (3)	-	
Employment				$\chi^2=3.54$, df=4, p=0.472, =.190
Unemployed	53.06 (52)	57.41 (31)	47.73 (21)	
Part time	15.31 (15)	11.11 (6)	20.45 (9)	
Full time	16.33 (16)	18.52 (10)	13.64 (6)	
Disabled/unable	14.29 (14)	12.96 (7)	15.91 (7)	
Student	1.02 (1)	-	2.27 (1)	
Health insurance	48.98 (48)	46.30 (25)	52.27 (23)	$\chi^2=0.35$, df=1, p=0.556, OR=1.27, 95% CI [0.53, 3.04]
Had previous probation sentence	70.41 (69)	70.37 (38)	70.45 (31)	$\chi^2=0.000$, df=1, p=0.993, OR=1.00, 95% CI [0.35, 2.65]
Length of sentence (M(SD))	25.12 (13.24)	24.15 (11.44)	26.41 (15.40)	$t(89)=-0.803$ p=0.42
Mental Health characteristics				
Enrolled in mental health services at baseline	56.84 (54)	62.26 (33)	50.00 (21)	$\chi^2=1.44$, df=1, p=0.231, OR=0.606, 95% CI [0.25, 1.49]
Diagnosis				$\chi^2=0.339$, df=3, p=0.953, V=0.059
Depression	24.24 (24)	23.64 (13)	25.00 (11)	
Bipolar	62.63 (62)	61.82 (34)	63.64 (28)	
PTSD	6.06 (6)	7.27 (4)	4.55 (2)	
Psychosis	7.07 (7)	7.27 (4)	6.82 (3)	
Symptom Check List (10-R)	19.89 (9.12)	19.22 (9.42)	20.70 (8.79)	$t(87)=0.757$, p=0.451, D=-0.16
Officer offender relationship				
Total score	172.00 (38.04)	166.65 (39.09)	78.47 (36.11)	$t(93)=-1.517$, p=0.133, D=-0.31
Trust	27.01 (7.92)	25.81 (8.37)	28.47 (7.18)	$t(93)=-1.642$, p=0.104, D=-0.74

Caring/ Fairness	113.87 (16.45)	110.81 (27.03)	117.58 (25.56)	$t(93)=-1.246, p=0.212, D=-0.26$
Toughness	31.12 (6.50)	30.04 (7.10)	32.42 (5.50)	$t(93)=-1.797, p=0.076, D=-0.37$

Table C2

Action Steps Initiated and Completed

Scale	Total (n=91)	Standard probation (n=49)	SMHP (n=42)	Analysis
Action Steps Initiated				
Substance abuse % (n)	32.97 (30)	26.63 (13)	40.48 (17)	$\chi^2 = 1.99, df = 1, p = 0.158$ $OR = 1.88, 95\% CI [0.71, 5.02]$
Mean (SD) (n=30)	1.57 (0.86)	1.46 (0.66)	1.65 (0.10)	$t(25) = -0.58, p = 0.57, D = -0.32$
Mental health				
% (n)	32.97 (30)	14.29 (7)	54.76 (23)	$\chi^2 = 16.77, df = 1, p = 0.000$ $OR = 7.26, 95\% CI [2.43, 23.16]$
Mean (SD) (n=30)	1.26 (0.54)	1.14 (0.38)	1.26 (0.54)	$t(89) = -0.54, p = 0.60, D = -0.88$
Action Steps Completed				
Substance abuse % (n)	80.00 (24)	76.92 (10)	82.35 (14)	$\chi^2 = 0.136, df = 1, p = 0.713$ $OR = 1.40, 95\% CI [0.15, 12.63]$
Mean (SD) (n=24)	1.21 (0.41)	1.30 (0.48)	1.14 (0.36)	$t(22) = 0.912, p = 0.37, D = 0.38$
Mental health				
% (n)	90.00 (27)	71.43 (5)	95.65 (22)	$\chi^2 = 3.50, df = 1, p = 0.061$ $OR = 8.80, 95\% CI [1.35, 541.84]$
Mean (SD) (n=27)	1.37 (0.69)	1.40 (0.55)	1.37 (0.73)	$t(25) = 0.105, p = 0.92, D = 0.05$